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Monday, 31 May 2010
08:30 - 10:30
Abstract Session 1 - Brompton Session

O-001 SINGLE LUNG TRANSPLANTATION: DOES SIDE MATTER?

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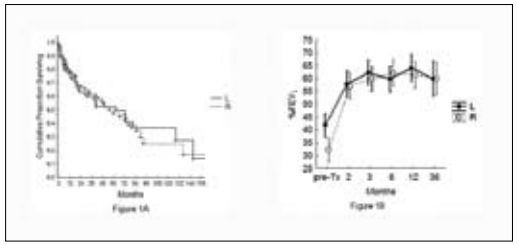
Background/Objectives: Single-lung transplantation (SLTx) is valid treatment option for patients with non-suppurative end-stage pulmonary disorders. This strategy helps to overcome current organ shortage. The side is chosen based on preoperative perfusion scan and laterality of organ offer. It remains unknown whether outcome differs between between left (L) vs right (R) SLTx.
Materials & Methods: Between July 1991-July 2009, 144 first SLTx (M/F=88/56; Age=56.7±7.8 years) were performed from 142 deceased donors (M/F=84/58; Age=38.4±14.2 years; 2 twin recipients) with a median follow-up of 2.6 [0-16.8] years. The indications for SLTx were emphysema (54.8%), pulmonary fibrosis (36.1%), cystic fibrosis (1.5%), primary pulmonary hypertension (0.7%) and others (7.0%). L-SLTx (n=72) and R-SLTx (n=72) lung recipients were compared for donor and recipient demographics and early and late outcome.
Results: Donors of L-SLTx were younger (36 ± 14 vs 41±14 years; p<0.01). More emphysema patients had R-SLTx (49 vs 30) and more fibrosis patients had L-SLTx (35 vs 17); p<0.01. The early outcome (use of bypass, time to extubation, ICU and hospital stay) did not differ. Overall survival at 1, 3 and 5 years was 78.6%, 65.3% and 54.2%, respectively with a median survival of 31.5 [0-202] months with no differences between groups [Figure1A]. Survival after L-SLTx was better (p<0.05) in patients with <50% perfusion to the ipsilateral native lung on preop scan. This survival difference was not seen for R-SLTx. Improvement in FEV_1 (p< 0.01) was comparable between both groups [Figure1B]. Late complications in the native lung (18 vs 17) or in allograft (39 vs 37) as well as 3-year freedom from BOS (75% vs 80%) did not differ between L-SLTx versus R-SLTx, respectively. There were no differences in cause of death (p=0.8).
Conclusions/Uploads: The side for SLTx differed between fibrotic versus emphysema recipients. Transplant side does not seem to affect recipient survival nor spirometric improvement after SLTx.
Disclosure: D.E. Van Raemdonck: Dirk Van Raemdonck is supported by grant G.3C04.99 from FWO-Flanders. All other authors have declared no conflicts of interest.



O-002 TASK-INDEPENDENT METRICS TO ASSESS THE DATA QUALITY OF MEDICAL REGISTRIES USING THE ESTS DATABASE

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Background/Objectives: The quality of data collected into a database is of paramount importance in every analysis. No standardized methods are available to quantify the quality of data in medical registries. Expanding the work done in other fields, we aimed at developing a methodological approach to measure the quality of a thoracic surgical database, by using the ESTS Database.
Materials & Methods: The anonymized data collected in the ESTS database from 2007 to 2009 were tested using the data quality metrics reported and defined in Table 1. Particularly the believability value is obtained as a result of a min-max operation based on the evaluation of completeness, correctness and consistency. The completeness measures the number of missing values in each checked column of the database and it is calculated as number of variables registered/number of variables expected. The correctness reflects the number of data units in error referring to a set of clearly defined criteria (number of correct data/number of all data counted) and the consistency is calculated verifying the number of data in conflict in the same recorded patient (number of consistent checks/ total number of checks). The threshold selected to indicate good quality was 0.8.
Results: A total of 49363 values were reviewed to obtain the quality indicators. The results of the data quality for the ESTS database measurement are reported in Table 1. All the metrics tested were greater than 0.8. The believability score of data in the ESTS database was 0.85.
Conclusions/Uploads: We were able to apply task-independent metrics to measure the quality of the ESTS database. This study may represent a template to be applied in the medical/surgical field to test the quality of data in clinical registries for scientific, managerial and credentialing purposes.
Disclosure: A. Brunelli: The Author has the following conflict of interest:
-former Advisory Board Millicore
-Advisory board Medela Healthcare
D.E. Van Raemdonck: Dirk Van Raemdonck is supported by grant G.3C04.99 from FWO-Flanders.
All other authors have declared no conflicts of interest.

Metric	Definition	Value
COMPLETENESS	the extent to which data is not missing and is of sufficient breadth and depth for the task at hand	0.85
CORRECTNESS - FREE OF ERROR	the extent to which data is correct and reliable	0.99
CONSISTENCY	the extent to which data is correspondent and coherent each other(cross-record consistency)	0.91
BELIEVABILITY	the extent to which data is regarded as true and credible 0.85	0.85

Table 1. Definition and values of the data quality metrics tested

O-003 THYMOMA: INTER-RELATIONSHIPS AMONG WHO HISTOLOGY, MASAOKA STAGING AND MYASTHENIA GRAVIS AND THEIR INDEPENDENT PROGNOSTIC SIGNIFICANCE. A SINGLE-CENTRE EXPERIENCE

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Background/Objectives: In patients with thymoma, the interrelationship among WHO histology, Masaoka stage and Myasthenia Gravis (MG) remains unclear. A retrospective review of our operated patients with thymoma was undertaken to investigate correlations among these three variables.
Materials & Methods: From 1/1990 to 10/2008 258 patients received resection of thymoma. MG was present in 119 cases (46%). Histology according to WHO classification was: 26 A (10%), 72 AB (28%), 65 B1 (25%), 68 B2 (26%), 24 B3 (9%), and 3 C types (1%). Masaoka staging was: Stage I, 54 cases (21%), Stage II, 87 (34%), Stage III 78 (30%), Stage IVA 39 (15%). Ordinal and logistic regressions were undertaken among WHO histology (A through B3 and A-type vs. B-type), Masaoka staging (I through IVa and capsulated vs, invasive), MG (yes/no) considering each variable at a time as the dependent variable and the other two as the independent variables. Univariate and multivariate (Cox regression model) survival analysis were also performed using the same covariates.
Results: B-type thymomas were associated with an increased risk of MG (OR 2.48; 95%CI 1.44-4.26, p=0.001) and invasive behaviour (OR 2.00; 95%CI 1.06-3.77, p=0.03); invasive thymomas were associated with non-MG status (OR 0.52; 95%CI 0.27-0.98, p=0.05); MG was associated with early Masaoka stages and B-type thymomas. Multivariate survival analysis showed that among WHO histology, Masaoka stage and MG, only Masaoka stage was an independent prognostic factor (HR 1.94, 95%CI 1.34-1.81, p=0.0004).
Conclusions/Uploads: In thymomas, WHO histology, Masaoka staging and MG status are interrelated. The presence of MG is associated with early Masaoka stage and B-type thymomas. A-type thymomas are associated with non-MG, early Masaoka stage and increased survival. B-type thymomas are associated with MG, high Masaoka stage and decreased survival. Among the 3 factors, only Masaoka stage resulted independently related to survival.
Disclosure: All authors have declared no conflicts of interest.

O-004 VALUE OF THE AVERAGE BASAL DAILY WALKED DISTANCE MEASURED USING A PEDOMETER TO PREDICT VO2MAX IN PATIENTS UNDERGOING LUNG RESECTION

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Background/Objectives: Currently, maximum oxygen consumption (VO_{2max}) is considered the most accurate test for the preoperative risk assessment in patients scheduled for pulmonary resection. Due to its high technology requirements and costs, VO_{2max} is performed less frequently than desired. The objective of this investigation is to determine if the measurement of the basal daily ambulatory activity of the patients, with a pedometer, can be used to predict VO_{2max} values.
Materials & Methods: Prospective study on 26 NSCLC patients referred for scheduled lobectomy or pneumonectomy. Daily basal preoperative activity of the patients was measured 3 weeks before surgery by means of an OMROM HJ-72OIT-E2 pedometer. The day before surgery, VO_{2max} (dependent variable) was calculated using a Master-Screen CPX of Jaeger-Vyasis-Healthcare module. The following independent variables were studied: age, sex, preoperative FEV1% and DLCO%, mean number of steps per day (aerobic and non-aerobic), mean daily time of aerobic activity (in minutes) and mean daily walked distance (in Km). A linear regression model with bootstrap robust estimation of the stdandard error of the coefficient was adjusted and the estimated values of VO_{2max} were kept as a new variable for comparison. To avoid collinearity problems, only one of the pedometer records entered the regression model.
Results: Data of the series: Age 62.6±11; FEV1%:89.5±21; DLCO%: 84±21. After collinearity analysis, mean daily walked distance was chosen as the most representative data. In the regression model, DLCO (p=0.000) and distance (p=0.007) were highly correlated to the dependent variable. The adjusted R-squared of the lineal model was= 0.925.(Figure 1).
Conclusions/Uploads: Figure 1: These preliminary data show that a combination of the measured daily ambulatory activity using a pedometer, especially the mean daily walked distance in Km, and the DLCO% of the patient could predict the VO_{2max} value. Larger data series are needed for conclusive results.
Disclosure: All authors have declared no conflicts of interest.

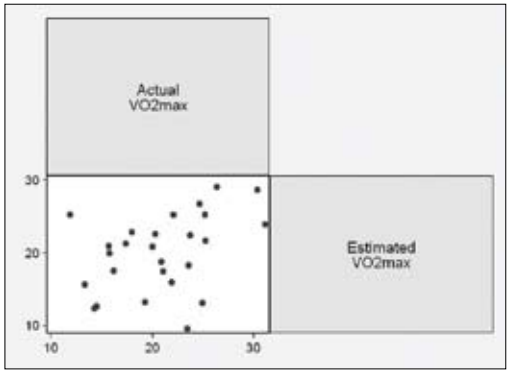

Figure 1.
Actual VO2 max versus
Estimated Vo2max

O-005 ALTERNATIVE PARATRACHEAL LYMPH NODE DISSECTION IN LEFT SIDED HILAR LUNG CANCER PATIENTS. COMPARING THE NUMBER OF LYMPH NODES WITH RIGHT SIDED MEDIASTINAL DISSECTIONS

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Background/Objectives: Removing or sampling lymph nodes from bilateral paratracheal area through a left thoracotomy is not a standardized procedure in patients with lung cancer. The aim of this study is to evaluate the feasibility of the technique and compare the number of lymph nodes resected in left sided dissection with the number of lymph nodes recorded in pathological reports in right sided mediastinal dissection employed in routine clinical practice.
Materials & Methods: Fifty-one patients with left sided hilar primary lung cancer underwent left thoracotomy and lymphadenectomy from 2R, 4R, 2L, 4L stations. The number of nodes dissected in these patients were compared to the number of nodes dissected in forty-two right sided hilar lung cancer patients operated within the same period.
Results: Mean number of resected nodes in superior mediastinum was 8.6 (2-18 nodes); from 4R, 4L, 2L, 2R were 3.3, 2.5, 0.5, 2.1 respectively. Six patients (11.7 %) were diagnosed to have occult N2 and 2 (3.9 %) of these patients also had N3 disease concomitantly. Number of dissected nodes on the ipsilateral station 2 for right side vs. left side was 1.6 vs. 0.5 (p:0.003), ipsilateral station 4 for right sided vs. left sided was 3.3 vs 2.5 (p:0.3). Contralateral station 2 for right sided vs. for left sided was 0.2 vs 2.1 (p:0.000). Contralateral 4 for right sided vs. left sided was 1.0 vs 3.3 (p:0.008) .
Conclusions/Uploads: Lymphadenectomy of the paratracheal area from left thoracotomy is technically feasible. Although the number of nodes dissected in left ipsilateral dissection shows a trend toward being less than the number of nodes dissected in right ipsilateral dissection, we demonstrated higher number of node dissection in contralateral paratracheal nodes via left thoracotomy.
Disclosure: All authors have declared no conflicts of interest.

O-006 EARLY OUTCOMES OF SURGERY FOR OESOPHAGEAL CANCER IN A THORACIC REGIONAL UNIT. CAN WE MAINTAIN TRAINING WITHOUT COMPROMISING RESULTS?

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Background/Objectives: Meaningful exposure to Oesophageal Surgery during General Thoracic Surgical training is restricted to few centres. Our Regional Tertiary Unit remains a rare "large-volume oesophagectomy" centre. We aimed to determine the proportion of patients operated by trainees and their perioperative outcomes.
Materials & Methods: Over 5 years (2004-2009), 323 patients [229 male and 94 female, median age of 69 (range 40 to 92) years] underwent oesophagectomy for carcinoma in our Thoracic Surgical Unit. Data was complete and obtained from a prospective departamental database. The preoperative characteristics, operative data and postoperative results were compared between the 120 patients (37%) operated by a Trainee (Group T) and the remainder 203 patients operated by a Consultant (Group C).
Results: There were no differences in terms of age, gender, body mass index, comorbidities, tumour location, stage, surgical approach, pre-operative spirometry or use of neoadjuvant Chemotherapy between the two groups. Postoperative mortality (4.2% vs 7.9%), incidence of complications and hospital stay (median of 13 vs 14 days) were also similar.
Conclusions/Uploads: Although our audit suffers from a bias on patient selection as it is not a prospective randomized study, we can demonstrate a good provision of Training in Oesophageal Surgery without any compromise in outcomes or use of resources.
Disclosure: All authors have declared no conflicts of interest.

	Group T (n=120)	Group C (n=203)	p
Age (median, range)	69 (40-86) years	70 (41-92) years	0.7
Over 75 years	27.5%	28.6%	0.7
T1-2 / T3-4	29% / 71%	32% / 68%	0.9
N0 / N1	32% / 64%	45% / 53%	0.4
Mortality	4.2%	7.9%	0.2
Respiratory Complications	24%	30%	0.2
Chylothorax	0.8%	3%	0.3
Anastomotic leak	4.2%	6%	0.6

Monday, 31 May 2010
11:00 - 11:30
Abstract Session - Featured Abstract

O-007 PERFORMANCE INDICATORS FOR LUNG CANCER SURGERY IN THE NETHERLANDS

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Background/Objectives: Quality assessment has been introduced to improve the standards of care, to guide contracting by health insurance agencies and to account health expenses to the public. Apart from the ESTS Database, several registries have been developed to provide information on the process and outcomes of lung cancer surgery. To assess potential variation in results between hospitals in the Netherlands, we retrieved data from the National Cancer Registry.
Materials & Methods: For this study, we used information on age, gender, tumour type, type of surgery and hospital for patients diagnosed with non-small cell lung cancer in 2007. Results were tabulated for resection rate, 30-day postoperative mortality, complication rate and pneumonectomy proportion. Results are projected using so-called funnel plots in which the results for individual hospitals are plotted against volume. Statistical control limits were calculated using a binomial approximation. Postoperative mortality was subsequently analysed using case-mix correction.
Results: The study comprised 8455 patients of whom 1792 (21%) were treated by resection in 77 hospitals. The serious complication rate was 7%, postoperative mortality 3% and pneumonectomy proportion 14%. There was considerable variation between hospitals but valid comparison between hospitals was not possible since control limits suggest that monitoring has limited resolution for series smaller than 100 while in the Netherlands, still 20% of patients are operated in hospitals performing less than 20 lung cancer resections per year.
Conclusions/Uploads: Results for the Netherlands are similar to those from other large registries. Quality assessment may not be practicable for small-volume hospitals and the volume-outcome question needs to be settled in multi-hospital analyses.
Disclosure: All authors have declared no conflicts of interest.

Monday, 31 May 2010
11:00 - 11:30
Abstract Session 2 - Interactive Case Presentations

I-008 POSTOPERATIVE PARAPLEGIA AFTER THE RESECTION OF A GIANT POSTERIOR MEDIASTINAL TUMOUR. ROLE OF THE ADAMKIEWICZ ARTERY

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Background/Objectives: A case of a routine resection of a giant posterior mediastinal tumour with an unpredictable, serious complication is presented. The role of the Adamkievicz, great anterior medullary artery of the spinal cord is reviewed.
Materials & Methods: A routine chest X-ray revealed a 10 cm large tumour in the left upper posterior mediastinum in a 15-year-old girl without any complain. Among the preoperative examinations, the MR excluded the dumbbell tumour, and the biopsy verified a ganglioneurinoma. Through a left posterolateral thoracotomy an encapsulated, but extremely vasularised tumour was removed from the level of the first-third rib-vertebral angle, without any intraoperative complication.
Results: After the surgery the patient was not able to move her lower limbs and the neurologist diagnosed an acute paraplegia with spinal cord lesion at high thoracic level. The acute MR did not revealed any disorder or ischemia in and around the spinal cord. With conservative medical treatment, first the left after that the right leg begin to move in 12 hours after the surgery. In 7 days the patient could walk with help and her movement and sensation became completely normal in 6 months. The pathology verified an encapsulated ganglioneuroblastoma with very low proliferation marker, and adjuvant therapy was not given. Revision of the preoperativ MR we found dilated vessels passing through the tumour, and the vertebral artery was hypoplastic on left side. By this finding we suspected that the Adamkiewicz artery and the spinal cord circulation was partially supplied by the arteries passing through the tumour which were clipped at the surgery and the consequent short ischemic period caused the temporary functional lesion in the spinal cord.
Conclusions/Uploads: Verification of the Adamkiewicz artery recommended before the resection of a giant tumour from the posterior mediastinum.
Disclosure: All authors have declared no conflicts of interest.

I-009 SURGICAL TREATMENT OF AN EXTENSIVE PRIMARY SPINAL THORACIC CHONDROSARCOMA

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Background/Objectives: En block resection of primary tumors of the spine is technically demanding and requires a thorough knowledge of surgical anatomy and adherence to the principles of oncological surgery. We present a case of extensive vertebral resection and stabilization on a patient with vertebral condrosarcoma, after a failed attempt of resection at another institution.
Materials & Methods: A 31 year old man consulted because back pain and progressive weakness in his lower limbs. Neurological examination at that time showed spastic paraparesis, and hypoesthesia with partial sensitive loss below T7 level. MRI revealed a 8x12 cm mass affecting T2 to T4 body vertebral bodies and mediastinum with medullar compression. Laminectomies from T2 to T3 were carried out and tumour was biopsied. With the diagnosis of chondrosarcoma the patient underwent a posterolateral thoracotomy, partial vertebral body resection and stabilization. Complete tumor excision was judged non feasible. Eight months later and after a new episode of medullar compression the patient was referred to us. We scheduled the patient for en block resection of the tumor and vertebral bodies from T2 to T5.
Results: A posterior approach was performed to remove the neural arch, mobilize the dura, and divide involved nerve roots. Partial resection of the vertebral bodies and discs was carried out. Through a left posterior thoracotomy, the vertebral bodies were freed and the osteotomies were extended. Then, a right posterolateral thoracotomy allowed completing the dissection from esophagus and aorta with en block resection of the tumour and vertebral bodies by rolling the specimen away from the dura. Posterior and lateral stabilization of the column was done using a universal clamp and VLIFT intervertebral system.
Conclusions/Uploads: The patient was discharged five weeks after surgery. He is able to walk and a complete recovery of the lower extremities is expected after rehabilitation. A multidisciplinary approach is mandatory to obtain success.
Disclosure: All authors have declared no conflicts of interest.

I-010 SINGLE CASE OF MULTIPLE RIGHT PULMONARY NODULES. ADVANCED CANCER OR RESECTABLE EARLY STAGE TUMOR?

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Background/Objectives: We report the uncommon case of a patient with 3 right pulmonary nodules suspected for metastatic carcinoma. The aim of the paper is to focus the attention of surgeons on complicated cases that need to be managed outside the commonly accepted guides lines.
Materials & Methods: A 52 years old man underwent in 2007 a laryngectomy for squamous carcinoma T2N2 and adjuvant chemo and radiotherapy. In September 2008 a CT scan showed a 1.2 cm sized nodule at the right upper pulmonary lobe. In December a control CT scan found the nodule slightly increased to 1.4 cm and detected two new smaller nodules of the middle and inferior lobes. A PET scan showed ipermetabolic activity of all nodules. A needle aspiration of the upper nodule was performed and malignant cells were found. Oncologists started a chemotherapy treatment based on the diagnosis of metastatic laryngeal carcinoma. After 3 cycles, CT/PET scan revealed a significant reduction in volume and activity of the inferior nodules but the upper was unchanged. That different behavior suggested a different histology of the upper an inferior nodules. Diagnostic thoracoscopy was planned. Intra-operative histology showed that the upper nodule was and adenocarcinoma and the lower nodules were inflammatory; therefore we performed an upper lobectomy and mediastinal limphoadenectomy.
Results: At definitive histology upper nodule was confirmed pulmonary adenocarcinoma T1N0G2 and the inferiors diffuse pulmonary sarcoidosis.
Conclusions/Uploads: Despite ipermetabolic activity of the lesions and previous history of advanced laryngeal carcinoma, only one nodule was really neoplastic and not laryngeal metastatic, but pulmonary. Prognosis improved and chemotherapy was not necessary. This report suggests that in case of complicate oncologic history, PET scan positivity could not be enough to diagnose relapse of the disease, and in dubious cases surgery is mandatory.
Disclosure: All authors have declared no conflicts of interest.

Monday, 31 May 2010
14:00 - 15:30
Abstract Session 3 - Pulmonary Neoplastic

O-011 SEASON VARIATION INFLUENCES OUTCOMES FOLLOWING LUNG CANCER RESECTIONS

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Background/Objectives: The effect of seasonal variation on postoperative outcomes following lung cancer resections is unknown. We hypothesized that postoperative outcomes following surgical resection for lung cancer within the United States would not be impacted by operative season.
Materials & Methods: From 2002-2007, 37,110 isolated lung cancer resections (lobectomy [n=30,109], sublobar resection [n=4,246], pneumonectomy [n=2,755]) were evaluated using the Nationwide Inpatient Sample (NIS) database. Patients were stratified according to operative season: Spring (n=9,634), Summer (n=9,383), Fall (n=9,233) and Winter (n=8,860). Multivariate regression models were applied to assess the effect of operative season on adjusted postoperative outcomes.
Results: Patient co-morbidities and risk factors were similar despite operative season. Lobectomy was the most common operation performed: Spring (80.0%), Summer (81.3%), Fall (81.8%), Winter (81.1%). Lung cancer resections were more commonly performed at large, high-volume (>75th percentile operative volume) centers (p<0.001). Unadjusted mortality was lowest during the Spring (2.6%, p<0.001) season compared to Summer (3.1%), Fall (3.0%) and Winter (3.2%), while complications were most common in the Fall (31.7%, p<0.001). Adjusted hospital length of stay was longest for operations performed in the Winter season (8.92±0.11 days, p<0.001). Importantly, multivariable logistic regression revealed that operative season was an independent predictor of in-hospital mortality (p<0.001) and postoperative complications (p<0.001). Risk-adjusted odds of in-hospital mortality were increased for lung cancer resections occurring during all other seasons compared to those occurring in the Spring (Table 1).
Conclusions/Uploads: Outcomes following surgical resection for lung cancer are independently influenced by time of year. Risk adjusted in-hospital mortality and hospital length of stay were lowest during the Spring season.
Disclosure: All authors have declared no conflicts of interest.

Operative Season	Odds Ratio	95% Confidence Interval	P-Value
Spring	Ref	Ref	Ref
Summer	1.25	1.15-1.36	<0.001
Fall	1.17	1.08-1.28	<0.001
Winter	1.33	1.22-1.44	<0.001

Table 1. Risk adjusted in-hospital mortality for the effect of operative season among patients undrergoing lung cancer resections.

O-012 BRONCHIAL RESECTION MARGIN LENGTH AND CLINICAL OUTCOME IN NON-SMALL CELL LUNG CANCER

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Background/Objectives: Complete surgical resection is associated with the best prognosis in non small-cell lung cancer. However, the impact of the length of the bronchial margin in completely resected tumors with pathologic negative margin remains unknown. This study aimed to determine whether an increased bronchial resection margin length is independently correlated with an improved disease-free and overall survival rate.
Materials & Methods: A total of 3,936 consecutive pulmonary resections for NSCLC were performed between June 1992 and December 2007 at our institution. A subset of 523 patients with completely resected lesions (R0-resection), and a documented bronchial margin length were analyzed retrospectively in this study.
Results: There were 351 men (67%) and 172 women (33%). Mean age at surgery was 65.8 + 10.7 years. Mean tumor size measured 43.6 + 24.4 mm. Final pathology confirmed R0-resection in all patients with a mean bronchial resection margin length of 23.3 + 15.9 mm. Local or regional recurrence (LR) occurred in 94 patients, distant recurrence (DR) in 167, and 56 patients had both. Overall 5-year and 10-year rate of freedom from DR was 60.2% (55.1, 65.6) and 51.8% (45.6, 58.8), LR 72.1% (67.0, 77.6) and 67.7% (61.9, 74.0), and survival 48.3% (43.6, 53.5) and 27.7% (22.9, 33.4). Tumor size and N-Stage were associated with a worse prognosis in terms of LR, DR, and survival ($p<0.05$). Neither LR ($p=0.39$), DR ($p=0.48$), nor survival ($p=0.59$) were associated with bronchial margin length (1-5mm, 6-10, 11-5, 16-20, >20). Histology was not significantly associated with LR ($p=0.28$), though adenocarcinoma had an increased incidence of DR compared to squamous cell carcinoma ($p=0.001$) independent of margin length.
Conclusions/Uploads: When complete surgical resection of NSCLC is achieved, the length of the bronchial margin has no significant impact on disease-free and overall survival in NSCLC.
Disclosure: All authors have declared no conflicts of interest.

O-013 CLINICAL RESULTS OF MICROSCOPICALLY INCOMPLETE RESECTION (R1 RESECTION) FOR NON-SMALL CELL LUNG CANCER

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Background/Objectives: The aim of this study was to evaluate the survival of patients who underwent microscopically incomplete resection for non-small cell lung cancer (NSCLC).
Materials & Methods: We performed 2612 surgeries for NSCLC in Asan Medical Center from January 1997 to December 2008. In 99 of these patients, microresidual tumor was found. We reviewed retrospectively the medical records of these 99 patients.
Results: There were 85 males and 14 females. The median age of these patients was 63 years (range, 17-81). We performed a lobectomy in 48 patients (48.5%), bilobectomy in 14 (14.1%), sleeve lobectomy in 7 (7.1%), pneumonectomy in 29 (29.3%) and wedge resection in 1 (1.0%). Thirteen patients (13.1%) were in stage I, 29 (29.3%) in stage II, 53 (53.5%) in stage III and 4 (4.0%) in stage IV. Adjuvant chemotherapy was performed in 6 patients (6.1%), radiotherapy in 43 (43.4%), chemoradiotherapy in 33 (33.3%) and no adjuvant therapy in 17 (17.2%). The microscopically residual tumor was found on bronchial resection margin in 64 patients (64.6%), mediastinal vessels or heart in 14 (14.1%), chest wall in 12 (12.1%), lymph node in 5 (5.1%) and combined site in 4 (4.0%). Fifty-four patients had a recurrence of the tumor. The median time from pulmonary resection to recurrence was 10 months (range, 1-81). The median survival time of overall patients was 37.0 months and 5-year survival rate was 39.8%. The survival was worse in patients with recurrence of the tumor. The prognosis was negatively influenced in patients with early recurrence(lesser than 12 month), higher tumor stage and adenocarcinoma. In patients who received adjuvant therapy, survival rate was higher and recurrence rate was lower than who didn't receive adjuvant therapy.
Conclusions/Uploads: In patients with microscopically residual tumor, adjuvant therapy improved the survival rate and reduced the recurrence. So, for patients with microscopic residual tumor, adjuvant therapy should be considered.
Disclosure: All authors have declared no conflicts of interest.

O-014 EN-BLOC RESECTION OF MULTIMODALITY TREATED NON-SMALL CELL LUNG CANCER INVADING THE SPINE

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Background/Objectives: To assess the outcome and survival of non-small cell lung cancer invading the spine.
Materials & Methods: We retrospectively reviewed our prospective database of all patients who underwent lung resection with en bloc hemivertebrectomy or total vertebrectomy between January 2003 and December 2008 in a multimodality treatment concept.
Results: 28 patients (age 58.9±12.9 years) were diagnosed with NSCLC invading the spine at a single center. Eight of those patients were inoperable. Twenty patients proceeded to surgery with posterolateral approach and en bloc hemivertebrectomy (n=16) or total vertebrectomy (n=4). Six patients had induction chemotherapy (30%). Complete resection could be achieved in 80%. Morbidity was observed in 8 patients (40%). No mortality occurred. Adjuvant radiation (n=14) or chemoradiation (n=6) were administered with 66Gy. The mean survival and 5-year-survival for patients who underwent surgery were 42.6 months and 52%, respectively. Inoperable patients had poorer survival (14.0 months; p=0.03). Adjuvant chemoradiation (p=0.034), complete resection (p=0.018), age < 70 years (p=0.049) and hemivertebrectomy (p=0.063) were associated with better survival. Induction chemotherapy (p=0.56) and histology (adeno carcinoma vs. squamous cell carcinoma; p=0.22) did not influence the long-term survival in this study.
Conclusions/Uploads: Multimodality treatment including en-bloc lung resections with hemivertebrectomy or total vertebrectomy offer promising long-term survival in highly selected patients with NSCLC invading the spine. These extended resections can be performed with acceptable morbidity and mortality in specialized centres.
Disclosure: All authors have declared no conflicts of interest.

O-015 A RISK MODEL FOR MORBIDITY AFTER LUNG RESECTION IN OCTOGENARIANS

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Background/Objectives: Age is an important risk factor for morbidity after lung resection. This study was performed to identify other risk factors for complications after lung resection in octogenarians.
Materials & Methods: A prospective database containing patients aged 80 years or older who underwent lung resection between January 2000 and June 2009 was reviewed. A risk model for morbidity was developed using multivariable logistic regression including a panel of established preoperative and operative variables. Survival was calculated using the Kaplan-Meier method.
Results: 193 patients aged 80 years or older (median 82) underwent lung resection: wedge resection 77, segmentectomy 13, lobectomy 96, bilobectomy 4, and pneumonectomy 3. Resection was accomplished via thoracoscopy in 149 patients (77%). Operative mortality was 3.6% (7 patients) and morbidity was 46% (89 patients). Postoperative events included atrial arrhythmia (20%, 38 patients), prolonged air leak (12%, 24 patients), postoperative transfusion (11%, 22 patients), delirium (8%, 16 patients), need for bronchoscopy (7%, 14 patients), and pneumonia (5%, 10 patients). Significant predictors of morbidity by multivariable analysis included resection greater than wedge (odds ratio 3.4, p=0.005), diabetes (odds ratio 3.5, p=0.04), and % predicted Forced Expiratory Volume in 1 second (odds ratio 1.2 for each 10% decrement, p=0.046). The 1-year and 3-year survival of 109 patients who underwent resection for stage I lung cancer was 85% and 59% (Figure).
Conclusions/Uploads: Octogenarians can undergo lung resection with low mortality. Extent of resection, diabetes, and impaired lung function increase the risk of complications. Careful evaluation is necessary to select the most appropriate approach in octogenarians being considered for lung resection.
Disclosure: All authors have declared no conflicts of interest.

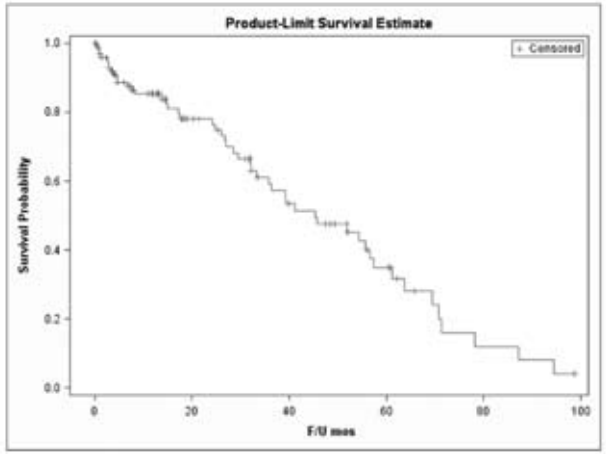

Figure. Survival after resection of stage I lung cancer.

O-016 PREDICTIVE VALUE FOR POSTOPERATIVE COMPLICATIONS OF THE CYCLOERGOMETER DESATURATION TEST AND PPODLCO IN ONCOLOGICAL PULMONARY RESECTION

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Background/Objectives: Estimate the relationship between the results of the ppoDLCO and the cycloergometer desaturation tests and the presentation of respiratory and cardiovascular complications after oncological pulmonary resection
Materials & Methods: Prospective study over 374 patients that underwent oncological pulmonary resection, following the completion of a cycloergometer desaturation test and calculation of ppoDLCO. Either patients with and without respiratory (length of ICU stay > 48h, pneumonia, reintubation) and/or cardiovascular (arrhythmia, coronary disease) complications were compared with an univariant analysis using different preoperatory variables: age, COPD, bronchodilator treatment (BrTr), cardiovascular co-morbidity (arrhythmia, coronary artery disease), rest oxygen saturation < 92% (rO2S<92), effort oxygen desaturation ³ 2% (Dst2), effort oxygen desaturation ³ 4% (Dst4), FEV1 <80% (FEV1<80), DLCO < 80% (DLCO<80), ppoFEV1<40% (ppoFEV1<40), ppoDLCO< 60% (ppoDLCO<60) and extent of surgical resection (R). A lineal regression was made to determine the value of the cycloergometer desaturation test as a complication predictor and its meaning in respect of other risk factors.
Results: 374 patients. Middle age 62.94 years old, range 36-82. Table 1: Results (A). Uni and multivariate analysis (B)
Conclusions/Uploads: The effort oxygen desaturation ³ 4%, DLCO< 80% and the extent of surgical resection have significant influence on the respiratory outcome; ppoDLCO< 60%, reintubation; age, DLCO<80%, ppoFEV1<40% and extent of surgical resection influence following the appearance of arrhythmia. Even taking into account the significance of respiratory co-morbidity, the elective introduction of the cycloergometer desaturation test and ppoDLCO in a predictive surgical risk index would reinforce its reliability for the postoperative complication prediction.
Disclosure: All authors have declared no conflicts of interest.

Table 2

Monday, 31 May 2010
14:00 - 15:30
Abstract Session 4 - Young Investigator Award

F-017 RANDOMIZED DOUBLE-BLIND COMPARISON OF PHRENIC NERVE INFILTRATION AND SUPRASCAPULAR NERVE BLOCKADE FOR IPSILATERAL SHOULDER AND THORACOTOMY PAIN AFTER THORACIC SURGERY

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Background/Objectives: Despite the use of thoracic epidural analgesia, a constant severe ache occurs in the ipsilateral shoulder of almost 75% of patients after thoracotomy. The aim of this prospective-randomized study was to investigate the effect of phrenic nerve infiltration compared to suprascapular nerve blockade on thoracotomy and ispsilateral shoulder pain after thoracic surgery.
Materials & Methods: After Local Research Ethics Committee approval, written informed consent was obtained from 90 adult patients undergoing thoracotomy for pulmonary resection. Finally, 74 patients were included (37 per group). 16 patients were excluded because of failure of epidural analgesia, lost data and/or because they were unable to understand the visual analog scale (VAS) scoring system. Phrenic Group received 10 ml of 2% lidocaine infiltrated into the periphrenic fat 1-2 cm proximal to the diaphragm, just before chest closure. Suprascapular Group received 10 ml of 0.5% plain-bupivacaine infiltrated into the suprascapular nerve once the surgery was finished. A blinded observer to the study group assessed, using the VAS score and a five-point observer verbal rating score (OVRS), the patient´s shoulder and thoracotomy pain at 0.5-1-2-3-4-5-6-12-48-72 hours after surgery and at discharge. The time and dose of any administered analgesic medication were recorded.
Results: There were no significant differences in age, gender, weight, height, ASA status, type/duration of operation and pain scores at rest between the two groups. Shoulder pain score was significantly ($p<0.05$) lower in the phrenic group compared to the suprascapular blockade group over the whole time of the study except for the 12 hour (Fig-1). There were no differences between the two groups according to postoperative thoracotomy pain.
Conclusions/Uploads: These results strongly support the hypothesis that irritation of the pericardium and/or mediastinal-diaphragmatic pleural surfaces results in referred pain to the shoulder via the phrenic nerve. Blockade of phrenic nerve with 2% lidocaine should be performed in all patients undergoing major thoracic surgery.
Disclosure: All authors have declared no conflicts of interest.

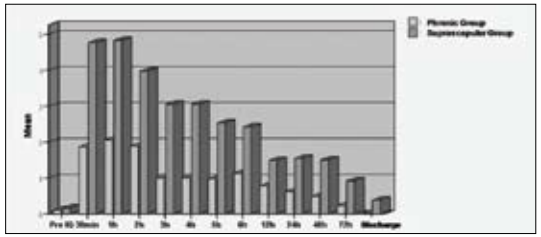

Figure 1.
Referred Visual Analog Score (VAS) for ipsilateral shoulder pain according to the analgesic technique.

F-018 QUALITY OF LIFE AFTER MEDIASTINAL TUMOR RESECTION: A PROSPECTIVE STUDY COMPARING OPEN WITH ROBOT - ASSISTED RESECTION

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Background/Objectives: To prospectively evaluate quality of life (QoL) evolution after robot-assisted or open mediastinal tumor resection with the European Organisation for Research and Treatment of Cancer (EORTC) QoL Questionnaire-C30 and LC-13.
Materials & Methods: From January 2004 till August 2008, QoL was prospectively recorded in all patients undergoing surgery for mediastinal tumors. 18 patients underwent robot-assisted resection using the Da Vinci robot system (Intuitive Surgical, Inc, Mountain view, CA), 10 patients by sternotomy access, Questionnaires were administered before surgery and 1, 3 and 6 months postoperatively with response rates of 100%, 85.7%, 89.3% and 75.0%, respectively.
Results: Mean operative time and length of hospitalisation was 168 minutes and 5.3 days in the robot-assisted group and 72 minutes and 6.1 days in the sternotomy group ($p=0.031$ and $p>0.05$). Open resection by sternotomy is characterized by a one month temporary decrease in physical functioning ($p=0.041$) and an increase in thoracic pain complains ($p=0.026$). Both values returned to baseline after three months. After Da Vinci robotic resection QoL scores approximated baseline pre-operative values one month after surgery.
Conclusions/Uploads: Numerous techniques have been proposed and published depending on the different degree of invasiveness, generating the existing controversies as to which is the best surgical approach for mediastinal tumors. The high burden of thoracic pain and decreased physical functioning reported after sternotomy, is not seen after a Da Vinci robot-assisted resection. The initial experience and postoperative QoL data are excellent and therefore the Da Vinci robot will stay our future technique of choice for the treatment of resectable mediastinal tumors.
Disclosure: All authors have declared no conflicts of interest.

F-019 PREDICTORS OF POSTOPERATIVE DECLINE IN QUALITY OF LIFE AFTER MAJOR LUNG RESECTIONS

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Background/Objectives: Severe impairment in quality of life (QoL) is one of the major patients' fears about lung surgery. Its prediction can be a valuable information for both patients and physicians. The objective of this study was to identify predictors of a clinically relevant decline in the physical and emotional components of QoL after lung resection.
Materials & Methods: This is a prospective observational study on 172 consecutive patients submitted to lobectomy or pneumonectomy (2006-2008). QoL was assessed before and 3 months after operation through the administration of the Short Form 36v2 survey. The amount of the perioperative changes in physical and emotional composite scales (PCS and MCS) were measured by the Cohen's effect size method (mean change of the variable divided by its baseline standard deviation). An effect size greater than 0.8 is regarded as large and clinically relevant. QoL changes were dichotomized according to this threshold. Logistic regression and bootstrap analyses were used to identify reliable predictors of perioperative relevant impairment in PCS and MCS.
Results: 48 patients (28%) had a large decline in physical and 26 (15%) in emotional composite scales. Patients with a better preoperative physical functioning ($p=0.0008$) and bodily pain ($p=0.048$) scores, and those with worse mental health ($p=0.0007$) score were those at higher risk of a relevant physical deterioration. Patients with a lower ppoFEV1 ($p=0.04$), higher preoperative scores of social functioning ($p=0.02$) and mental health ($p=0.06$) were those at higher risk of a relevant emotional deterioration. The following logistic equations were derived to calculate the risk of decline in physical or emotional components of quality of life, respectively: Risk of physical decline: $\ln R/(1+R)$: -11.6 +0.19XPF +0.05XBP -0.05XMH Risk of emotional decline: $\ln R1/(1+R1)$: -8.06 -0.03XppoFEV1 +0.11XSF + 0.055XMH
Conclusions/Uploads: A consistent proportion of patients undergoing lung resection exhibit an important postoperative worsening in their quality of life. We were able to identify reliable risk-factors and predictive equations estimating this decline. These findings may be used as selection criteria for efficacy trials on perioperative physical rehabilitation or psychological treatments, during preoperative counselling, in the surgical decision making process and for selecting those patients that would benefit from physical and emotional supportive programs.
Disclosure: A. Brunelli: The Author has the following conflict of interest:
-former Advisory Board Millicore
-Advisory board Medela Healthcare
All other authors have declared no conflicts of interest.

F-020 REPEAT MEDIASTINOSCOPY IN ALL ITS INDICATIONS: EXPERIENCE OF 101 CASES

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Background/Objectives: The objective of this study is to evaluate the accuracy of repeat mediastinoscopy (reMS) in all its indications, and the survival for the group of patients who underwent induction chemotherapy and chemoradiotherapy for non-small cell lung cancer (NSCLC).
Materials & Methods: From July 1992 to February 2009, 96 patients (87 men, 9 women;median age: 61.3 years), underwent 101 reMS (five patients required a repeat reMS) for the following indications: restaging after induction therapy for cyto-histologically proven N2 disease (84 cases), inadequate first mediastinoscopy (5: in 4 the indication was for suspected lymphoma), metachronous second primary (6) and recurrent lung cancer (6). Patients with N2-NSCLC who had received induction therapy and had positive reMS underwent definitive chemotherapy or chemoradiotherapy. Patients in whom reMS was negative underwent thoracotomy for lung resection and systematic nodal dissection (SND). SND was considered the gold standard to compare the negative results of reMS. Pathologic findings were reviewed and staging values were calculated using the standard formulas. Follow-up data were completed in January 2010 and survival analysis was performed by the Kaplan-Meier method.
Results: In the group of reMS for restaging after induction therapy, the staging values were calculated according to the type of induction treatment (Table 1). Median survival time in patients with a negative reMS was 51.5 months (95% CI 0-112),and in the combined group of patients with positive and false-negative reMS, median survival time was 11 months (95% CI 7.6-14.1) (p = 0.0001). In the group of other indications, all staging values were 1.
Conclusions/Uploads: Repeat mediastinoscopy is feasible in all the indications described. After induction therapy, either with chemotherapy alone or chemoradiation, it is a useful procedure to select patients for lung resection with high accuracy. The persistence of lymph node involvement after induction therapy has a poor prognosis. Therefore, techniques providing cyto-histological information are advisable to avoid unnecessary thoracotomies.
Disclosure: All authors have declared no conflicts of interest.

	Global	Induction chemotherapy	Induction chemoradiotherapy
N	93*	48	35
Sensitivity	0.73	0.78	0.64
Specificity	1	1	1
A	0.87	0.85	0.88
PPV	1	1	1
NPV	0.79	0.72	0.86

Table 1.
Staging values of reMS according to the type of induction treatment

F-021 SURGICAL TREATMENT OF LUNG CANCER IN THE OCTOGENARIANS: RESULTS OF A NATIONAL-WIDE AUDIT

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Background/Objectives: The elderly is a fast growing segment of the population and the number of oncogeriatric patients with lung cancer is expected to increase. The purpose of this study was to overview surgical habits for lung cancer in octogenarians.
Materials & Methods: We used EPITHOR®, the French national thoracic database, created in 2002 and including more than 125 000 procedures from 92 institutions. We collected prospectively the data concerning 622 patients 80 years or older and 16461 patients younger than 80 years with lung cancer from January 2004 to December 2008. We compared patients' characteristics, lung cancer presentation and surgical treatment between these two groups.
Results: Patients' characteristics analysis: the distribution by gender, body mass index, forced expiratory volume and number of comorbidities was comparable for the two groups. ASA score (ASA 1 and 2: 59% ≥ 80 years, n=363, versus 71% <80 years, n=11543, p<0.0001) and performance status (PS 0 and 1: 86% ≥ 80years, n=470, versus 89% <80 years, n=12685, p<0.0001) were worse for older patients. Mean age (82.0, IC[81.9;82.2]) and sex ratio (2.51, n=445 males) were stable for octogenarians across 5 years. Lung cancer presentation analysis: in the elderly, stages I and II were of 71% (n=361) versus 66% (n=8735) in the younger group (p=0.001). Surgical treatment analysis: resections in octogenarians were pneumonectomy 10% (n=62) versus 15% (n=2409) for under 80 years, lobectomy 67% (n=415) versus 65% (n=10734), bilobectomy 4% (n=25) versus 5% (n=809), sub-lobar resection 11% (n=70) versus 8% (n=1355) (p=0.034). They underwent video-assisted thoracic surgery in 7% (n=43) versus 6% (n=917) (p=0.034). No lymph node dissection was more frequent in patients 80 years or older (8%, n=45) than in younger patients (5%, n=738)(p=0.0004).
Conclusions/Uploads: From now on, effective management of cancer including surgery in older patients could not be considered without individual geriatric assessment. Specific guidelines could be proposed for this population.
Disclosure: All authors have declared no conflicts of interest.

F-022 THE RADIOLOGICAL DETECTION OF LUNG METASTASIS AND HISTOLOGICAL CONFIRMATION BY SURGERY – A COMPARISON OF DIFFERENT AND COMPLEMENTARY METHODS

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Background/Objectives: For resection of lung metastasis Computed Tomography (CT) is needed for operative strategy. "Computer aided detection-system" (CAD), a technical improvement of CT analyses the scans in addition to the radiologist and clearly markes lesions. The aim of the study was to evaluate the reliability of CAD in detecting lung metastasis in daily practice.
Materials & Methods: From September to December 2009 33 patients were treated for suspected lung metastasis. 13 patients had CT-scans of unsufficient quality impossible to be analysed by CAD (39%) (control group). Preoperative CT-scans of 20 patients (61%) were analysed with the CAD-system (study group). During surgery all suspected lesions were searched and resected. If additional nodules were found they were also resected. Histological examination was performed and results compared to the radiological suspicious nodes.
Results: CAD-analysis detected a mean of 2,8 nodules ranging between 1 and 9. During surgery between 1 and 11 nodules were palpable with a mean of 3,7. In histological examination a mean of 1,4 nodules were proven metastasis with a range between 0 and 5. In the group with CAD-analysis more nodules were resected but also more often turned out to be benign in histological examination. Most important is the fact, that all histological proven metastasis were preoperatively described in the CAD-analysis.
Conclusions/Uploads: CAD-system is a sensible and useful tool in finding pulmonary lesions. It detects more and smaller lesions than conventional radiological analysis. Due to the small number of patients we could not prove the possibility of finding new metastatic micro nodules, but we could show a great reliability of the CAD-analysis. Further and prospective analysis of the data is needed and ongoing.
Disclosure: All authors have declared no conflicts of interest.

F-023 A PROSPECTIVE STUDY TO DETECT WHETHER VIDEO-ASSISTED MEDIASTINOSCOPY IS SUPERIOR TO STANDARD MEDIASTINOSCOPY IN STAGING NSCLC

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Background/Objectives: Mediastinoscopy remains the gold standard in assessing mediastinal lymph nodes (MLN) in patients with non small cell lung carcinoma (NSCLC). This study aims to compare the efficacy of video assisted mediastinoscopy (VAMS) and standard mediastinoscopy (SM) in detecting metastasis to MLNs in preoperative staging of patients with NSCLC.
Materials & Methods: This study includes all consecutive mediastinoscopies performed by same surgical team for staging of patients with NSCLC between March 2008 and October 2009 at our institution. After necessary preoperative evaluation, under general anaesthesia SM was performed by a surgeon and both paratracheal and subcarinal lump nodes were sampled. After completion of biopsies by SM, another surgeon preformed VAMS through the same incision and resampled all the MLN stations once more. Pathologic examination results were recorded and statistical analyses were done to compare the results of both methods.
Results: Twenty seven consecutive mediastinoscopies enrolled in this study. One patient was excluded due to development of bradycardia and hypotension during surgery. No complication occurred in remaining 26 cases. Ninety seven stations could be sampled by SM method and 103 stations by VAMS method. Pathological examination of biopsies taken through SM and VAMS yielded MLN metastasis in 6 (%23) and, 9 (%34) patients, respectively. All the MLNs which were found to be positive by SM were positive by VAMS too. Patients with N2 or N3 diseases did not undergo surgery immediately. Mediastinal lymph node dissection by thoracotomy revealed metastasis in 2 patients (false negative). Our study showed an accuracy of 92.3% for VAMS versus 80.7% for SM and a negative predictive value of 88.2% for VAMS versus 75% for SM. We found the statistical significance between SM and VAMS results according to ROC Curve statistical analysis (p=0.002).
Conclusions/Uploads: Video assisted mediastinoscopy is superior to standard mediastinoscopy in assessing metastasis to mediastinal lymph nodes in patients with NSCLC.
Disclosure: All authors have declared no conflicts of interest.

F-024 ANIMAL MODEL OF LUNG EDEMA AFTER BRAIN DEATH AND EX VIVO RECOVERY

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Background/Objectives: Brain-death is considered the leading factor towards the development of edema in the donor lung. Our aim was to develop and test an animal model of lung edema after brain-death and to assess the ability of the Ex vivo reperfusion system to recover edema-damaged lungs.
Materials & Methods: Seven female pigs 20-30Kg were anesthetized and brain-death was induced by intracranial inflation of an epidural balloon. The subjects were monitored for lung edema development during a period of over 300 minutes. Hemodynamic parameters including cardiac output (CO), arterial pressures and extravascular lung water (EVLW) were recorded by transpulmonary thermodilution (PiCCO) and ventilatory parameters were also registered continuously. Periodical blood-samples for arterial gases, catecholamines and cytokines were analyzed. Declines in central venous pressure (CVP) and CO were compensated by crystalloid or colloid infusion as performed in the human donor. Transthoracic-ultrasonography was performed at the beginning and the end of the experiment to assess the edema and pathology samples were analyzed. After this phase, the lungs were retrieved and cold-preserved with Perfadex and subsequently evaluated in an Ex vivo-normothermic perfusion system.
Results: Brain-death was confirmed in all cases and was accompanied by a strong adrenergic response which peaked around 1-2 minutes after balloon inflation and lasted 5-10 minutes. This was followed by a continuous tendency to decline of hemodynamic parameters. Animals required an average of 7.8L (SD 2.2L) of saline and 1.7L (0.6L) of colloids throughout the experiment. Ventilatory compliance increased 21.4% (SD 7.2%) but the decline in arterial pO2 was less evident (-78mmHg[SD 54mmHg]). Ultrasonography showed clear signs of lung edema which were confirmed by the pathological assessment. The Exvivo perfusion could be performed satisfactory in 4 of 7 cases and a functional recovery was observed in 3 of these 4.
Conclusions/Uploads: This is a promising model, still under development, through which the ability of the Ex vivo system to recover edema-damaged lungs could be tested.
Disclosure: F.J. Moradiellos Díez: Vitrolife (Sweden) provided the evaluation boxes free of charge to our institution. All other authors have declared no conflicts of interest.

F-025 SHORT-TERM EFFECTS OF INHALATIVE TIOTROPIUM/FORMOTEROL/ BUDENOSIDE VERSUS TIOTROPIUM/FORMOTEROL IN SURGERY PATIENTS WITH NEWLY DIAGNOSED COPD: A PROSPECTIVE RANDOMIZED TRIAL

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[2]*Division Of Pulmonary And Critical Care Medicine, Johns Hopkins University School of Medicine, Baltimore/US*

Background/Objectives: During the evaluation for lung surgery, patients are not uncommonly newly diagnosed with Chronic Obstructive Pulmonary Disease (COPD). The impaired lung function in these patients can lead to either contraindications for lung surgery, or if they qualify for surgery increase the risk for perioperative complications. There are is a paucity of data comparing the effectiveness of treatment strategies in these patients before planned lung surgery.
Materials & Methods: A prospective-randomized study was conducted comparing 1-week-treatment-periods of tiotropium/formoterol/budenoside (GR1) with tiotropium/formoterol (GR2) in conjunction with smoking cessation and chest physiotherapy. All patients were newly diagnosed with COPD during an evaluation for lung surgery and had not been previously treated for COPD. The primary end-points were Forced-Expiratory-Volume-in-One-Second (FEV1), Forced-Vital-Capacity (FVC), FEV1/FVC, Airway-Reistance (RAW) at the end of each treatment. Secondary endpoints were improvement of the severity of COPD and the rate of pulmonary complications after surgery.
Results: 46 patients were randomized in GR1(n=24) and GR2(n=22). Mean baseline FEV1(1.70L/57.5% vs.1.61L/53.1%), FVC(2.55L/65.0% vs.2.58L/65.2%), FEV1/FVC(67.8% vs.61.7%), RAW(0.50 vs.0.47) did not differ between the groups. However, the short-term effects of the treatment with regard to FEV1(2.0L vs.1.71L,p=0.031; 68.3% vs.56.5%, p=0.001), increase in FEV1(+19.67% vs.+7.85%;p=0.007) and decrease in RAW(-24.9% vs.-12.2%;p=0.043) were better in GR1. No differences were observed comparing post-treatment FVC (2.88L vs.2.69L; 73.3% vs.69.0%), increase in FVC(0.34L vs.0.11L;+16.7% vs.+7.4%), FEV1/FVC(70.1% vs.63.8%) and increase in FEV1/FVC(+4.34% vs.+2.75%), respectively. More patients in GR1(41.7% vs.9.1%;p=0.012) showed an improvement of the severity of COPD. Less pulmonary complication (11.1% vs.42.9%;p=0.04) were observed in GR1 after surgery.
Conclusions/Uploads: Both treatment strategies resulted in an improvement of lung function. There is benefit from adding inhalative budenoside in terms of improvement in FEV1, RAW and severity of COPD. The strategy of maximizing pre-operative treatment for newly diagnosed COPD by adding an inhaled corticosteroid to longacting bronchodilators was associated with less pulmonary complications in the postoperative period.
Disclosure: All authors have declared no conflicts of interest.

Monday, 31 May 2010
16:00 - 17:30
Abstract Session 5 - Pulmonary Non-Neoplastic

O-026 VIDEO-ASSISTED THORACOSCOPIC PLACEMENT OF PARAVERTEBRAL CATHETER, A TECHNIQUE FOR POSTOPERATIVE ANALGESIA IN THORACOSCOPIC SURGERY. A RANDOMIZED TRIAL

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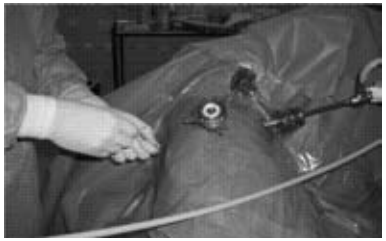
Background/Objectives: The analgesic scheme combining a paravertebral block (PVB) and an intravenous nonsteroidal anti-inflammatory drug (NSAID) has proven to be effective for postoperative pain control after thoracotomy. The hypothesis tested in this study was that this policy was also suitable to improve pain control after video-assisted thoracic surgery (VATS).
Materials & Methods: Prospective randomized study of 32 patients submitted to 3 ports VATS for non-oncological disease. The sample size was calculated to detect one point of minimum pain score difference with 80% statistical power. Patients were randomly assigned to two different postoperative analgesia groups: a) Paravertebral Block group (PVB) -n=16-, at the end of surgery patients were placed a catheter in the thoracic paravertebral space under camera control (Photo). They received bolus of local anesthetic (ropivacaine 0.2%) every 6 hours combined with endovenous methamizol (1gr); b) Alternate NSAIDs group (AN) -n=16-, they were treated with paracetamol (1gr) combined with methamizol (1gr) -every 6h-. Subcutaneous meperidine (synthetic opioid) was employed as rescue drug. Both groups were comparable in terms of age, sex, pathology and comorbidity. Pain level was measured with the visual analogic scale (VAS) at 1, 6, 24 and 48 hours.
Results: No side-effects related to any of the two analgesic techniques were noted. Two patients needed rescue meperidine in AN group, none in the PVB group. VAS scores were significantly lower at any time in the PVB patients (Table).
Conclusions/Uploads: The analgesic regimen combining PVB and NSAID provided a better pain control compared to the systemic administration of NSAIDs. Thoracoscopy-assisted positioning of PVC is simple and effective and allows direct visualization of correct delivery of local anesthetic. It represents a valuable add to any VATS procedure.
Disclosure: All authors have declared no conflicts of interest.



Placement of paravertebral catheter in VATS surgery

	Group PVB (n=16)	Group AN (n=16)	Statistical comparison (p values)
VAS1hour	1.3±1.0	2.7±0.7	<0.001
VAS6hour	3.4±1.0	4.9±1.3	<0.001
VAS24hour	2.6±0.9	4.7±0.8	<0.001
VAS48hour	2.1±0.8	3.3±0.9	<0.001
Mean	2.3±1.2	3.9±1.4	<0.001

Table

O-027 DIGITAL MEASUREMENTS OF AIR LEAK FLOW AND INTRAPLEURAL PRESSURES IN THE IMMEDIATE POSTOPERATIVE PERIOD PREDICT RISK OF PROLONGED AIR LEAK AFTER PULMONARY LOBECTOMY

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Background/Objectives: New digital chest drainage systems allow quantifying of real-time air leak flow rate and intrapleural pressure from the immediate postoperative period. They also permit continuous monitoring of these parameters throughout the duration of the chest tube. The objective of this prospective observational study was to evaluate the association between the air flow and intrapleural pressures measured during the immediate postoperative period after lobectomy and the risk of subsequent prolonged air leak.
Materials & Methods: 145 consecutive patients underwent pulmonary lobectomy in two centers. Excluded were those with chest wall or diaphragm resection or requiring postoperative mechanical ventilation. All patients were managed with chest tube placed on suction (-20 cmH2O) until the morning of the first postoperative day. Measurement of air flow and maximum and minimum intrapleural pressures were recorded during the 6th postoperative hour (all patients on suction) using a Digivent-MEMS technology (Medela, Switzerland) and averaged for the analysis. Prolonged air leak (PAL) was defined as an air leak lasting longer than 72 hours from the operation. Logistic regression analysis validated by bootstrap was used to test independent association of variables with PAL (dependent variable).
Results: The average air leak flow at the 6th postoperative hour was 86 ml/min (0-1100). The mean maximum and minimum pleural pressures at the 6th postoperative hour were -11.4 cmH2O and -21.9 cmH2O, respectively. Logistic regression and bootstrap showed that the mean air leak flow ($p<0.0001$) and the mean differential pleural pressure (DeltaP: maximum-minimum intrapleural pressure) ($p=0.047$) at the 6th postoperative hour were significant and reliable predictors of PAL, independent of the effect of age, FEV1, COPD status, DLCO, side and site of lobectomy. ROC analysis yielded the following best cut-offs for PAL: Flow: 50 ml/min DeltaP: 10 cmH2O According to these two cut-offs 4 groups with incremental risk of PAL were generated (table). In patients with flow < 50ml/min those with deltaP >10 cmH2O had almost a 4-fold higher risk of PAL. In patients with flow > 50 ml/min and DeltaP >10cmH2O the risk of PAL was 13-fold higher than in group a.
Conclusions/Uploads: The levels of both air leak flow and pleural pressure are associated with the duration of air leak. Interpretation of the data measured at an early time point by digital chest drainage systems allows estimation of the risk of subsequent prolonged air leak. In this way, digital devices may help to plan postoperative management to allow both safe and more accurate implementing of fast tracking strategies.
Disclosure: A. Brunelli: The Author has the following conflict of interest:
-former Advisory Board Millicore. -Advisory board Medela Healthcare
All other authors have declared no conflicts of interest.

Group	Air flow and DeltaP combinations		
a	Flow<50+DeltaP<10	3/73	4%
b	Flow<50+DeltaP>10	5/33	15%
c	Flow>50+DeltaP<10	5/14	36%
d	Flow>50+DeltaP>10	13/25	52%

Incidence of PAL by risk groups

O-028 A PROSPECTIVE RANDOMIZED CONTROLLED STUDY TO ASSESS THE EFFECTIVENESS OF COSEAL® TO SEAL AIR LEAKS IN LUNG SURGERY

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Background/Objectives: Air leak mandates ongoing drainage in two thirds of patients after lung resection. We conducted an investigator led randomized trial to evaluate the effectiveness of CoSeal® surgical sealant for the closure of alveolar air leak after anatomical pulmonary resection.
Materials & Methods: Patients with a demonstrable air leak following open lobectomy, bilobectomy or segmentectomy were randomised to either standard care or standard care plus CoSeal® application (with a second application used if air leak persisted). Unbiased allocation was by minimization at the point of entry to the study to ensure balance between the groups with respect to age, sex, surgeon, number of segments resected, pre-operative FEV1 and grade of air leak. Kaplan-Meier analysis of air leak duration and a log rank test were performed on an intention-to-treat basis, with observations censored at death, transfer to ICU or discharge.
Results: 60 patients were allocated to control and 61 to CoSeal®. Data were missing for 1 CoSeal® patient. In 57% of CoSeal® patients the demonstrable air leak stopped at the first application; a quarter continued to leak after two applications. Air leak persistence was similar at 24 hours but persisted after 48 hours in 49% of CoSeal® and 39% of control patients (p=0.09 log rank test). Median drain time and length of stay were longer in the CoSeal® arm.
Conclusions/Uploads: In this randomized trial, there was longer duration of air leak among patients treated with CoSeal® following anatomical lung resection. We cannot recommend changing from the standard practice.
Disclosure: All authors have declared no conflicts of interest.

	Control	CoSeal®
Number allocated	60	61
Proportion with air leak at 24hr (Kaplan-Meier)	63%	61%
Proportion with air leak at 48hr (Kaplan-Meier)	39%	49%
Total fluid accumulation in litres (SD)	1.2 (0.7)	1.4 (0.8)
Median time to drain removal in days (IQR)	3 (2.8-5.0)	4 (2.8-7.2)
Median length of stay in days (IQR)	6 (5.0-9.0)	7 (4.9-9.6)

O-029 IS ADMITTING TIME WHITE BLOOD CELL COUNTING RISK FACTOR FOR MORTALITY IN THORACIC TRAUMA?

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Background/Objectives: Increasing of white blood cell (WBC) levels after trauma is a systemic response. Age (elder than 60 years), 3 or more rib fracture, 25 or more trauma scoring, concomitant injuries, severe contusion, urgent surgery, bilaterally hemopneumothorax are known risk factors for mortality in the thoracic trauma. We are reporting that high WBC count is also a risk factor for mortality in the thoracic trauma.
Materials & Methods: A retrospective evaluation was performed on 1490 thoracic trauma patients who were treated in our department between June 2003 and November 2009. There were 1244 (83.5%) male and 246 (16.5%) female. Mean age was 35.8 (6 month-91 year). Thoracic trauma; blunt in 844 patients, penetrant in 640 and together in 6 patients. Risk factors affecting mortality was evaluated with t test and $p<0.005$ was noted as meaningful.
Results: Mortality was seen in 61 (4.09%) patients (46 male and 15 female). Thoracic trauma types in mortality were; blunt in 50 (81.97%), penetrant in 9 (14.75) and together in 2 (3.27%). Mobidities before mortality were; 25 acute respiratory distress syndrome, 24 acute renal failure, 16 sepsis syndrome, 4 pneumonia and 1 empyhema. The known risk factors for mortality were recorrected by our study. Mean WBC count was $13.33x10^3$/uL in alive patients and $20.33x10^3$/uL in dead patients. T-test values for admitting time WBC count between alive/dead patients were; number: 1429/61, mean count: 13.33/20.33, standart derivation: 4.02/5.16, p value was: <0.001 and 95% confidence was -7.75.
Conclusions/Uploads: We achieved that high (over $20x10^3$ /uL) WBC count at the admitting time as a risk factor affecting mortality in the thoracic trauma.
Disclosure: All authors have declared no conflicts of interest.

O-030 PROSPECTIVE EXTERNAL CONVERGENCE EVALUATION OF TWO DIFFERENT QUALITY OF LIFE INSTRUMENTS (SF36 VS. EORTC) IN LUNG RESECTION PATIENTS

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Background/Objectives: Different metrics have been used to assess quality of life (QoL) in thoracic surgery but the most appropriate instrument in this setting is still undefined. We aimed at assessing the respective ability of two instruments (EORTC QL-30/L13 and SF-36) to detect perioperative changes in QoL of patients submitted to pulmonary resection for NSCLC .
Materials & Methods: Prospective study on 33 consecutive lung resection patients patients (May 2009-December 2009) . All completed EORTC QLQ-C30 with Lung module 13 and SF-36 pre- and post-operatively (3 months). Preoperative changes of SF-36 and EORTC scales were assessed by the Cohen's effect size. External convergence between different instruments (SF36 vs. EORTC) was assessed by correlating same concept scales. Correlation coefficients between effect sizes of objective parameters (FEV1 and DLCO) and SF-36 or EORTC scales were assessed.
Results: A poor correlation ($r<0.5$) was detected between most of the scales of the two instruments. Only the SF-36 and EORTC social functioning scales and the SF-36 mental health and EORTC emotional functioning scales had a correlation coefficients >0.5. EORTC was more sensitive in detecting physical or emotional declines and more conservative in detecting improvements (table). Both SF-36 and EORTC showed poor correlations ($r<0.5$) between perioperative changes in QoL and FEV1 or DLCO. In particular, there was a poor correlation between perceived changes in dyspnea and objective changes in FEV1 or DLCO.
Conclusions/Uploads: EORTC was at least equivalent to SF-36 in assessing perioperative changes in generic QoL scales. However, since it provides a more detailed evaluation of specific symptoms it should be regarded as the instrument of choice for measuring QoL in the thoracic surgery setting.
Disclosure: A. Brunelli: The Author has the following conflict of interest:
-former Advisory Board Millicore
-Advisory board Medela Healthcare
All other authors have declared no conflicts of interest.

Scales	Improved (effect size >0.8) SF36	Improved (effect size >0.8) EORTC	Declined (effect size <-0.8) SF36	Declined (effect size <-0.8) EORTC
General Health	8(24%)	2(6%)	8(24%)	7(21%)
Physical Functioning	5(15%)	2(6%)	10(30%)	11(33%)
Social Functioning	8(24%)	9(27%)	9(27%)	10(30%)
Mental Health/ Emotional Functioning	7(21%)	5(15%)	4(12%)	8(24%)

O-031 LUNG RESECTION IN HEMATOLOGIC PATIENTS WITH INVASIVE PULMONARY ASPERGILLOSIS

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Background/Objectives: Invasive pulmonary aspergillosis (IPA) is a frequent complication in patients with hematologic malignancies undergoing high dose chemotherapy and stem cell transplantation. With introduction of new antifungal agents the mortality of IPA dropped but remains still high, especially for patients with prolonged neutropenia. Surgical resection in addition to antifungal therapy is an option for selected cases. However this approach is often feared due to the fact that the patients are immunocompromised.
Materials & Methods: We analysed the perioperative outcome of 69 hematological patients (mean age 43 years) undergoing surgery for aspergillosis over a period of 25 years at our institution.
Results: 48 patients suffered from leukemia, 2 from myelodysplastic syndrome, 8 from aplastic anemia, 3 from lymphoma, 1 from melanoma and 7 from other hematologic diseases. 42 underwent high dose chemotherapy, 18 stem cell transplantation, 6 antilymphocyte globuline and 3 patients no specific therapy. On the day of surgery 42 patients were neutropenic. The mean platelet count was 87 x 10^9/L. 42 wedge resections, 25 lobectomies and 2 enucleations were performed. Fungal infection was documented histologically in 51 patients. Reoperation was performed in 4 cases: bronchial stump dehiscence, persistent airleak, chylothorax and seroma. Minor complications at the site of surgery occurred in 12 cases. In only two cases there was an uncontrolled disseminated fungal infection (pleural aspergillosis; cerebral aspergillosis). The overall mortality at 30 days was 7.2% (5/69). Medium and longterm survival was mainly influenced by progression or reoccurrence of the underlying hematologic disease and neither by the surgical procedure nor by unsuccessful resection of the fungus.
Conclusions/Uploads: Lung resection is a therapeutic option for patients with hematologic diseases suffering from pulmonary fungal infection. Despite the immunocompromised status of these patients the perioperative morbidity and mortality is acceptable and the prognosis is more determined by the underlying hematologic disease than the surgical intervention itself.
Disclosure: All authors have declared no conflicts of interest.

Monday, 31 May 2010
16:00 - 17:30
Abstract Session 6 - Experimental / Innovative Techniques

F-032 LUNG EDEMA MONITORING BY MICROWAVE REFLECTOMETRY

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[3]*Department Of Anesthesia And Critical Care Medicine, Mannheim University Medical Center, Mannheim/DE,*
[4]*Institute Of Information Technology, Technical University Illmenau, Illmenau/DE,*
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Background/Objectives: Microwave reflectometry might be a suitable tool for the thoracic surgeon to monitor edema formation / clearance of the lung during lung surgery. A lately developed mathematical model of lung tissue water measurement using microwave reflectometry was modified and adjusted to a new set up for clinical application.
Materials & Methods: In an ex vivo isolated perfused model of rat lungs monitoring of lung tissue water changes has been documented for adjustment of the set up. Further more changes in lung water content were documented over a period of more than 240min during isolated ventilation and perfusion of a human lung lobe specimen after operation. Finally changes of lung and tumor dry weight ratio were documented under informed consent of the patient during human lung resection for lung cancer.
Results: Changes in reflectometry measurements correlated to physiologic changes and macroscopic edema formation in both experimental models and during lung resection. With the applied model a continuous online monitoring of lung water by microwave reflectometry is possible for a period of over 4hrs. Significant differences in lung water have been found between different regions of the lung and tumor at the start of operation($p<0.001$). Significant changes of lung water during operation have ben found in the resection specimen and tumor ($p<0.01$).
Conclusions/Uploads: Microwave reflectometry offers a noninvasive approach to monitor lung edema formation in experimental models and during thoracic surgery. Further studies are needed to establish microwave reflectometry in clincal settings.
Disclosure: All authors have declared no conflicts of interest.

F-033 A NOVEL TEMPORARY JUGULO-FEMORAL SHUNT FOR SUPERIOR VENA CAVA REPAIR

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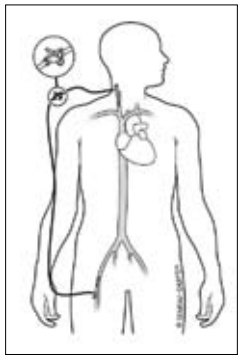
Background/Objectives: Superior vena cava (SVC) clamping can be required during thoracic surgery for dissection purposes, SVC replacement or bleeding control. In such cases, bypass techniques can be necessary to avoid hemodynamic instability, cerebral venous hypertension and hypoperfusion as few collaterals exist to supplement a patent SVC for the venous drainage of the upper body. Here, we report a novel and simple extracorporal jugulo-femoral bypass which does not require systemic heparinization, specialized cannulation techniques or pumping devices.
Materials & Methods: We validated our system in seven patients undergoing thoracic surgery. We monitored the systemic arterial blood pressures, the heart rate and vasoactive peptide requirements throughout the procedure. We also determined the peri/postoperative neurological status and the in-hospital morbidity and mortality for each patient.
Results: In all patients, SVC clamping with a functional jugulo-femoral bypass had the tendancy to lower systolic blood pressure and enhance the needs in vasoactive peptides by 4-fold. At declamping, there was no effect on systolic or diastolic blood pressures but the vasoactive peptide needs remained higher than before clamping. We found no significant differences in oxygen saturation and heart rate before, during or after SVC clamping. Clinically, 1 of 7 patients developed a discrete face edema and cyanosis. Perioperative bispectral encephalogram indexes showed no variation before, during and after SVC clamping. A postoperative neurological exam, performed by a qualified neurologist after extubation, was normal in all patients. There were no in-hospital complications or deaths.
Conclusions/Uploads: This novel temporary bypass procedure is a safe and simple method to avoid hemodynamic instability and upper body venous hypertension related complications during procedures involving SVC clamping.
Disclosure: All authors have declared no conflicts of interest.



Scheme of the jugulo-femoral bypass technique including the two sheath insertions in the jugular and femoral veins, the tubing system and the three-way cock to which the sidearm is connected. The shunt is activated by simple rotation of the three way cock and flow follows the pressure gradient from the upper to the lower part of the body.

F-034 ANALYSIS OF OUTCOMES OF THORACIC SURGICAL PRACTICE FROM A METROPOLITAN CATCHMENT AREA AND VALIDATION WITH PROPENSITY SCORE BY THE DATABASE OF THE EUROPEAN SOCIETY OF THORACIC SURGEONS: FROM SINGLE UNIT TO REGIONAL GROUP PRACTICE TO IMPROVE QUALITY OF CARE

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Background/Objectives: Quality of care needs to be gauged to the demands of a given patient population. Third party payers could be interested in the safety and reliability in the provision of thoracic surgery across regions or largely populated areas to determine service distribution and pay per performance criteria.
Materials & Methods: The databases of 5 Thoracic Surgical Units in a major Italian metropolitan area were reviewed to assess mortality and morbidity rates after simple lobectomy/bilobectomy for early stage lung cancer in the 2005-2008 period. Outcomes were validated by the ESTS Database through propensity score matching. Patients in the Parthenope Database were matched with counterparts in the ESTS Database by using propensity score developed using a series of perioperative characteristics.
Results: The Parthenope Database included 510 lobectomies/bilobectomies; there were 376 (73.7%) male and 134 (26,3%) female patients (mean age, 64 years;range, 22 to 82). The most frequent histotypes were adenocarcinoma in 262 patients (51.4%) and squamous cell carcinoma in 178 (34.9%).As to staging distribution pIA was found in 199 (39%), IB in 222 (43.5%), IIA in 14 (2.7%), and IIB in 75 (14.8%). Overall 30 day mortality in the Parthenope Database was 0.98%. Propensity score yielded 228 well-matched pairs with the ESTS Database. The incidence of major complications in the matched groups was not different, 7.5% vs 6.5% (17 cases vs 15), p=0.7 . Mortality rates were similar 2.6% vs. 1% (5 cases vs 2) p=0.3 . Length of stay was 3 days longer in the Parthenope group 13 vs. 10.1 days ($p<0.0001$).
Conclusions/Uploads: Standardization of safety and reliability of thoracic surgical practice throughout a catchment area represent a step forward in implementing evidence-based pathways of care and provides important information to third party payers for resource allocation.
Disclosure: All authors have declared no conflicts of interest.

F-035 V.A.C.® THERAPY OF CERVICAL LYMPH NODE TUBERCULOSIS

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Background/Objectives: Surgery for cervical lymph node tuberculosis (scrofula) entails a complete removal of the affected lymph node group through neck dissection followed traditionally by time-consuming open wound management. In this report we show for the first time that open wounds after radical neck dissection for scrofula can be rapidly closed by V.A.C therapy.
Materials & Methods: The charts of all consecutive scrofula cases in our institution, which had been treated by radical neck dissection and subsequent V.A.C. therapy, were reviewed with regard to time to epithelialization, in-hospital stay, post-operative complications, and long-term follow-up.
Results: Since 2005, 48 consecutive scrofula patients (age 18 - 46 years, median 25.5 years) were treated with V.A.C. therapy following radical neck dissection. The average time from surgery to complete epithelialization was 22 (14 - 28) days with a median in-hospital stay of four days. The cosmetical result was pleasant in all cases. Only one patient suffered a post-operative complication: a cervical lymph fistula, which could be successfully managed by total parenteral nutrition for four days and further treatment with V.A.C. therapy. Up to date, only one scrofula recurrence occurred, which could be treated by redo surgery and subsequent V.A.C. therapy.
Conclusions/Uploads: V.A.C. therapy allows a rapid and recurrence-free closure of large neck wounds after radical neck dissection for scrofula.
Disclosure: All authors have declared no conflicts of interest.

F-036 BRONCHOSCOPIC LUNG VOLUME REDUCTION AS A BRIDGE TO LUNG TRANSPLANTATION IN COPD PATIENTS

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Background/Objectives: COPD is the leading indication for lung transplantation; however, these patients rarely gain priority on the waiting list until very late. The clinical status can be improved by surgical lung volume reduction; this procedure, although carries significant morbidity, has been repeatedly advocated as a bridge. Recently, bronchoscopic lung volume reduction (BLVR) has been proposed to improve functional parameters in patients with emphysema but it has never been reported as a bridge to lung transplantation so far.
Materials & Methods: We hereby report our experience with bronchoscopic lung volume reduction as a bridge to lung transplantation in four patients (males, mean 51 years).
Results: All patients underwent unilateral BLVR (2 RUL, 1 RLL, 1 LUL; mean 3.5 valves per patient). No morbidity and mortality were observed. Three out of the four patients successfully reached transplantation after 6, 7 and 6 months respectively. Two patients received single lung transplantation and one sequential double lung transplantation. The fourth patient died of respiratory failure 13 months after valve placement. BLVR was able to reduce the residual volume and improve the 6.minute walking test and MRC score.
Conclusions/Uploads: BLVR allowed to improve the functional status and quality of life of these patients. In a selected group of COPD patients awaiting lung transplantation the reported short – medium term objective improvement may play an important role to ameliorate the clinical status and reach the time of surgery.
Disclosure: All authors have declared no conflicts of interest.

F-037 MESOTHELIOMA CELL PROLIFERATION IS CONTROLLED BY MITOGEN ACTIVATED PROTEIN KINASE ERK1/2 AND P38 AND SUBSEQUENT C/EBP-BETA ACTIVATION

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[2]*Pneumology, University Hospital of Basel, Basel/CH,*
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Background/Objectives: Pleural malignant mesothelioma is a deadly disease and resistant to all know tumour therapies and only recently is treated by surgery. Progression of mesothelioma involves mitogen activated protein kinases (MAPK), but nothing is known about their substrate, the transcription factor family of CCAAT/enhancer binding proteins (C/EBPs) which compete for DNA binding sites regulate proliferation. C/EBP-alpha functions as a negative and C/EBP-beta as a positive control element. In other malignancies C/EBP-alpha is often missing thus losing control of cell proliferation. Therefore we investigated the MAPK - C/EBP intercellular signalling pathways in established human pleural malignant mesothelioma cell lines and assessed their potential as therapeutic targets.
Materials & Methods: In six established and two freshly isolated human mesothelioma cell lines we analysed the expresson and activation of MAPK and all six C/EBP isoforms by immunoblotting and theri inhibition by inhibitory RNA strategies.
Results: In mesothelial and mesothelioma cells the platelet-derived growth factor (PDGF)-BB activated Erk1/2 MAPK and increased proliferation. The second MAPK p38 was constitutively active. A mesothelioma cell specific expression pattern and intercellular location was found for p38 MAPK isoforms. Inhibition of p38-beta and -gamma MAPK in mesothelioma cells reduced their proliferation, while in mesothelial cells proliferation involved p38-alpha and -gamma. Down-regulation of C/EBP-beta inhibited the proliferation of both mesothelioma and mesothelial cells. The expression of C/EBP-beta was reduced by inhibition of Erk1/2 or p38 MAPK in mesothelioma cells, but was only affected by Erk1/2 MAPK blockage in mesothelial cells. Interestingly C/EBP-alpha was missing in all mesothelioma cells and its re-expression reduced the cells proliferation. In contrast C/EBP-alpha was expressed by mesothelial cells and its suppressing increased their proliferation.
Conclusions/Uploads: In human pleural malignant mesothelioma cells proliferation is activated by Erk1/2 and two tumour specifically expressed p38 MAPK-isoforms (-beta, -gamma) inducing transcription factor C/EBP-beta activity and this is not opposed by C/EBP-alpha in mesothelioma cells. Thus the inhibition of C/EBP-beta may be a novel target for mesothelioma therapy.
Disclosure: All authors have declared no conflicts of interest.

F-038 LOW PROTEIN CONTENT OF THE DRAINAGE FLUID IS A GOOD PREDICTOR FOR EARLIER CHEST TUBE REMOVAL AFTER LOBECTOMY

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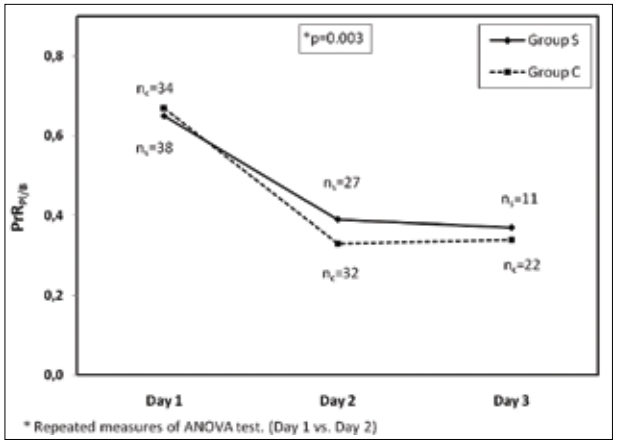
Background/Objectives: Due to great absorption capability of the pleura for transudates, protein content of draining pleural fluid may be considered as more adequate determinant than its daily draining amount in decision making for earlier chest tube removal. This study aims to investigate the pattern of protein content of the pleural drainage fluid and its possible influence to the timing for chest tube removal after lobectomy.
Materials & Methods: Seventy-two patients undergoing straightforward lobectomy were randomised into two groups. Drains were removed if protein ratio of the pleural fluid to the blood ($PrR_{Pl/B}$) was ≤0,5 regardless of its daily draining amount in the study arm (Group S; n=38) and patients in the control arm (Group C; n=34) had their tubes removed if daily drainage was ≤250 mL regardless of its protein content.
Results: Pattern of decrease in $PrR_{Pl/B}$ was the same between groups. The mean $PrR_{Pl/B}$ was 0.65 and 0.67 on the first postoperative day and it has remarkably dropped down to 0.39 and 0.33 on the second day in groups S and C, respectively (p=0.003). Chest tube removal time was significantly lower in group S than group C (2.1±0.9 vs. 2.9±1.0 days, respectively; p<0.001). By the third postoperative day, daily drainage remained ≥250 mL in 22 (65%) patients in whom 17 (77%) of them would have their chest tubes removed on the basis of $PrR_{Pl/B}$ in group C. However, drains could not be removed due to high protein content of draining fluid despite acceptable daily drainage in only 3 (27%) of 11 cases in group S (p=0.009). None of the patients required re-drainage procedure due to a persistent and symptomatic pleural effusion in both groups.
Conclusions/Uploads: Regardless of the daily drainage, chest tubes can safely be removed earlier than it is anticipated in most patients after lobectomy if protein content of the draining fluid is low.
Disclosure: All authors have declared no conflicts of interest.



Pattern of decrease in protein content of the pleural fluid during early postoperative period. PrRPl/B= Ratio of protein content of the pleural fluid to blood.

F-039 DOES LUNG ISCHEMIA AND REPERFUSION HAVE AN IMPACT ON CORONARY FLOW? A QUANTITATIVE CORONARY BLOOD-FLOW ANALYSIS WITH INFLAMMATORY CYTOKINE PROFILE

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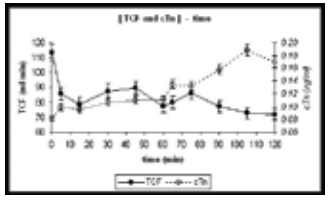
Background/Objectives: Ischemia–reperfusion (IR) injury remains a major cause of early morbidity and mortality after lung transplantation with poorly documented extrapulmonary repercussions. To determine the hemodynamic effect due to lung IR injury, we performed a quantitative coronary blood-flow analysis in a swine model of lung autotransplantation.
Materials & Methods: In 14 swine, blood-flow was measured in the ascending aorta, left anterior descending (LAD), circumflex (Cx) and right coronary artery (RCA) along with left and right ventricular pressures (LVP, RVP). Interleukin-6 and 10 (IL-6, IL-10) and TNF-A were measured in coronary sinus blood samples. The experimental (IR) group (n=10) underwent 60 minutes of lung ischemia followed by 60 minutes of reperfusion by clamping and releasing the left pulmonary hilum. Simultaneous measurements of all parameters were made at baseline and during IR. The control group (n=4) had similar measurements without lung IR.
Results: In the IR group, Total Coronary Flow (TCF=LAD+Cx+RCA blood-flow) decreased precipitously and significantly from baseline (113.4 ml/min) during IR (p<0.05), with lowest value observed at 60 minutes of reperfusion (-36.7%, p<0.05). Baseline cTn (0.08 ng/ml) increased during IR and peaked at 45 minutes of reperfusion (+233%, p<0.001). Baseline IL-6 (9.2 pg/ml) increased during IR and peaked at 60 minutes of reperfusion (+298%, p<0.001). IL-10 and TNF-A had no significant changes (p>0.05). Significant LVP drop at 5 minutes of ischemia (p<0.05) was followed by a slow return to baseline. A second LVP drop occurred at 15 minutes of reperfusion (p<0.05) and persisted. Conversely, RVP increased throughout ischemia (p<0.05) and returned towards baseline during reperfusion. Coronary blood-flow, hemodynamic and inflammatory profiles remained unchanged in the control group.
Conclusions/Uploads: Lung IR has a negative impact on coronary blood-flow, hemodynamics and inflammatory profile. In addition, to the best of our knowledge, this is the first study where coronary blood-flow is measured during lung IR revealing the associated cardiac risk.
Disclosure: All authors have declared no conflicts of interest.



Effect of Ischemia and Reperfusion on Total Coronary Blood-Flow (TCF) and Cardiac Troponin (cTn)

F-040 FLUID AND ELECTROLYTE BALANCE ANALYSIS AFTER MAJOR THORACIC SURGERY BY BIO-IMPEDANCE AND ENDOCRINE EVALUATION

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[2]*Internal Medicine, Nephrology Unit, Perugia/IT,*
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Background/Objectives: Weight gain with oedema formation and decreased plasma proteins is frequently reported in patients undergoing major thoracic surgery. The significance and the clinical implications of such hydro-electrolytic imbalance is unclear. The aim of this observational study is to evaluate the amount and the distribution of the Total Body Water (TBW) along with the variation of specific hormones and electrolytes in patients submitted to pulmonary lobectomy for lung cancer.
Materials & Methods: 34 consecutive patients were enrolled. The following data were analyzed before surgery and in postoperative (postop) day 1,3,5 and 7: body weight, adrenocorticotropic hormone (ACTH), serum and urinary cortisol, Atrial Natriuretic Peptide (ANP). Hydration was evaluated by hematocrit (Ht), blood urea and creatinine, plasma proteins, Sodium and Potassium value, urine osmolality. Monofrequency bio-impedance analysis (BIA) was utilized to quantify at the same time the water gain and redistribution of TBW.
Results: There was no mortality and major morbidity. Estimated mean intraoperative blood loss was 250 ml. No blood transfusions were required. The following results were observed in all patients, up to postop day 4: increase of body weight (0.6-13.8%, range 0.500-9 kg), increase of ANP and of cortical-adrenal function, slight decrease of hematocrit and plasma proteins, probably due to hemodilution as confirmed by urea and creatinine values. Urine osmolality did not modified in the observational period. The mean bio-impedance derived reactance and mean body weight are depicted in fig 1. Restoration of the preoperative values was observed between day 5 and 7.
Conclusions/Uploads: Our data show that postoperative gain weight and oedema formation, are related to the pronounced increase of corticoid-adrenal function in response to the surgical stress. Strict fluid restriction, diuretics and secondary secretion of ANP do not avoid such imbalance. Hemodilution seems to have a minor role. BIA is more sensitive then body weight to monitor fluid redistribution. Further experience is required.
Disclosure: All authors have declared no conflicts of interest.

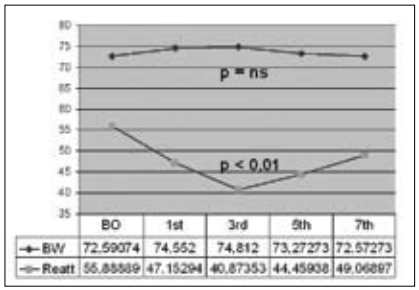

Figure 1.
BW, body weight; Reatt, bio-impedance derived reactance. The mean values curves of bio-impedance derived reactance and body weight are shown. Between 3rd and 5th day starts the trend to preoperative values. The mean bio-impedance derived reactance was more sensitive than body weight to measure fluid accumulation and redistribution.

Tuesday, 01 June 2010
14:00 - 15:30
Abstract Session 7 - Chest Wall / Diaphragm / Pleura

O-041 VATS BULLECTOMY VERSUS LASER ABLATION IN THE TREATMENT OF PRIMARY SPONTANEOUS PNEUMOTHORAX: A PROSPECTIVE RANDOMIZED STUDY

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Gogus Cerrahisi Abd, Uludag Universitesi Tip Fak., Bursa/TR

Background/Objectives: Primary spontaneous pneumothorax(PSP) is oftenly seen in young adults that requires an urgent attention. The aim of surgery is to obtain complete lung expansion as well as to reduce recurrence of the disease. However, there is no universal agreement regarding its surgical treatment.
Materials & Methods: Forty patients with complicated PSP were prospectively randomized into two groups, twenty patients in VATS group and twenty patients in Laser group. VATS bullectomy with tree port technique was applied in Group 1, Laser ablation in Group 2. The Endo 45-60mm stapler was used for bullectomy in Group 1 and 960nm diode Laser with none-contact mode in Group 2. Mechanical pleural abrasion using Marlex mesh was applied in both groups. Single chest tube (28F) was used in all patients. Patients with prolonged air leak were discharged home using Heimlich valve regardless of their operation. Operating time, complications, hospital stay, duration of chest tube and recurrence rates were compared in both groups.
Results: Median stapler usage was 1.6 (1-4) in Group 1 and 2700 j (1800-3700j) in Group 2. Median operating time was 31min. in VATS group and 34min. in Laser Group. Although one (5%) patient in Group 1 had a delayed lung expansion, 15 (75%) had in Group 2, pË,0.05. Mean hospital stay was 2,75 (2-4) days in Group 1 and 3.7 (2-10) days in Group 2 (pË*f*0.05) with the chest tube duration of 2.3 (1-7) days in Group 1, 7.9 (2-14) days in Group 2, pË,0.001. Median follow-up time was 2.1 years in Group 1 and 1.8 years in Group 2. There was one (5%) recurrence in Group 1 and one lung collapse following chest tube removal in Group 2.
Conclusions/Uploads: Although delayed lung expansion due to termal damage was observed in Group 2, results were comparable to VATS bullectomy with a superiority in patients with multiple bullae.
Disclosure: All authors have declared no conflicts of interest.

O-042 PLEUROPULMONARY SEPSIS IN A TERTIARY THORACIC CENTRE: IMPACT OF BRITISH THORACIC SOCIETY (BTS) GUIDELINES AND MRSA PREVENTION ON ANTIBIOTIC CHOICE

S. Rathinam, J. Cuell, S. Sivalingam, P. Cornejo, M. Kalkat, P.B. Rajesh;
Thoracic Surgery, Birmingham Heartlands Hospital, Birmingham/UK

Background/Objectives: Empyema Thoracis forms part of mainstay thoracic practice. The introduction of British Thoracic Society (BTS) Guidelines for empyema and MRSA and Clostridium difficile reduction strategies have led to changes in antibiotic therapies. Our objective was review the antibiotic prescribing practice in a tertiary hospital in managing pleural infection and comparing it with a historic cohort prior to the implementation of these changes.
Materials & Methods: A retrospective reviewed of patients who underwent surgery for empyema between January 2006 to December 2008 was performed . Data was collected in a standardised format similar to a previous study from 1996-2001 from hospital online results service and electronic prescribing records (EP). The results of the two studies were compared .
Results: 180 patients were analysed [table1]. 40 different combinations of antibiotics with 76.6% of sensitivities were utilized. There was a reduction in MRSA from 12% to 2% and presence of organisms in the pus. The use of Cephalosporins has reduced markedly from 48% to 9% with a modest reduction in Aminoglycoside from 13% to 1% with an increase in Penicillins from 16% to 28% and Carbapenems use. Bacterial pathogens identified in empyemas have remained relatively similar however antibiotic choices have changed. There has been no reduction in number of decortications despite these changes. There is a need for broad spectrum antibiotic cover to aid prescribing for patients without culture positive bacteriology.
Conclusions/Uploads: The Guidelines and changes in antibiotic policies have reduced MRSA infections and increased the number of culture negative empyemas. There is a need for broader spectrum antibiotic cover for empyemas rather than standard antibiotic prophylaxis.
Disclosure: All authors have declared no conflicts of interest.

	1996-2001	2006-2008
Number of Patients	231	180
Male	176(76%)	116(64%)
Mean Age	53.2(16-87)	51.65(16-83)
Staphylococcus	10%	8%
Streptococcus	4%	4%
MRSA	12%	2%
Gram-ve	4%	9%
Other	3%	3%
Negative culture	67%	74%

Table 1. Pathogens in the two study periods

O-043 EXTENDING THE USE OF NUSS PROCEDURE IN PATIENTS OLDER THAN 30 YEARS

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Thoracic, Aarhus University Hospital, Skejby, Aarhus N/DK

Background/Objectives: The Nuss procedure was original thought to be the method for correction of pectus excavatum in children and teenagers. It is now a well established technique and older patients have been offered the treatment. The aim of this study was to evaluate the results in patients > 30 years.
Materials & Methods: Since 2001 we have routinely used the Nuss-procedure for correction of pectus excavatum in more than 700 patients. The indication for surgery has been disabling cosmetic appearance. All operations has been performed by the same surgeon. Patient records were retrospectively analysed.
Results: Forty-seven patients were > 30 years or older (range 30-52 years). Median age was 36 years and 87% were males. There was no operative mortality. Two bars were needed in 70% to get a satisfactory result. The median operating time was 62 minutes (range 21-104 minutes). The median postoperative stay was 4 days (range 3-29 days). Postoperative complication was found in one patient who had deep infection after reoperation, which was necessary due to lateral dislocation of the bars. All patients were satisfied with the result at the 6 week follow up visit.
Conclusions/Uploads: The Nuss procedure can be used in old patients with excellent results. The operations time is longer than in young patients and more patients need two bars, but the postoperative stay is equivalent with young patients.
Disclosure: All authors have declared no conflicts of interest.

O-044 THORACOSCOPIC DIAPHRAGMATIC PLICATION USING THREE 5 MM PORTS

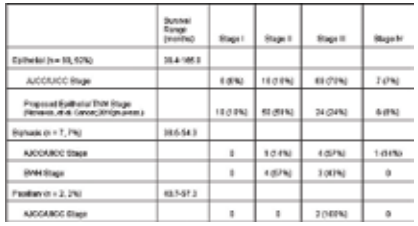
D.H. Kim, J.J. Hwang, K.D. Kim;
Cardio & Thoracic Surgery, Eulji University Hospital, Daejeon/KR

Background/Objectives: Thoracoscopic plication is the most effective treatment for diaphragmatic enventration. However, the conventional thoracoscopic plication procedure has some disadvantages. We improved and simplified the technique with the patient in the head up position, CO_2insufflations and figure-of-eight sutures.
Materials & Methods: Between October 2005 and September 2009, 9 patients with diaphragmatic paralysis had surgery. The mean age was 38.5±53.0 years (range, 2–76 years). One 5 mm port was inserted into the fifth intercostal space on the posterior axillary line for the camera. Two 5 mm ports were inserted into the 9th intercostal space on the posterior axillary line for the instrument. The head up position was used so that the abdominal organs would descend and approximately 1500–2500 cc of CO_2gas was insufflated into the thoracic cavity to compress the diaphragm. Figure-of-eight sutures were used in the middle portion of the diaphragm, additional 2–3 figure-of-eight sutures were provided postero-laterally and antero-medially.
Results: The mean operation time was 46.7±15.9 min (range 30–85 min). There was no mortality. There was prolonged air leakage, for more than 7 days, in one patient who had moderate adhesions. Re-expansion pulmonary edema developed in one case and 3 days of ventilator support was provided. The mean hospital stay was 6.22±2.04 days (range, 4–11 days). The mean follow-up duration was 27.2±11.6 months (range, 2-43months). All patients had their symptoms relieved and there was no recurrence of eventration except one patient who have more than 2cm elevation of diaphragm comparing to immediate post-operation status.
Conclusions/Uploads: We could perform VATS placation using three 5mm ports, and midterm result is good. VATS placation may be more ideal treatment of diaphragmatic eventration than open placation.
Disclosure: All authors have declared no conflicts of interest.

O-045 CLINICAL AND PATHOLOGICAL FEATURES OF LONG-TERM SURVIVORS OF MALIGNANT PLEURAL MESOTHELIOMA FOLLOWING EXTRAPLEURAL PNEUMONECTOMY

D.J. Sugarbaker[1], A.S. Wolf[1], L. Chirieac[2], J. Godleski[2], T. Tilleman[1], M.T. Jaklitsch[1], R. Bueno[1], W.G. Richards[1];
[1]*Thoracic Surgery, Brigham and Women's Hospital, Boston/US,*
[2]*Pathology, Brigham and Women's Hospital, Boston/US*

Background/Objectives: Surgery-based multimodality therapy is associated with long-term survival in a significant number of malignant pleural mesothelioma (MPM) patients. Most remaining patients succumb to local recurrence. We explored factors associated with long-term survival in MPM patients who underwent extrapleural pneumonectomy (EPP).
Materials & Methods: With IRB approval, we reviewed records in our institution's Mesothelioma Patient Data Registry (n=2,297) to identify all patients who underwent EPP for MPM from 1/1/88 to 12/31/06. Their pathology and updated vital status as of 12/31/2009 were confirmed. Fisher's exact test was used to compare dichotomous variables.
Results: Among 595 EPP patients identified, 107 (18%) survived at least 3 years following surgery, including 22 remaining alive and 6 lost to follow-up. Among long-term survivors, 36 (34%) were female, 58 (54%) had left-sided disease, and the median age was 56 years (range 27-77). Histology, staging distributions, and survival durations are presented in the table. Intrapleural and extrapleural lymph nodes were positive in 35 (33%) and 16 (15%) patients, respectively. At least one surgical margin was positive in 72 (68%) cases. Among patients who survived less than 3 years (n = 488), significantly lower proportions were women (n = 90, 18%; p = .001) and/or had epithelial tumor histology (n = 289, 59%; vs. biphasic, p < .0001).
Conclusions/Uploads: A significant proportion of patients undergoing EPP for MPM experienced extended survival. Although most long-term survivors had epithelial tumors, 7% had biphasic histology. Cases of well-differentiated papillary mesothelioma were rare (2%). Long-term survival was observed even in patients with advanced pathologic stage. Women represented a significantly larger proportion of patients surviving at least (vs. less than) three years following EPP. These data support the role of EPP to extend survival for MPM through macroscopic cytoreduction. Further efforts to eradicate micrometastatic disease and improve patient selection are warranted.
Disclosure: All authors have declared no conflicts of interest.



Table

O-046 THE ROLE OF PET-CT DURING DIAGNOSIS AND MULTIMODALITY THERAPY FOR MALIGNANT PLEURAL MESOTHELIOMA

I. Opitz[1], M. Tutic[1], P.B. Kestenholz[1], T. Frauenfelder[2], R. Stahel[3], W. Weder[1];
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[2]*Division Of Radiology, University of Zurich, Zurich/CH,*
[3]*Departement Of Oncology, University of Zurich, Zurich/CH*

Background/Objectives: To describe the role of FDG-PET-CT for diagnosis and therapy for malignant pleural mesothelioma (MPM) patients undergoing induction chemotherapy followed by extrapleural pneumonectomy (EPP).
Materials & Methods: The patient underwent PET-CT before and after induction chemotherapy with cisplatin and gemcitabine (cis/gem) or cisplatin and pemetrexed (cis/pem), followed by EPP. Patients with all histological subtypes in the clinical stage T1-3 N0-2 and M0 were included.
Results: From May 1999 to January 2010, 165 patients were treated. 32 underwent PET-CT before and after chemotherapy, the rest were staged with CT-scan only. 9 patients were excluded from radical surgery (1 because of contralateral FDG-activity in the lung, 2 due to chest wall invasion (one already detected in preoperative PET-CT), other tumor progress in the 5 remaining patients not detected in PET-CT, 1 because of reduced PS after CTX). 1 patient presented FDG-Enhancement in a contralateral mediastinal lymph node and was therefore excluded from multimodality concept. Post-chemotherapy PET-CT revealed 1 other case of contralateral lymph node enhancement so that these patients underwent no radical resection. Other findings with consequences on therapy strategy were not revealed by PET-CT. 4 patients were described as stable disease (SD) in the post-chemotherapy PET-CT, 15 patients presented focal response and 7 patients general response in FDG-Enhancement PET-CT (n=22 PR), 5 patients were classified as progressive disease (PD). Comparing these interpretations to the classical modified RECIST-criteria for response evaluation showed no correlation
Conclusions/Uploads: FDG-PET-CT during diagnosis and staging of MPM can help to identify patients with extrathoracic disease and contralateral mediastinal lymph node involvement, so that these patients are not selected for multimodality treatment. The assessment of therapy response does not correlate to classical methods but has to be further refined.
Disclosure: All authors have declared no conflicts of interest.

	RECIST SD	RECIST PR	RECIST PD
PET-CT SD	1	1	1
PET-CT PR	4	5	3
PET-CT PD	0	1	2

Tuesday, 01 June 2010
14:00 - 15:30
Abstract Session 8 - Pulmonary Neoplastic

F-047 THE VALIDITY OF PREOPERATIVE LYMPH NODE STAGING GUIDELINES OF ESTS IN NON-SMALL CELL LUNG CANCER PATIENTS

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[1]*Thoracic Surgery, Yedikule Chest Diseases and Thoracic Surgery Education and Research Hospital, Istanbul/TR,*
[2]*Thoracic Surgery, Yedikule Thoracic Surgery and Chest Diseases Training and Research Hospital, Istanbul/TR*

Background/Objectives: ESTS has proposed a new preoperative lymph node staging guidelines (LNSG) for non-small cell lung cancer (NSCLC) in 2007 after introducing some new staging modalities. In this study, the validity of these guidelines was tested.
Materials & Methods: All patients with histologically confirmed NSCLC diagnosed between 2007 and 2009 who are suitable for thoracotomy were included to the study. Computerized tomography of chest (CT) and positron emission tomography (PET-CT) were taken from all patients. Mediastinal staging was done invasively (by mediastinoscopy) in all the patients. Mediastinal lymph nodes >1,5 cm shorter axis in CT or have increased activity in PET-CT were accepted metastatic. Samples obtained with mediastinoscopy were evaluated histopathologically. Thoracotomy was done for mediastinoscopy negative patients. The exact stage was determined according to systematic lymph node dissection performed during thoracotomy. The results were adopted to ESTS's LNSG (direct thoracotomy for T1-2 N0 tumor according to CT and PET-CT, and invasive staging for T3-4 or central tumor or positive mediastinal adenopathy according to CT or tumor with low FDG uptake or existence of mediastinal or hilar FDG uptake according to PET-CT) and the validity of the guidelines were tested.
Results: Direct thoracotomy was done for only 11 (6,5%) patients. No MLNM was detected after thoracotomy in these patients. Mediastinoscopy was performed in 157 patients and MLNM was found in 41 (26%). Among the other mediastinoscopy performed 116 patients, MLNM was detected after thoracotomy in additional 8 patients (false negative), metastatic lymph nodes were paraaortic nodes in 3 and inferior mediastinal in other 3 patients. Total MLNM prevalence was calculated as 29% in this series. The sensitivity, specificity, positive and negative predictive values of the guidelines were calculated as 84%, 100%, 100% and 95%, respectively.
Conclusions/Uploads: Preoperative lymph node staging guidelines proposed by ESTS in 2007 is effective.
Disclosure: All authors have declared no conflicts of interest.

F-048 ULTRASOUND CRITERIA APPLIED WITH INTRAOPERATIVE MEDIASTINOSCOPIC ULTRASOUND (MUS) IN PRETHERAPEUTIC T-STAGING OF LUNG TUMORS SHOW SUPERIOR CORRELATION WITH PATHOLOGIC T-STAGE THAN T-STAGING WITH COMPUTED TOMOGRAPHY

M. Wolf[1], B. Witte[1], H. Hillebrand[1], R. Lachmann[2], S. Herber[2], M. Hürtgen[1];
[1]*Thoracic Surgery, Katholisches Klinikum Koblenz, Koblenz/DE,*
[2]*Department Of Radiology, Katholisches Klinikum Koblenz, Koblenz/DE*

Background/Objectives: Correct pretherapeutic T-staging is mandatory for neoadjuvant studies and for the decision on surgical therapy in high-risk lung cancer patients. However, T-staging of centrally located lung tumors by means of non-invasive imaging technique is of low accuracy. By introducing a ultrasound probe during staging mediastinoscopy we aimed at determining the validity of MUS in predicting T-stage and technical resectability in patients suspected to present an invasion of major mediastinal structures.
Materials & Methods: Prospective case control study (7/2002-12/2009), 60 patients presenting centrally located lung tumors staged cT3/4Invasion on CT-scan underwent MUS. Ultrasound cT-stage was documented using priorily defined criteria and compared to cT-stage given by an independent radiologist who was blinded for the other clinical data and who had re-examined all CT-scans.
Results: No complications occurred. 43/60 (72%) patients had N2/N3 disease excluded and proceeded to operation. 6 of these 43 patients were not resected for intraoperative oncological or functional reasons. Thus, for 37 (62%) patients pT-stage was obtained and compared to cT_{ct} and cT_{mus}.
Conclusions/Uploads: In the present pilot study MUS-cT-staging for mediastinal invasion has proven superior to chest CT-scan. Further improvement is expected from biplanar ultrasound imaging with a new radial probe that is currently under evaluation.
Disclosure: All authors have declared no conflicts of interest.

Comparison of cT- and pT-stages			
cTCT	cTMUS	pT	n
3	≤2	≤2	8
	3	≤2	4
	3	3	1
4	≤2	≤2	13
	3	≤2	3
	3	3	8

F-049 LUNG CANCER WITH CHEST WALL INVASION AND PROGNOSIS RELATED TO NEW REVISED IASLC STAGING SYSTEM

C. Lequaglie, G. Giudice;
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Background/Objectives: Long term results and prognosis after en-bloc resection were analysed in 251 patients with primary lung tumors invading the chest wall according to the New Revised IASLC Staging System.
Materials & Methods: From 1984 to 2008 the males were 209, and 42 females, with a 62.95+8.74 year-old mean age. There were 167 lobectomies, 9 bilobectomies, 14 pneumonectomies and 61 sublobar resections with an average of 2.73+0.98 removed rib segments always with macroscopically free-disease resection margins and a en-bloc pulmonary resection with the costal segments interested by the tumor with a ilo-mediastinal lymphadenectomy Repair is not necessary in 96 patients; the others 155 were submitted to reconstruction of the chest wall with alloprosthesis: 104 prolene nets; 40 patches of PTFE; 11 sandwich with acrylic-prolene net. There were 129 adenocarcinomas, 89 squamous carcinomas, 22 large cell carcinomas, 4 mucoepidermoid carcinomas, 3 SCLC, 2 neuroendocrine tumors and 2 BACs.
Results: The post-operative complications have been 6.8% (17/251): 15 not-fatal (4 bronchopulmonary infections, 6 arrhythmias, 1 cerebral ischemia and 4 wound infections). The 2 fatal complications were 1 heart attack and 1 cerebral ictus. In the new IASLC Revised Staging System 2009 T4 tumors shift in Stage IIB if N0 because a multifocal disease in the same lobe of the primary tumor is considered T3. Also 4 among the tumors classified to the stage IIIB (for multifocal T4 in the same lobe) were N0. Chest wall radiation was performed in the 22 considered R1 disease patients. Mediastinal radiation was performed in 49 N1, adjuvant chemotherapy and/or mediastinal radiation in the 12 N2. No local recurrence occurred but 185/251 tumors had distant recurrences between 12–102 months.
Conclusions/Uploads: The 5 year-survival of the T3N0M0 (stage IIB with T4N0 multifocal disease in the same lobe) was 44.6% and 22.3% in the T3N1 and even more worse in T3N2 (8.4%) (actually stage IIIA).
Disclosure: All authors have declared no conflicts of interest.

F-050 REFLECTION ON FROZEN SECTION! IS IT NECESSARY TO INVESTIGATE THE BRONCHIAL RESECTION MARGIN?

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Background/Objectives: In patients with non small cell lungcarcinoma radical resection will result in the best chances of survival. Recent literature however reports an incidence of 2 to 5% non free resection margins. Expansion of the resection may be justified. Therefore it is necessary to judge completeness of resection peroperatively in a reliable way. We investigated the reliability and significance of peroperative frozen section analysis on contrast to macroscopic surgical evaluation of the bronchial resection margin.
Materials & Methods: We conducted a prospective, multicentre, observational study of 174 patients with non small cel lungcarcinoma. During the operation the surgeon recorded whether on macroscopic view the resection margin was tumor-free, uncertain or involved with tumor. Frozen section analysis of the bronchial margin was performed when visible tumor was within 3 cm of the resection margin and the surgeon was not convinced of radicality. The frozen sections were compared with definitive histology and surgical assessment.
Results: In 95 patients frozen section analysis was performed, of which eleven had a positive resection margin. In one case no certain assessment could be made by frozen section. There were no false negatives. Macroscopic surgical evaluation correctly identified 156 free resection margins in 157 patients resulting in one false negative. Six were correctly considered to be tumor-positive. Eleven patients had a macroscopically uncertain resection margin of which four were positive, five were negative and two were not evaluated by frozen section. No tumor extended into the resection margin more than 10 mm proximal to the visible tumor.
Conclusions/Uploads: Frozen section analysis was highly reliable with 99% accuracy. Accuracy of macroscopic surgical assessment was 95% making this highly reliable as well. The negative predictive value of surgical assessment was 99%. We conclude that only if there is doubt on radicality, frozen section is indicated. The surgeons judgment is just as good in most cases.
Disclosure: All authors have declared no conflicts of interest.

F-051 THE EFFICACY OF RADIOFREQUENCY ABLATION OF LUNG NEOPLASMS – RESULTS OF AN "ABLATE AND RESECT" STUDY

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Background/Objectives: Radiofrequency ablation (RFA) has increasingly obtained attention as an interventional approach for local treatment of primary and secondary lung neoplasms. The local effect of the procedure usually is controlled by radiologic means. The objective of this ablate and resect study was to investigate the efficacy by histologic evaluation of the ablated tissue.
Materials & Methods: In a total of 32 subjects with histologically proven non-small cell lung cancer or pulmonary metastases from an extrathoracic primary tumor bipolar radiofrequency ablation was performed during open thoracotomy; curative resection (lobectomy or wedge resection inluding mediastinal lymph node dissection) was performed subsequently. The extent of cell death and early histologic findings following radiofrequency ablation were determined by histology and immunohistochemistry (NADH and Mononuclear Anti Mitochondrial Antibodies MAB1273).
Results: Intraoperative RFA is a safe procedure - there was no bleeding or thermal damage of lung tissue. Routine histologic staining could not identify tumor cell death. However immunhistochemistry was able to verify cell death in the ablated tumor tissue. Complete tumor cell necrosis was determined in 12 tumors (37.5%); 90 % of nonviable tumor was detected in 16 tumors (50%). A ratio of 20% vital tumor tissue was found in 4 tumours (12.5%), especially enclosing vascular structures within the tumor tissue or in marginal zones of tumor tissue.
Conclusions/Uploads: Bipolar radiofrequency ablation in an open thoracotomy setting is a technically feasible and safe procedure. Early histologic findings after RFA showed complete tumor cell necrosis in 38%. The high rate of viable tumour cells remaining after ablation querys RFA for a curative concept; this approach should be reserved for palliative indication. Patients fulfilling the criteria for curative resection should not be denied from surgery.
Disclosure: All authors have declared no conflicts of interest.

F-052 PRIMARY LYMPHOMA OF THE LUNG: CLINICAL FEATURES, PROGNOSTIC FACTORS, AND OUTCOMES

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Background/Objectives: Primary pulmonary lymphoma (PPL) is a rare neoplasm with a favorable prognosis compared with lung cancer. In order to assess clinical features, patient management, prognostic factors and outcomes, we hereby report our 11-year experience.
Materials & Methods: A retrospective review of a prospective database of patients operated on for PPL between 1998 and 2009 was performed. Univariate and multivariate analysis was performed to identify prognostic factors. Survival was calculated by Kaplan-Meier method.
Results: There were 31 patients (16 men; median age, 59 years). Nineteen patients had marginal zone B-cell lymphoma of mucosal-associated lymphoid tissue (MALT), 4 had large B-cell lymphoma, 6 had Hodgkin's disease, and 2 had follicular lymphoma. Twelve patients (38.7%) were asymptomatic at presentation, and 19 (61.3%) had pulmonary symptoms, systemic symptoms, or both. Radiological findings at computer tomographic (CT) scan included nodules, masses infiltrates or consolidation. Bilateral pulmonary lesions were detected in 9 patients. PET scan was performed in 22 patients (71%): in 13 cases it was negative, in 9 it showed a median standardized uptake value of 4.2. CT-guided biopsy was diagnostic in 3 of 12 attempts. A definitive diagnosis was obtained by thoracotomy in 25 patients (80.6% - one pneumonectomy, 9 lobectomies, and 15 segmentectomies and wedge resections) and thoracoscopy in 6 (19.4% - 4 pulmonary wedge resections and 2 lung biopsies). Treatment methods included surgery only (n=11), surgery plus chemotherapy (n=17), surgery plus radiotherapy (n=2), and surgery plus chemotherapy plus radiotherapy (n=1). Median follow-up was 108 months (range, 2-318 months). Overall 5-year, 10-year, and 20-year survival rates were 69%, 42.3%, and 7.7%, respectively. Patients with MALT lymphoma had a best prognosis (p= 0.01). None of the prognostic factors studied significantly influenced survival.
Conclusions/Uploads: PPL have non-specific clinical features. Surgery should be the treatment of choice in localized forms while a combination of treatment should be used for diffuse diseases.
Disclosure: All authors have declared no conflicts of interest.

F-053 IMPACT OF PULMONARY LUNG FUNCTIONS FOLLOWING NEOADJUVANT THERAPY ON SURGICAL MORBIDITY AND MORTALITY IN STAGE IIIB NON SMALL CELL LUNG CANCERS (NSCLC)

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Background/Objectives: The management of T4N0-2M0 NSCLC is currently debated. Over the past five years, multimodal therapies have shown promising 5-year disease-free survivals but are thought to be associated with important morbidity and mortality if good patient selection is not achieved. Here, we determined the impact of pre-operative pulmonary lung function following neoadjuvant chemo-radiotherapy on the postoperative patient outcome.
Materials & Methods: We reviewed the records of the 73 consecutive patients that had undergone neoadjuvant chemo-radiotherapy followed by surgical resection of their T4N0-2M0 NSCLC in our institution between 1999 and 2009. Of these, 60 had had pulmonary lung functions before neoadjuvant chemo-radiotherapy, before surgery and 3 months after surgery. We compared the in-hospital morbidity/mortality of patients and correlated these results with the pre-operative pulmonary lung functions (FEV1 and DLCO).
Results: All patients had a significant decrease in DLCO but not FEV1 following chemo-radiotherapy ($p<0.05$), and a further significant decrease after surgery ($p<0.05$). Thirty nine patients had bilobectomy/lobectomy (L) while 21 had pneumonectomy (P). Mortality was significantly enhanced in the P (19%) compared to L group (3%, $p<0.05$) and was mostly attributed to adult respiratory distress syndrome (ARDS). Pulmonary complications in L and P groups consisted in pneumonia (38% vs 4%, $p<0.05$), pleural effusion (15% vs 9%, ns) and ARDS (5% vs 14%, ns). Cardiovascular complications in the L and P groups consisted in atrial fibrillation (25% vs 5%, $p<0.05$) and myocardial infarcts (5% vs 0%, ns). Pre-operative DLCO predicted values <65% did not correlate with enhanced respiratory/cardiovascular complications or with enhanced mortality in both groups.
Conclusions/Uploads: DLCO but not FEV1 significantly decreased after induction radio-chemotherapy and after surgery for patients with T4N0-2M0 NSCLC. However, there was no significant correlation between post-induction pulmonary function testing and postoperative morbidity and mortality for both lobectomy and pneumonectomy resections.
Disclosure: All authors have declared no conflicts of interest.

F-054 QUALITY OF LIFE AFTER SURGERY FOR LUNG CANCER IN THE BREATHLESS: THE "VOLUME REDUCTION" EFFECT?

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Background/Objectives: Some reports have suggested an initial deterioration on Quality of Life (QoL) following surgery for lung cancer, with a rapid recovery to preoperative levels. There is however little data reporting the impact in patients with impaired respiratory reserve. We aim to determine the effect of surgery in our patient population perception of their QoL with an interest in the population with limited respiratory reserve [Predicted postoperative FEV_1 ($ppoFEV_1$) less than 40%].
Materials & Methods: QoL questionnaires (EORTC QLQ-C30) were completed by patients at preadmission clinic before lung resection for carcinoma. Further questionnaires were sent to the patients at 3, 6, 12 and 24 months following surgery. 171 patients [111 male and 60 female, median age of 64 (range 33 to 80) years] operated on returned at least one postoperative questionnaire. Scores were scaled according to the EORTC protocol, analyzed with Wilcoxon Signed-Rank Test, and compared between two groups: GROUP A (139 patients with $ppoFEV_1$>40%) and Group B (32 patients with $ppoFEV_1$<40%).
Results: In Group A there were significant deterioration of patients perception of Physical, Cognitive, Role and Social functioning; as well as most Symptom scores (all $p<0.05$) and Global Health Status at 3 months ($p=0.02$). This deterioration was maintained at 6, 12 and even 24 months in most Functional Scales and Symptom Scores. In Group B, however, the symptom scores and Global Health Status were recovered by 3 months; and Physical Functioning was the only score below preoperative levels beyond 6 months.
Conclusions/Uploads: Surgery for lung cancer affects patient's perception of QoL. Contrary to some reports, these changes are not rapidly resolved and are present even in the healthier and younger group of patients. The subgroup of patients with a poor respiratory reserve recovered most of their QoL scores to preoperative levels by 3 months. This may reflect the "volume reduction" effect encountered after surgery for emphysema.
Disclosure: All authors have declared no conflicts of interest.

F-055 COMPLICATIONS AND POSTOPERATIVE RESPIRATORY FUNCTION FOLLOWING SEGMENTECTOMY OF THE LUNG – COMPARISON OF THE METHODS OF MAKING AN INTER-SEGMENTAL PLANE

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Background/Objectives: Nowadays, small lung cancer appeared for ground-glass opacity on computed tomography is increasing. In the future, there is some possibility that segmentectomy of the lung is selected as the standard procedure for early lung cancer. One of the most important elements for segmentectomy is the method of making an inter-segmental plane. In this study, it was considered how did the difference of the method of making an inter-segmental plane influence postoperative complications and pulmonary function.
Materials & Methods: Between February in 2008 and April in 2009, segmentectomy was performed in 49 patients at Juntendo University Hospital. We retrospectively reviewed 49 patients. Resected regions were following; right S1a+S3b was one, S2 was one, S3 were two, S6 were six, S8 were four, left upper division were 20, lingular division were five and S6 were six. The devices of making an inter-segmental plain were following; 18 were by stapling, 31 were by electrocautery (with/out stapling). In this study, postoperative complications and pulmonary function following segmentectomy were studied between those two groups.
Results: Postoperative complications occurred in 24.4 % of all. The stapling group trended to have shorter period until removing chest drain tube than electrocautery. However there was no significant difference between those two groups as the postoperative complications (22.2% vs. 29.0%, $p=0.603$). While preservative rate of postoperative pulmonary functions were 90.0% in the stapling group and 87.7% in the electrocautery group. However there was no significant difference between those two groups ($p=0.652$). There were no predictive factors for reduction of postoperative respiratory functions.
Conclusions/Uploads: Preservation of postoperative pulmonary functions was not dependent on the methods of making an inter-segmental plane. Postoperative complications were predicted by the volume of blood loss and left upper division segmentectomy. Thus both methods of making an inter-segmental plane, by stapling and electrocautery, were acceptable for the segmental resection of the lung.
Disclosure: All authors have declared no conflicts of interest.

Tuesday, 01 June 2010
16:00 - 17:30
Abstract Session 9 - Oesophagus / Mediastinum

F-056 SENTINEL LYMPH NODE MAPPING USING NOVEL RECEPTOR BINDING AGENT (TECHNETIUM-99M NEOMANNOSYL HUMAN SERUM ALBUMIN, 99MTC-MSA) IN ESOPHAGEAL CANCER; COMPARATIVE STUDY WITH 99MTC-PHYTATE

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Background/Objectives: In order to simplify the synthesis and labeling procedure and to improve the biological properties, we developed a novel mannose receptor-binding agent, Technetium-99m human serum albumin (^{99m}Tc-MSA), for sentinel lymph node detection. We aimed to compare this new radioactive agent with phytate for sentinel node mapping in esophageal cancer.
Materials & Methods: Twenty-six patients clinical T1N0M0 or T2N0M0 esophageal cancer who were candidates for esophagectomy and esophagogastrostomy with lymph node dissection for were enrolled. Endoscopic injection of ^{99m}Tc- MSA or ^{99m}Tc-phytate was administered approximately 1 hour before surgery, respectively, in 12 and 14 patients. The radioactive lymph nodes were identified with preoperative lymphoscintigraphy (Figure) and intraoperative handheld gamma probe after (ex vivo) lymph node dissection. We compared these two tracers in terms of identification rates, false negative rate, numbers of sentinel nodes, and the pathologic results of sentinel nodes.
Results: The patient's age and sex ratio of both group showed similar. Clinical stage, location of cancer and operative technique were not different between the two groups. During operation, total number of dissected lymph node was not different between the two group (29.2±8.84 in MSA group, 30.5±10.09 in phytate group, $p>0.05$). Sentinel node was identified in all cases of both groups except for one in phytate group. The number of sentinel nodes per patient was 2.6±1.51 in MSA group, which was significantly more than 1.8±0.80 in phytate group ($p=0.012$). Nine of 25 patients whose sentinel nodes could be identified had metastasis, but neither group showed any false-negative results for sentinel node identification.
Conclusions/Uploads: Both MSA and phytate are reliable tracers for identifying sentinel nodes in early stage esophageal cancer. In particular, because sentinel node can be detected more frequently and accurately with MSA than with phytate, sentinel node mapping using MSA might be more useful in the large case study.
Disclosure: All authors have declared no conflicts of interest.

F-057 ESOPHAGEAL ADENOCARCINOMA ARISING AFTER FUNDOPLICATION: A POPULATION BASED ANALYSIS

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Background/Objectives: Background & Aims: Fundoplication is able to halt both acid and biliopancreatic reflux. The protective effect of fundoplication against esophageal adenocarcinoma (EAC) is, however, controversial. Our aim was to define, at the national level in Finland, frequency and predisposing factors for post-fundoplication EAC.
Materials & Methods: Methods: For this population-based study from 1980 to 2006, Finland's administrative databases provided preliminary data. Analyses of medical records of EAC patients led us to include those with preceding antireflux surgery.
Results: Results: Of these 1 035 EAC patients, 52 (5.0%) had undergone fundoplication. Overall, of 53 patients with antireflux surgery (displaying male predominance, 74%), preoperatively 41 (77%) had developed endoscopic esophagitis, 40 (75%) hiatal hernia, 24 (45%) Barrett's esophagus, 9 (17%) ulcer in esophagus, cardia or gastroesophageal junction, and 3 (6%) stricture. Postoperatively, histologically confirmed Barrett's esophagus was present in 42 (79%). Antireflux surgery had preceded EAC after a mean interval of 10.2 years (range 0.5–25.8). This interval was significantly ($P = .003$) shorter in patients with long-term functional fundoplication at EAC diagnosis (5.6 years, range 0.5–14.2) than in those with failure (11.5 years, range 3.7–25.2).
Conclusions/Uploads: Conclusions: Treatment of GERD with fundoplication fails to prevent EAC. It will develop more than 5 years postoperatively in most patients, and can develop late even in those with a good anti-reflux barrier. Preoperative Barrett's esophagus and endoscopic esophagitis may be risk factors.
Disclosure: All authors have declared no conflicts of interest.

F-058 SURGERY FOR HIGH-GRADE DYSPLASIA OF THE ESOPHAGUS

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Background/Objectives: Management of esophageal high-grade dysplasia (Tis) is evolving. The purpose of this study was to evaluate esophagectomy for Tis.
Materials & Methods: From 1985 to 2009, 1,296 patients underwent esophagectomy for cancer. Tis patients were identified from this experience. Inclusion criteria were Tis without visible mass at esophagoscopy and biopsy (cTis) or Tis at review of esophagectomy specimen (pTis). Survival was determined by Kaplan-Meier analysis.
Results: cTis in 134 patients: 120 (90%) were male, 132 (99%) Caucasian. Mean age was 68±11 years. 124 (93%) had adenocarcinoma. 111 (83%) had esophagectomy without thoracotomy, 3 (2%) R1 resections. Pathologic T classification (pT) was 77 (58%) Tis, 54 (40%) T1, and 1 each (1%) indefinite for dysplasia, low-grade dysplasia, and T2. 2 had metastases to 1 regional node and 1 to 2 nodes (pT1N1M0). Median follow-up was 88 months. There was 1 operative death (1%), 22 total, and 6 from cancer. There were 4 recurrences and 14 metachronous cancers. Percent survival at 1, 5, and 10 years was 96±1.7, 89±2.8, and 83±4.1, respectively (Figure). pTis in 97 patients: 90 (93%) were male, 96 (99%) Caucasian. Mean age was 68±11 years. 86 (89%) had adenocarcinoma. Clinical T classification (cT) in 66 was 51 (77%) Tis, 11 (17%) T1, 3 (5%) T2, and 1 (2%) T3. 83 (86%) had esophagectomy without thoracotomy, 2 (2%) R1 resections. Median follow-up was 79 months. There was 1 operative death (1%), 19 total, 3 from cancer. There was 1 (1%) recurrence and 8 metachronous cancers. Survival at 1, 5, and 10 years was 99±1.0, 92±3.1, and 77±6.1, respectively (Figure).
Conclusions/Uploads: Survival for patients with Tis treated by esophagectomy is excellent. Death from esophagectomy or Tis is uncommon. If esophagectomy is chosen to treat Tis, operative mortality must be minimal, follow-up long-term, and surveillance extended beyond the esophagus.
Disclosure: All authors have declared no conflicts of interest.

F-059 POOR AWARENESS OF SYMPTOMS OF OESOPHAGEAL CANCER

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Background/Objectives: Oesophageal cancer presents as advanced disease; in the majority of patients the symptoms are in presence for many months. Dysphagia has been described as the milestone in early diagnoses of oesophageal cancer. Incidence is increasing and survival remains poor. This suggests poor public awareness of the significance of dysphagia. This study aims to assess the public perception of the importance of this symptom.
Materials & Methods: 96 patients attending GP surgery completed a questionnaire. This evaluated patient perceptions and understanding of symptoms of dysphagia compared to the finding of a breast lump, haemoptysis, chest pain and loss of weight concerning urgency, probable cause of symptoms and treatment required.
Results: 65 patients (71%) would visit their GP within 24 hours of finding a breast lump or suffering from haemoptysis (82%) or having chest pain (82%). 47 patients (51%) who experienced dysphagia would seek medical advice after one week and further 18 (19%) after one month ($p<0.0001$). Only 8 patients (10%) associated dysphagia with cancer, compared to the 53 patients (57%) with the finding of a breast lump ($p<0.031$). 68 patients (73%) expected to have surgery for a breast lump; only 13 patients (15%) had same expectation with dysphagia ($p<0.0001$) along with 78% who would wait for medication only.
Conclusions/Uploads: The public responds better to symptoms discussed in screening or awareness programs. There is poor understanding of main symptoms of oesophageal cancer. New health campaigns are needed if the cancer is to be detected at an earlier and potentially curable stage.
Disclosure: All authors have declared no conflicts of interest.

F-060 RESULTS OF PRIMARY SURGERY IN LYMPH NODE STAGE IVA (M1A) AND IVB (M1B) DISTAL THIRD ESOPHAGEAL ADENOCARCINOMA

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Background/Objectives: To evaluate the survival of pathologic stage IVa (M1a) and IVb (distant nodes) in a population treated by primary surgery and to define prognostic factors for survival.
Materials & Methods: Between 1990-2007 fifty seven patients with pathological stage IVa (celiac nodes) or stage IVb (distant nodes) distal third adenocarcinoma were retrieved from a prospective database.
Results: All patients underwent a transthoracic esohagectomy with 2- field (51%) or 3-field (42%.) lymphadenectomy. Hospital mortality was 1.75%. R~0~-resection rate was 82.5%. Twenty-four pIVa-patients had a mean of 8.3 positive nodes on a mean of 35 resected nodes whereas 23 pIVb-patients had a mean of 13.7 positive nodes on a mean of 55 resected nodes. Adjuvant treatment was administered in 10 (22%) patients. Overall 5 year survival was 12.6%. Survival after R0 resection was 15.6% versus 0% after R1 resection p= 0.004. No significant difference (p = 0.819) was found between stage IVa and IVb R_0-resections. Patients with intracapsular lymph node involvement (n=16) had a 5 year survival of 25% versus 9% for extracapsular lymph node involvement (n=31) p=0.058. A significant 5-year survival benefit (p = 0.024) was noted in patients receiving adjuvant therapy (n=10).
Conclusions/Uploads: In a selected group of patients primary surgery may offer prolonged survival in the presence of M1a/M1b lymph node involvement. Prognostic factors of improved 5-year survival were completeness of resection and use of adjuvant treatment.
Disclosure: D.E. Van Raemdonck: Dirk Van Raemdonck is supported by grant G.3C04.99 from FWO-Flanders. All other authors have declared no conflicts of interest.

F-061 LONG TERM OUTCOME OF PLEUROPNEUMONECTOMY FOR MASAOKA STAGE IVA THYMOMA

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Background/Objectives: Because pleuropneumonectomy is associated with a high mortality rate, its indication for the treatment of Masaoka stage IVA thymoma is debated. We reviewed retrospectively our single center experience in order to determine if the benefits warrant the risk of such procedure.
Materials & Methods: Between 1970 and 2009, 17 patients (12 men and 5 women) with a mean age of 44 years (range, 25-62 years) underwent a pleuropneumonectomy for a Masaoka stage IVA thymoma in our institution. Eight patients had recurrent thymoma after a mean postoperative period of 47 ± 28 months, and 9 patients presented de novo with stage IVA disease. A multimodality treatment including chemotherapy, radiotherapy or both was performed in 14 (82%) patients.
Results: Eight patients (47%) experienced a major postoperative complication, including 4 bronchopleural fistulas (23%). Five of those patients (29%) died during the postoperative course. Complete resection was achieved in 11 (65%) patients. By univariate analysis, myasthenia gravis was the only risk factor for broncho-pleural fistulae. With a median survival of 76 months and median follow-up of 59 months (range 1 – 262 months), 5-year and 10-year survivals were 60% and 30%, respectively. During follow-up, a recurrence occurred in 2 patients at 26 and 87 months, respectively and was treated medically without success.
Conclusions/Uploads: Pleuropneumonectomy for Masaoka stage IVA thymoma is associated with a high morbid-mortality rate. However, included in a multimodality strategy and in highly selected patients this procedure may provide good long term survival.
Disclosure: All authors have declared no conflicts of interest.

F-062 THYMOMA AND MYASTHENIA GRAVIS: CLINICAL ASPECTS AND PROGNOSIS

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Background/Objectives: Myasthenia gravis (MG) is sometimes present in thymomas. Our aim is to investigate myasthenia gravis relation to thymomas as well as the clinical course, the biological behavior and prognosis of the diasease.
Materials & Methods: Retrospective study of 79 patients, who were submitted to thymoma resection in our Department during the last 20 years (between 1990-2009). Presence of MG, Masaoka stage, World Health Organisation (WHO) type, MG response after thymoma resection, and survival were analysed. Chi-square and Fisher's exact tests were used for the comparisons of proportions. Kaplan-Meier survival estimates for events were graphed over the follow-up period.
Results: The mean age of the patients was 56.1 (SD=12.4). The mean follow-up period was 7 years (SD=6.4). Thirty-nine patients (49.4%) had MG, whereas 40 patients didn't. The proportion of patients with MG was greater in B2,B3, and C WHO types compared to A, AB, B1 types (p=0.048). No significant association was found between Masaoka stage and MG (p=0.858). Among myasthenic patients, after thym(om)ectomy, 33.3% had no response, 50% had partial response, and 16.7% had complete remission. Perioperative mortality was 1.26%. During the follow-up period 15 patients (19%) died. The mean survival time was 15.7 years (1.4 years) for patients without MG and 14.5 years (1.3 years) for patients with MG (log rank test, p=0.681). The mean survival time was 4.8 years (1.4 years) for patients with none MG response after thymoma resection, whereas patients with partial or complete MG response had a better survival (log rank test, p<0.001) without events during the follow-up period.
Conclusions/Uploads: It seems that MG occurs more frequently in B2, B3 and C WHO classification thymoma histological types than in A, AB, B1 types. The presence of MG does not affect survival significantly, but no MG response after thymoma resection predisposes to a dismal prognosis.
Disclosure: All authors have declared no conflicts of interest.

F-063 IS THERE A RELATION BETWEEN THE NUMBER OF VATS THYMECTOMIES PERFORMED AND LEARNING CURVE FOR VATS RESECTION OF THYMOMA IN PATIENTS WITH MYASTHENIA GRAVIS?

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Background/Objectives: Approaches to early stage thymoma other than sternotomy are technically possible. Not only long term data are lacking but also learning curve for resection of thymoma with VATS is debatable. We have aimed to analyze the learning curve for thymoma resection with VATS.
Materials & Methods: Two hundred and eleven myasthenia gravis patients had VATS thymic resections including twenty-five patients with a thymoma. Three groups according to the order of operations were performed: Group 1: First 70 thymectomies, Group 2: Second 70 thymectomies, Group 3: Last 71 thymectomies. We analyzed preoperative (age, gender, body mass index, Ossermann Stage), operative (number in each group, size, Masaoka stage) and postoperative (complications and length of stay) data of the thymoma patients and compared the variables between each groups.
Results: There was a significant difference in number of thymoma operations (Group1: 4 patients, Group 2: 7 patients and Group 3: 14 patients (p:0.013)) , and duration of operation (Group 1:66 minutes, Group 2:52 minutes and Group 3:48 minutes (p:024)). Pearson Correlation coefficients demonstrated a very strong correlation between duration of operation and order of patients (r: -0.554, p:0.000). Groups did not show significant difference in terms of preoperative and postoperative data.
Conclusions/Uploads: There is a learning curve for VATS resection of thymoma. As the number of VATS thymectomies increase, number of thymoma operations increase and duration of surgery decrease. We recommend to start a programme for resection of thymoma with VATS after 70 thymectomy operations.
Disclosure: All authors have declared no conflicts of interest.

F-064 SURGICAL APPROACHES, MANAGEMENT AND OUTCOMES OF THYROIDECTOMY FOR CERVICOMEDIASTINAL GOITERS

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Background/Objectives: Thyroidectomy for cervicomediastinal goiters (CMG) is usually performed using a cervical approach, but sometimes a sternotomy or thoracotomy is necessary. Objective: to assess the outcomes of thyroidectomy for CMG, to identify conditions that anticipate the need of a non-cervical approach, and to determine risk factors for complications.
Materials & Methods: Review of 147 consecutive patients undergoing thyroidectomy for CMG. Assessment included chest CT scans, scintigraphy, flow-volume curves, thyroid hormone levels, bronchoscopy, and FNA when indicated. Variables recorded were demographic data, clinical, laboratory and radiological findings, surgical approach and procedure, histopathology, complications and 30-day mortality. Risk factors for non-cervical approach and complications were assessed using non-parametric tests. Outcomes were compared among three study periods (A:1986-1993; B:1994-2001; C:2002-2009).
Results: There were 112F/35M, 63±12 years old (137 CMG and 10 ectopic endothoracic goiters). 59% were symptomatic: dyspnea (51%), dysphagia (20%). Approaches were: cervicotomy (86%), cervico-sternotomy (9%), sternotomy (1,4%), thoracotomy (2%), and cervico-sterno-thoracotomy (2%), performing 92 total thyroidectomies and 55 lobectomies. Goiters were colloid in 67%, hyperplasia in 19%, adenomas in 7% and carcinoma in 5%. All non-cervical approaches were endothoracic goiters or with retrovisceral progression. Complication rate was 12.2%: recurrent paralysis (6%), hypoparathyroidism (3%), bleeding (1,4%). 5 patients were reoperated. 30-day mortality was 0.7%. Risk factors for complications were thyroidectomy for carcinoma (overall: 43%-p=0.012; recurrent paralysis: 43%-p=0.000; tracheomalacia: 14%-p=0.003) and goiters larger than 12 cm (p=0.013). Other preoperative and surgical factors were not related with the complication rate. No differences among periods A, B, and C were observed, other than shorter hospital stay (A: 7±3 days; B: 4±4 days; C: 3±3 days; p=0.000).
Conclusions/Uploads: Thyroidectomy for CMG is associated with low morbidity and mortality rates. Patients with large retrovisceral and ectopic goiters, and those with thyroid carcinomas present higher rates of postoperative complications, and predict the need of a non-cervical approach.
Disclosure: All authors have declared no conflicts of interest.

Tuesday, 01 June 2010
16:00 - 17:30
Abstract Session 10 - Airway / Transplantation

0-065 SPRAY CRYOSURGERY; A NEW TREATMENT FOR NON-MALIGNANT AIRWAY STRICTURES

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Background/Objectives: Non-malignant airway (NMA) strictures are challenging to manage. Resection is not always feasible and therapies such as stents, balloon dilation and laser therapy can be associated with granulation tissue build up, and early re-fibrosis. We report preliminary results of a new approach, spray cryosurgery (SC) for the treatment of NMA strictures. SC is felt to modulate the healing response, prolonging the time to, and the incidence of re-fibrosis.
Materials & Methods: Thirty patients (21 women; 9 men) were treated with SC. Mean age was 51 (18-80) years. Previous therapy had been used in 14 patients. The stricture etiology included post-intubation (5), prior tracheostomy (6), radiation-induced (2) other (17). Airway narrowing was graded as follows; 1=0-25%, 2=26-50%, 3=51-75%, 4=76-99%. The usual treatment algorithm consisted of SC to the stricture, followed by dilation, and then additional SC cycles.
Results: Stricture locations were subglottic (17), tracheal (7) and bronchial (5) and glottic (1). A total of 50 SC treatment sessions were undertaken, with a mean of 1.7 treatments/patient. General anesthesia was used in 45(90%) procedures with flexible bronchocopy in 29 (58%), rigid bronchoscopy in 1 (2%) and a combination of both in 20 (40%). Patients were immediately extubated after 47 (94%) procedures. Complications occurred in 2(4%) and included pneumothorax (1) and intraoperative tracheostomy (1) secondary to glottic edema (not at the site of SC) in a morbidly obese patient. There were no deaths. Mean follow-up was 4.9 (1-12) months, with 23 (85.2%) patients reporting significant or complete symptomatic improvement. Airway narrowing improved significantly (p=0.001) from a mean score of 3.4 (76-99%) to 1.3 (0-25%).
Conclusions/Uploads: Initial experience suggests that SC is a useful addition to the therapeutic armamentarium for treating NMA strictures. The durability and effectiveness of this therapy compared to other modalities will need to be determined in future studies.
Disclosure: H.C. Fernando: Speakers Bureau CSA Medical. Krimsky: Consultant CSA Medical. All other authors have declared no conflicts of interest.

0-066 IS BRONCHOSCOPY NECESSARY TO CONFIRM THE POSITION OF DOUBLE LUMEN TUBES AT THE TIME OF THORACIC ANESTHESIA?

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Background/Objectives: Fiberoptic bronchoscopy (FOB) is recommended to confirm correct placement of double lumen tube (DLT) for thoracic anesthesia. However, there is still controversy over the routine use of FOB. To verify the usefulness of FOB for confirming the position of DLT after its blind placement.
Materials & Methods: One hundred and four patients undergoing elective thoracic surgery were prospectively enrolled in the study. There were 44 women (42%) and 60 men (58%), with a mean age of 51 years (range 25-77). All patients were intubated with a left disposable polyvinyl chloride DLT. After intubation, conventional clinical verification (auscultation and observation of the chest) was made by the anesthesiologist who recorded her/his assessment. Then, the endoscopist performed FOB with a 3 mm Olympus ® bronchoscope, and verified the position of DLT, correcting any misplacement. DLT was in optimal position if the bronchial cuff was immediately below the tracheal carina and there was a clear view of the left subcarina with unobstructed left upper and lower bronchi. Misplacement of DLT was diagnosed when the tube had to be moved (in or out) for more than 0.5 cm to correct its position. Critical malposition meant DLT dislocated in the trachea or in the right bronchi, requiring immediate re-intubation under FOB guidance.
Results: In 65 (63%, 95% confidence interval 53.2%-71.8%) cases there was complete agreement between anesthesiologist and endoscopist. The latter diagnosed misplaced DLT in 33 (32%, 95% confidence interval 22.8%-40.7%) patients, and critical malposition in 5 (5%, 95% confidence interval 0.7%-8.9%) cases.
Conclusions/Uploads: After blind placement of DLT, approximately 40% of DLT required repositioning by means of FOB, despite a normal clinical evaluation made by the anesthesiologist. Our data confirms that FOB is a useful tool to verify the position of DLT and correct its misplacement before the start of surgery.
Disclosure: All authors have declared no conflicts of interest.

0-067 PRIMARY MAJOR AIRWAY TUMORS; MANAGEMENT AND RESULTS

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Background/Objectives: Primary major airway tumors are rare. Retrospective analysis of referral centers experience could be helpful for their management.
Materials & Methods: Fifty-one patients, 44 (86%) malignant and 7 (14%) benign with primary tumors of subglottis, trachea, carina and main stem bronchi were managed in a 14-year period. Based on CT scan and rigid bronchoscopy findings, those who evaluated as resectable, underwent airway resection and reconstruction. The others were managed by one or a combination of these methods: core-out, laser, chemotherapy, radiotherapy and tracheostomy. Follow up was completed in 88.2%, mean (35.2+ 33.2 months).
Results: Extraluminal extension of the tumor found in CT scan was significantly associated with unresectability (p=0.006). Thirty-two patients underwent resection with 3 complications (9%)and one mortality (3%). Nineteen were managed by non-resectional methods, of them 15 were found unresectable, because of tumor length, extensive local invasion or diffuse distant metastases, and 4 due to risk-benefit or patient preference. Among 18 patients with adenoid cystic carcinoma 13 (72%) were resected (7 with negative margins).Overall 1-2-5 and 8-year survival was 90.9%, 90.9%, 77.9% and 19.5%. In unresected adenoid cystic carcinoma tumors overall 1- and 2-year survival was 60% and 40%. Data analysis found significant association of long-term survival with resection (p=0.005) but not with negative margins in aenoid cystic carcinoma. Among 15 patients with carcinoid tumors, all were alive at the end of follow up, except one who died after surgery.
Conclusions/Uploads: Airway resection if feasible extends survival and may even be curative, with low morbidity and mortality, in most patients with major air way tumors.
Disclosure: All authors have declared no conflicts of interest.

0-068 FIRST SUCCESSFUL TRANSPLANTATIONS AFTER EX VIVO EVALUATION OF UNCONTROLLED NON HEART-BEATING DONOR HUMAN LUNGS

F.J. Moradiellos Díez[1], J.M. Naranjo[1], M. Córdoba[1], C. Salas[2], J. Álvarez[3], M. Valle[4], D. Gómez de Antonio[1], J.L. Campo-Cañaveral[1], S. Crowley[1], A. Varela de Ugarte[1];
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Background/Objectives: To describe the first Ex Vivo evaluation of lungs from Maastricht type I non heart-beating donors and the first two successful human transplantations with these organs.
Materials & Methods: Three potential male donors aged 52, 44 and 51 years-old entered the non heart-beating protocol after sudden cardiac arrest in the street and unsuccessful resuscitation. After a doubtful evaluation due to lung infiltrates and/or contradictory pO_2values in the preservation solution, bipulmonary blocks were cold preserved and retrieved. Afterwards, a normothermic Exvivo evaluation with Steen solution was initiated, perfusing the lungs with a flow 40% of the estimated cardiac output and protectively ventilating after reaching 32ºC(Tv=6ml/kg, freq=6/min, PEEP=5cmH_2O, FiO_2=0.21). Oxygenation tests (FiO_2=1 during 10 minutes) were taken hourly. Three criteria were to be met for acceptance: ΔpO_2(difference between pO_2in the left atrium and in the pulmonary artery) over 400mmHg, stable or improving evaluation data and surgeon approval of lung appearance and procedure.
Results: In the three cases we achieved the desired flow with PA pressures<11mmHg and Paw<12cmH_2O and the evaluation was considered satisfactory. The evaluation lasted 195minutes, 275min and 335min and the best ΔpO_2were 427mmHg, 368mmHg and 452mmHg for each block. Blocks 1 and 3 were deemed acceptable for transplantation and cold preserved until implantation. Two bilateral lung transplantations were performed on emphysema patients with a total "out of the body" time of 22h and 19h for each block and combined cold ischemic time of 15,25h and 13,5h respectively. No primary graft dysfunction and no relevant complications were recorded. The first patient was discharged uneventfully after one month and the second patient is extubated and recovering.
Conclusions/Uploads: The Ex vivo evaluation of uncontrolled non-heart beating donor-lungs enables us to ensure an optimal function under physiological conditions before implantation and promises a more widespread use of this kind of donors in the future.
Disclosure: F.J. Moradiellos Díez: Vitrolife (Sweden) provided the evaluation boxes free of charge to our institution. All other authors have declared no conflicts of interest.

Bipulmonary block of non heart-beating donor lungs after Exvivo evaluation

0-069 OUTCOME OF LUNG TRANSPLANTATION IN ELDERLY RECIPIENTS

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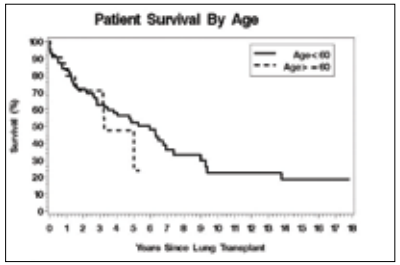
Mayo Clinic Lung Transplant Program, William J. Von Liebig Transplant Center, Mayo Clinic, Rochester/US

Background/Objectives: Lung transplantation is a standard treatment option for patients with end-stage lung disease. Lung transplantation in the elderly is controversial due to concerns over anticipated increased surgical risks, inferior long-term outcomes and proper stewardship in allocating limited donor organs. With demographic trends showing an increasing proportion of patients over 60 years old, we evaluated our outcomes with lung transplantation in this older cohort.
Materials & Methods: Between January 1990-July 2009, 142 patients underwent lung transplantation at our institution. Fifteen patients receiving heart/lung transplantation and one patient declining research participation were excluded. 126 patients were analyzed in two groups: <60 and >60 years old.
Results: There were 65 females (52%) and 61 males (48%). Fifty-three patients (42%) underwent double-lung and 73 patients single-lung transplantation (58%). Median age at transplantation was 55 years (range, 22-73) with 94 patients <60 years (75%) and 32 patients >60 years (25%). Median follow-up was 2.8 years (range, 0.1-17.8). Overall survival at 30 days was 93.7% with no difference between age groups (p=0.95). There was no difference in postoperative complications (p=0.589) or unplanned readmission rates (p=0.258) between both groups. Postoperative FEV1 (% predicted) at 4 weeks (p=0.823), 3 months (p=0.995) and 6 months (p=0.731) after transplantation was not different between groups. No difference in long-term survival was observed, with 5-year survival of 52.2% for patients <60 years and 47.3% for patients >60 years (p=0.592). Overall, 20 patients (16%) developed bronchiolitis obliterans syndrome and 14 (11%) posttransplant lymphoproliferative disease which was not statistically different between both groups (p=0.872, p=0.370, respectively).
Conclusions/Uploads: Increased age of 60 years and greater, in highly selected patients, does not appear to have a significant impact on the short- or long-term outcome in patients undergoing lung transplantation. Judicious selection of older patients who are otherwise excellent candidates for lung transplantation remains a reasonable option.
Disclosure: All authors have declared no conflicts of interest.



Patient Survival by Age

0-070 LUNG TRANSPLANTATION FOR CYSTIC FIBROSIS: A SINGLE CENTER EXPERIENCE WITH 100 CONSECUTIVE CASES

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[2]*Division Of Pulmonary Medicine, University Hospital, Zurich/CH*

Background/Objectives: Lung transplantation is the treatment of choice for end-stage cystic fibrosis (CF). Despite the poor outcomes reported for CF patients, several centers including ours were able to show survival benefit after lung transplantation. This study compares our centers' experience with 100 consecutive patients that were analysed in two periods.
Materials & Methods: All CF patients who underwent lung transplantation at our center were included (1992 to 2009). Survival rates were calculated. Comparisons were made between the first period (before 2000) and second period (since 2000).
Results: CF patients constituted 35% of all transplantations performed at our institution. Median age at transplantation was 27 years (range, 12 to 52 years). Fifty-one percent of the patients were female. In 26% of the cases ECMO support was needed to perform the operation. Lobar transplantation was performed in 10 cases. 26% of the cases required down-sizing. Waiting list time was lower in the first period compared to second period (p=0.04). Postoperative time on ventilator and total ICU stay were significantly lower in the second period compared to first period (p=0.0001). The other parameters such as CRP at the time of transplantation, total cold ischemic time and total operation time were comparable between the two periods. There were no anastomotic complications. Overall 30-day mortality was 5%. 30-day mortality was significantly lower in the second period (p=0.006). In the first period 3-month, 1-year, and 5-year survival were 85±6%, 77±8%, and 60±9%, respectively and in the second period improved to 96±2%, 92±3%, and 78±5% (p=0.03).
Conclusions/Uploads: Improved results obtained in the early postoperative period since 2000 is mainly due to patient selection and improved intra- and perioperative management. Improved surgical outcome for CF patients can be obtained, especially in experienced transplant centers.
Disclosure: All authors have declared no conflicts of interest.

Wednesday, 02 June 2010
08:00 - 09:00
Abstract Session 12 - Video

V-071 MINIMALLY INVASIVE APPROACH FOR THORACIC DISK HERNIA: VIDEOTHORACOSCOPIC SURGERY

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Background/Objectives: Thoracic hernia is such a rare patology, constituting about 0.25-1% of total disk herniation. Traditionally, thoracotomy was the elective anterior approach, but nowadays we count with minimally invasive techniques. We show our experience in thoracoscopic treatment of thoracic disk herniation.
Materials & Methods: We report two patients: Female 38 years. Hernia T10-T11. Past histoy: Hypertension, DM1, thalassemia, recurrent pyelonephritis, depression. Previously operated of lumbar disc herniation and canal stenosis. Female 64 years old. Hernia T7-T8. Past history: Total hysterectomy. The video to be displayed corresponds to the first patient's surgery.
Results: Since May 2009, we have performed two interventions using thoracoscopic approach to thoracic spine, with highly satisfactory results. Video shows thoracoscopic discectomy T10-T11. It begins showing the patient positioning and ports placing. Then, it's shown the access to the column avoiding the lung. Then it's made the dissection up to the intervertebral disc and its removal and replacement by a box. Both patients achieved virtually complete recovery, after 6 and 8 days of hospitalization respectively.
Conclusions/Uploads: The thoracoscopic approach offers a less aggressive, and therefore, less harmful, with less post-surgical discomfort and shorter hospital staying.
Disclosure: All authors have declared no conflicts of interest.

V-072 PNEUMONECTOMY FOR LUNG CANCER IN A PATIENT WITH HOMOLATERAL TRAUMATIC DIAPHRAGMATIC HERNIA

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Background/Objectives: Traumatic diaphragmatic hernia occurs in a 5% of trauma patients with approximately 75% of ruptures occurring on the left side. The high incidence of concomitant intra-abdominal injuries dictates the need for emergency abdominal exploration and repairing in the acute trauma setting, for long-standing hernias most surgeons prefer a transthoracic approach because the herniated intraabdominal contents tend to be firmly attached to intrathoracic structures. The timing for repair delayed herniation is not well defined.
Materials & Methods: We present a case of 64 year old man who suffered a car accident 40 year ago with multiple ribs fractures and left diaphragmatic rupture. At that time their doctors refused to treat this condition due to unknown reasons. He was asymptomatic until now, except for dyspnea at excerption, and in a CT-scan done for some abdominal discomfort, besides left diaphragmatic rupture with thoracic herniation of stomach, colon, small bowel and part of spleen and mediastinal shift to the right side, a left hilar mass and left lower lobe atelectasis were found. No endobronchial tumor was encountered at bronchoscopy SUV max at PET scan was 3.8. FEV1% and DLCO% were, respectively 63% and 70%. $VO_{2\,max}$ was 19.6 ml/min/Kg with a VO2 peak: 70%.
Results: The patient underwent median sternotomy and intraoperative frozen biopsy. An adenocarcinoma was confirmed with extraluminal macroscopical invasion of the division of the left main bronchus. A left pneumonectomy and mediastinal lymph node dissection was performed. Due to the longstanding occupation of the left pleural space no attempt of diaphragmatic repair was done. The patient postoperative period was uneventful and was discharge at day 5.
Conclusions/Uploads: The interest of this case is to discuss the technical problems related to surgical approach; postoperative pleural space problems and indication for repair the long-standing diaphragmatic hernias.
Disclosure: All authors have declared no conflicts of interest.

V-073 THE HELLER-DOR OPERATION FOR THE THERAPY OF OESOPHAGEAL ACHALASIA 1979-2009. HISTORY, RATIONALE, TECHNIQUE AND DEFINITIVE RESULTS

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Background/Objectives: to show step by step the technical details of the Heller-Dor operation in light of the evolution of surgery for the cure of oesophageal achalasia occurred in 30 years in a surgical group.
Materials & Methods: The current technique is based on two corner stone principles originated from two groups of patients operated upon in the sixties and seventies respectively with the trans abdominal and the trans thoracic myotomy. In order to avoid post operative reflux (41%) and dysphagia (8%) due to scar of the myotomy (abdominal myotomy without antireflux procedure) and the relapse of dysphagia (21%) due to insufficient myotomy (limited thoracic myotomy), we pursued: 1) the complete abolition of the lower esophageal sphincter by a long myotomy extended to the U and sling fibers below the angle of His which are part of the lower oesophageal sphincter (LOS) (according to Dr. Liebermann-Meffert), 2) protection of the surface of the myotomy with an anterior fundusplication to prevent reflux without impairing oesophageal emptying. The operation was performed under manometric control.
Results: In the period 1978-2009 262 patients were operated upon, 202 with open (median FU 96 months r. 12-324), and 60 with laparoscopic technique (median FU 48 months r. 6-161). In laparotomy poor results (19/201 9.5%) were secondary to reflux oesophagitis in 15/201 (7.5%), in 2 cases diagnosed after 184 and 252 months, and to recurrent dysphagia in 4/201 (2%) all with end stage sigmoid achalasia. In laparoscopy 2/60 (3.3%) had reflux oesophagitis and none recurrent dysphagia.
Conclusions/Uploads: A long esophago-gastric myotomy protected by the Dor fundusplication offers good long term results.
Disclosure: All authors have declared no conflicts of interest.

V-074 A NEW ENDOSCOPIC TECHNIQUE FOR INTRALUMINAL REPAIR OF POSTERIOR TRACHEAL LACERATION

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Thoracic Surgery, Ruhrlandklinik Essen, Essen/DE

Background/Objectives: Tracheal laceration is a rare direct complication of endotracheal intubation. Early surgical treatment is mandatory in case of pneumomediastinum with difficulty in ventilation to prevent mediastinitis and stricture. The surgical access to the posterior tracheal wall is a right posterolateral thoracotomy, transcervical tracheotomy or via tracheostomy with corresponding morbidity.
Materials & Methods: We developed a new optical needle holder consisting of a 12° HOPKINS telescope that can be fixed in an endoscopic needle holder. During the past 18 months 4 patients were admitted with an iatrogenic tracheal laceration due to emergency intubation and with a distinctive mediastinal and subcutaneous emphysema. In all cases the repair of the tracheal laceration started with the introduction of a 14mm rigid tracheoscope just below the vocal cords and the start of the jet-ventilation. The first stitch with the optical needle holder using a 70cm 2-0 Vicryl threat (UCLX-needle, Ethicon, Germany) started distally catching the whole posterior wall. The end of the thread was armed with a small absorbable polydioxanone clip (ABSOLOK AP100, Ethicon, Germany). Holding the thread under tension, a running suture could be applied. After the last stitch another polydioxanone clip was applied to keep the suture under tension.
Results: Three lesions could be successfully repaired and video documented. Two patients could be discharged extubated for further treatment of the underlying disease. One patient died 2 days after the tracheal repair due to a third cardiac infarction within 2 weeks. In one case the tracheal tear was eccentric without a strip at the right border. Due to the technical limitation of the endoscopic method the repair had to be switched to an open procedure via posterolateral thoracotomy.
Conclusions/Uploads: With the newly developed optical needle holder an exclusively endoluminal repair of a longitudinal tracheal laceration is feasible and a surgical access can be avoided.
Disclosure: All authors have declared no conflicts of interest.

V-075 SURGICAL TREATMENT OF COMPLEX SUBGLOTTIC LARYNGO-TRACHEAL STENOSIS

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Background/Objectives: Although postintubation tracheal injury has significantly decreased with new endotracheal tubes' cuffs, postintubation subglottic stenosis can be seen after long periods of translaryngeal intubation, with or without a subsequent tracheotomy. We present the video of a surgical repairment of a post-tracheotomy complex subglottic stenosis.
Materials & Methods: Rigid bronchoscopy was performed before the operation, showing a completely closed trachea's entrance; an armored endotracheal tube had to be introduced through the orifice of tracheostomy from the beginning of the operation to permit patient´s ventilation. We started with a collar incision with an adicional oblique incision bordering on the tracheotomy. Careful dissection has to be made to provide an optimal exposure of the proximal cervical trachea, avoiding damage of the recurrent nerves. Trachea was cut on the inferior border of the lesion, taking care on the tube inserted first. Cricoid ring was identified and exposed under its pericondrium. Proximal trachea was identified and exposed, and the stenotic segment was resected after the resection of the anterolateral ring of the cricoid cartilage. We show in detail how interrupted sutures were placed on the posterior wall of the trachea, how they were properly tied and how the patient was intubated conventionally. Lateral and anterior part of the anastomosis was completed with interrupted sutures.
Results: The patient was discharged asymptomatic; flexible bronchoscopy of control didn't showed new stenosis or granuloma.
Conclusions/Uploads: Surgical treatment of benign tracheal stenosis, not very is frequent nowadays, requires a well-trained multidisciplinary team. In this complex case, surgery was the definitive treatment.
Disclosure: All authors have declared no conflicts of interest.

V-076 REITERATIVE AND EXTENDED SURGERY FOR A RECURRENT THYMOMA WITH 20-YRS SURVIVAL. THE SEVENTH OPERATION: CONCURRENT RESECTION OF GIANT CHEST WALL RECURRENCE AND MULTIPLE LIVER METASTASES

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Background/Objectives: The treatment of recurrent thymomas remains still controversial and only few small series have evaluated the feasibility and the results of iterative surgery. The 7th surgical operation of a patient with a recurrent thymoma with giant chest wall recurrence and liver metastases is presented.
Materials & Methods: A 47-yrs old man underwent a radical thymectomy in 1988 for B2- Stage III-Thymoma and subsequently other 6 re-operations for pleural, pulmonary and sternal recurrences until March 2007. He come again to our attention in April 2009 for the treatment of a giant chest wall recurrence with two adjacent liver metastases. Surgical procedures were planned and simultaneously performed by a "Multidisciplinar Team" formed by: General Thoracic Surgeons (1 EQ), Hepatic Surgeons (2 EQ) and Plastic Surgeons (3 EQ).
Results: Through a circular-shape incision, after resection from 5th to 9th rib bilaterally, the giant thoraco-abdominal mass was accurately removed "en bloc" with the rest distal third of the sternum, a portion of pericardium and diaphragm (1 EQ). Then, through the same access, multiple liver metastases (2 already investigated and other 2 subcentrimetric, detected with ultrasound-intraoperative scan) were extirpated (2 EQ). Chest wall reconstruction was performed using a double patch of Prolene in depth and Gore-tex on the surface (1 EQ). At last, abdominal skin flap was trasported and the microvascular microscope-guided anastomosis was performed (3EQ). Overall surgical time was about 14h. Postoperative course was uneventfull. Hystologic examination revealed B2-Thymoma metastases with free surgical borders in all the specimens. Functional and cosmetic results were really satisfied.
Conclusions/Uploads: Surgery is the cornerstone of therapy in cases of recurrent thymoma even if an extended resection or reiterative procedures are required. A simultaneous chest wall, diaphragmatic and liver resection is technically feasible and a long-term survival can be expected.
Disclosure: All authors have declared no conflicts of interest.

Wednesday, 02 June 2010
11:00 - 13:00
Abstract Session 13 - Mixed Malignant

F-077 THE ROLE OF SLEEVE RESECTIONS IN ADVANCED NODAL DISEASE

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Background/Objectives: The aim of this study was to compare the short-term and long-term results of sleeve resections depending on limited nodal disease (N0 and N1) and advanced nodal disease (N2 and N3) at a single institution.
Materials & Methods: We retrospectively reviewed our prospective database of all NSCLC-patients undergoing sleeve resections between January 1999 and December 2008. Patients' characteristics, morbidity, mortality, locoregional recurrence, distant recurrence and survival were analyzed corresponding to limited nodal disease group (LND) and advanced nodal disease group (AND).
Results: The indication was NSCLC for 170 sleeve resections (LND:n=120; AND:n=50) out of 213 consecutive sleeve resections. Both groups were statistically equal with regard to age (LND 61.8±12.4 vs. 60.8±9.6 years), gender, co-morbidities, type of sleeve resection (bronchial vs. bronchovascular), number of dissected lymph nodes (LND 40.0±12.4 vs. 36.7±14.0), histology and completeness of resection (LND 96.7% vs. 98.0%), respectively. More patients had induction chemotherapy in AND group (p=0.049). The short-term results were equal on the subject of morbidity rate (LND:34.2%, AND:44.0%), secondary pneumonectomy (LND:1.7%, AND:4.0%) and mortality rate (LND:5.0%, AND:6.0%), respectively. LND was associated with better 5-year-survival rate (LND:67%; AND:42%) and mean survival (LND:80.8 months; AND:37.7 months; p=0.014). In the long-term follow-up, more distant metastases were detected in AND group (26.0% vs. 14.2%, p=0.079) in contrast to identical locoregional recurrence (LND:1.7%; AND:0%). In event of metastazing, the mean time to the development of distant metastases were similar (LND:19.1 months; AND:12.4 months; p=0.2).
Conclusions/Uploads: Lymph node involvement is a negative prognostic factor concerning long-term survival. But even in advanced nodal disease, sleeve resections are associated with promising long-term survival. Sleeve resections in advanced nodal disease do not result in higher morbidity and mortality.
Disclosure: All authors have declared no conflicts of interest.

F-078 LYMPH NODE DISSECTION IN STAGE I NSCLC

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Background/Objectives: To evaluate if a more extent lymphadenectomy provides a better staging. To determine if an extensive lymphadenectomy, based on the number of obtained lymph nodes improves survival and disease free survival in some stages.
Materials & Methods: Retrospective study of 1000 consecutive NSCLC patients operated between 1995 and 2007. The mediastinal lymph nodes resected are analyzed. The groups based on factor T are divided in two subgroups according to the number of lymph nodes resected (<10 and ≥10).
Results: We analyzed 1000 patients, with a total of 13.987 lymph nodes resected and an average of 13,99. We present the results of the 158 T1 and 608 T2 patients. The analysis demonstrated that if more than 10 lymph nodes were obtained during lymphadenectomy the probability to detect positive lymph nodes is greater in the whole series (see table 1) and these findings are also seen when considering patients in early stage (87.18% vs 12.82%, p<0.001 in T1 and 75.92% vs 24.08%, p<0.0001in T2). Chi-square 28.56 (p<0.0001) We also found that median survival and disease free survival of all patients with more than 10 lymph nodes resected were better (statistically significant differences). The number of resected lymph nodes also behaves like protective factor as much in survival (HR 0.97, I.C. 95%:0.95 - 0.99, p=0.001) as in disease free survival (HR 0.97, I.C. 95%:0.96 - 0.99, p=0.004) diminishing the relapse risk.
Conclusions/Uploads: The probability of finding some positive mediastinal lymph node increases with a more extensive lymphadenectomy. A complete mediastinal lymphadenectomy provides a better staging and improves survival and disease free survival. A complete lymphadenectomy should be performed in all lung cancer patients to achieve a correct staging and a better survival, even in those with an early stage.
Disclosure: All authors have declared no conflicts of interest.

	Positive lymph nodes	
Resected Lymph nodes	NO	YES
<10 (N=333)	247 (39.46%)	86 (22.99%)
³10 (N=667)	379 (60.54%)	288 (77.01%)

Table 1

F-079 THE ROLE OF EXTENDED CERVICAL MEDIASTINOSCOPY IN THE STAGING OF LEFT BRONCHOGENIC CARCINOMA AND COMPARISON WITH INTEGRATED POSITRON EMISSION TOMOGRAPHY AND COMPUTER -TOMOGRAPHY; DOES INTEGRATED POSITRON EMISSION TOMOGRAPHY AND COMPUTER -TOMOGRAPHY REDUCE IN THE INVASIVE STAGING?

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Background/Objectives: Extended cervical mediastinoscopy (ECM) is a technique in the staging of bronchogenic carcinoma of the left lung. We compared ECM and integrated positron emission tomography and computed tomography (PET/CT) in the evaluation of para-aortic and sub-aortic mediastinal lymph node metastasis.
Materials & Methods: From 2005 to 2009, we performed ECM in 55 selective patients. Selective patients had positive aorticopulmonary or hilar PET images, large lymph nodes (over 1 cm in the short axis) on CT scan and/or central tumours. The intervention is carried out at the same time as a standard cervical mediastinoscopy through the same incision following.Three groups were created for analysis: group A consisting of who had a pN0 status by standard cervikal mediastinoscopy (SCM) / ECM and acknowledge to underwent subsequent thoracotomy; group B included patients with lung cancer who had a pN2 status by ECM and group C included patients with lung cancer who had a pN2/N3 status by SCM. Group C was excluded in this study. A and B groups were studied for effectiveness in the evaluation of para-aortic and sub-aortic mediastinal lymph node metastasis.
Results: We had performed ECM in 55 patients, and a total of 8 (Group C) were subsequently excluded. In 9 patients (Group B), ECM was positive and thoracotomy was contraindicated. The rest of the patients were operated; 19 lobectomies, 13 pneumonectomies, 6 exploratory thoracotomies. Lymphadenectomy specimens showed tumour involvement of subaortic lymph nodes in 4 patients. Complications occurred in 4 patients (7.2%). Comparison of lymphadenectomy via thoracotomy in patients classified pN0 by mediastinoscopy and ECM was positive showed sensitivity, accuracy, NPV, false-negativity of ECM and PET-BT were; 0.69/0.53, 0.91/0.80, 0.89/0.83, 0.10/0.16 respectively.
Conclusions/Uploads: We conclude that ECM is a useful and feasible staging technique for left bronchogenic carcinoma that allows ruling out aorticopulmonary nodal disease better than PET-CT with high NPV, accuracy and sensitivity.
Disclosure: All authors have declared no conflicts of interest.

F-080 EARLY POST-OPERATIVE CT SCAN (ECT) FOR THE POST SURGICAL FOLLOW UP OF NON SMALL CELL LUNG CANCER (NSCLC)

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Background/Objectives: Early post-operative CT (ECT) scan after lung resection for NSCLC has been recently proposed in order to acquire the post surgical morphology of the chest for comparison during follow up. Theoretically it improves the differential diagnosis between fibrotic repair and recurrence. We adopted ECT in the period 1996-2001. Aim of this study is to report our experience.
Materials & Methods: ECT scan within 90 days after radical surgery was performed in 98 patients (study group SG). We compared SG with a control group (CG) composed of 321 patients operated upon before 1996. Follow up modalities were the same in both groups.
Results: Median follow up was 58 months (r 1-145) for CG and 21.6 months (r 1-74) for SG. Relapse of disease was found in 96(30%) patients of CG (50 local recurrences, 27 distant, 7 local and distant, 12 second primaries) and in 30(31%) patients of SG (21 local, 5 distant, 4 local and distant); disease free period for local recurrence was 47 months (r 5-107) for CG and 9.8 months (r 1-38) for SG ($p<0.05$). The three years survival after the diagnosis of local recurrence was 45% for SG and 10% for CG ($p=0.05$). The survival in patients with local recurrence three years after the first operation was 60% for SG and 65% for CG ($p=0.302$).
Conclusions/Uploads: Follow up of NSCLC patients is controversial because of the costs in relation to the scanty efficacy of treatment of relapses. ECT is CHEAP. It diagnoses recurrence earlier with respect to the 12 months CT scan and followings. The longer survival after diagnosis of relapse is due to the lead time bias. ECT may be a useful tool for prospective studies on new treatments for local recurrence.
Disclosure: All authors have declared no conflicts of interest.

F-081 POMERANIAN LUNG CANCER SCREENING TRIAL – PRELIMINARY RESULTS

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Background/Objectives: Eight thousands people with a high risk of developing lung cancer will be enrolled to the POMERANIAN LUNG CANCER SCREENING TRIAL between February 2009 and March 2010.The purpose of this report is the preliminary analysis of results.
Materials & Methods: The risk group of developing lung cancer was defined as: age 50-75 years, smoking history of at least 20 pack-years without symptoms of the disease. People with family history of lung cancer and occupational exposure to carcinogens were enrolled with a history of 10 pack years. Between February and December 2009 in 5758 patients low dose computed tomography (LDCT) was performed. People were enrolled to the trial via hotline, website and by the medical staff. I-ELCAP screening protocol were applied for the examination schedule. Patients with a positive LDCT results were qualified to consecutive LDCT examinations based on tumor diameter (10 mm).
Results: A high rate (49% - 2821) of detected lung nodules was observed. One thousand two hundred sixty nine (45%) nodules less than 5 mm, 1241 (44%) with diameter of 5-10 mm and 310 (11%) with diameter of more than 10mm were detected. In 152 individuals the diagnostic work-up was employed. Within the group of 64 surgically treated patients 44 lung cancers were diagnosed. 42 lobectomies (19 VATS), 1 segmentectomy, 15 wedge resections and 6 tumorectomies were performed. Twenty nine (65 %) patients were in stage I, 2 in stage II, 6 in stage III and 6 in stage 4.
Conclusions/Uploads: Lung cancer screening with LDCT allows to detect lung cancer in early, curable stage, thus allowing implementation of minimally invasive surgical techniques. The incidence of pulmonary nodules is relatively high and requires follow up.
Disclosure: All authors have declared no conflicts of interest.

F-082 INTRAPLEURAL ADJUVANT TREATMENT OF MESOTHELIOMA: THE COMBINATION OF CISPLATIN-PEMETREXED IN RAT TUMOUR MODEL

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Background/Objectives: To determine whether the association of pemetrexed to polymeric films containing cisplatin could enhance the antitumour response in a rat tumour model of malignant pleural mesothelioma (MPM).
Materials & Methods: Mesothelioma tumour cells (IL-45) were incubated with pemetrexed and IC_{50} (50% inhibitory concentration) was determined. A pharmacokinetic study was then performed before testing the drug in a well-established, standardized rat tumour model of MPM. Cisplatin (3mg/kg) and pemetrexed (10mg/kg) were tested and hyaluronate polymeric films previously characterized were chosen as intrapleural drug vehicle. The subpleural inoculation of tumour cells was followed by radical surgical resection (tumour nodule grown at the injection site and left pneumonectomy) six days later. Then the adjuvant treatment was randomly assigned: intravenous pemetrexed, intrapleural pemetrexed, hyaluronate-pemetrexed, hyaluronate-pemetrexed+cisplatin. Each group counted five animals. Historical controls were used for comparison. The animals were euthanatized at postoperative-day 6: chest walls, kidneys and liver were considered for analysis. Primary endpoint was antitumour response evaluated by volume of tumour recurrence. Secondary endpoint was treatment-related toxicity; drug plasmatic levels were also determined. ANOVA was applied for statistical analysis. The study was approved by the veterinary committee.
Results: Once intrapleurally and intravenously administered, pemetrexed reached a plasmatic peak after 30' (4679ng/ml and 3010ng/ml, respectively). No haematological, renal or hepatic toxicity was registered. Animals treated with hyaluronate-pemetrexed+cisplatin had tumour recurrence significantly smaller than animals receiving intravenous pemetrexed ($p<0,001$), intrapleural pemetrexed ($p<0,001$) and intrapleural hyaluronate-pemetrexed ($p<0,001$). Comparing rats treated with hyaluronate-pemetrexed+cisplatin and hyaluronate-cisplatin (historical controls from the previous experiment), mean tumour volume was smaller ($1,7mm^3$ vs $10,9mm^3$, respectively) but not statistically significant. According to pharmacokinetic data, no pemetrexed was found systemically 6 days after treatment. No significant treatment related toxicity was observed.
Conclusions/Uploads: The association of pemetrexed to polymeric films containing cisplatin led to a greater local antitumour response without increasing systemic toxicity in rat tumour model of MPM.
Disclosure: All authors have declared no conflicts of interest.

F-083 THE ROLE OF TC-99M-2-METHOXY-ISOBUTYL-ISONITRILE SINGLE PHOTON EMISSION COMPUTED TOMOGRAPHY (99MTC-MIBI-SPECT) IN VISUALIZING ANTERIOR MEDIASTINAL TUMOR AND DIFFERENTIATING HISTOLOGIC TYPE OF THYMOMA

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Background/Objectives: To evaluate the role of ^{99m}Tc-MIBI-SPECT in the detection of anterior mediastinal mass and its potential role for differentiating the grade of malignancy and the stage of thymic epithelial tumors.
Materials & Methods: From January 2006 to November 2009, 30 consecutive patients with an isolated anterior mediastinal mass at Computed Tomography were enrolled. All patients underwent ^{99m}Tc-MIBI-SPECT before invasive diagnostic procedures and/or surgical resection. The uptake of the mediastinal tumor (T) was compared to the normal tissue (N) and T/N ratio was calculated to define the metabolic activity of the lesions. Patients were divided in six groups according histologic patterns which were then correlated to T/N value: benign tumor (BT), lymphoma (LYM), other malignant tumor (OMT) and low-risk thymoma (LRT) including types A, AB and B1, high-risk thymoma (HRT) including types B2 and B3, and Thymic Carcinoma according a simplified WHO histological classification. Yet for thymoma, the size, Masaoka stage and miastenia were also valuated.
Results: There were: 5 BT, 8 LRT(4=A, 2=AB, 2=B1), 4 HRT(3=B2, 1=B3), 4 Thymic Carcinoma, 6 LYM and 3 OMT. The T/N of BT (1.1±0.1) was significantly lower than that of HRT (2.6±0.1, $p=0.01$), of Thymic Carcinoma (2.9±0.1, $p=0.0001$), of LYM (2.8±0.1, $p=0.0001$), and of OMT (2.9±0.2; $p=0.0001$) while there is no significant difference between BT and LRT ($p=0.06$) (Figure 1). Regarding thymoma, the differences between the histologic subgroups (LRT vs HRT: $p=0.004$, HRT vs Thymic Carcinoma: $p=0.02$) and Masaoka stage ($r=0.9$, $p=0.0003$, Spearman's test) were statistically significant while the size of the lesion ($r=0.4$, $p=0.1$) and myasthenia ($p=0.9$) were no significant factors.
Conclusions/Uploads: ^{99m}Tc-MIBI-SPECT is a reliable diagnostic tool in visualizing malignant anterior mediastinal mass with useful information regarding surgical decision making. Yet, it may add further informations to morphological images for predicting histologic types of thymoma and its invasiveness which is of considerable prognostic and management significance.
Disclosure: All authors have declared no conflicts of interest.

F-084 PROTEOMIC ANALYSIS OF RESECTABLE NON-SMALL CELL LUNG CANCER: POSTOPERATIVE SAMPLE MAY BE A BETTER CONTROL IN IDENTIFYING POTENTIAL MARKERS

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Background/Objectives: Surface-Enhanced Laser Desorption/Ionisation Time of Flight Mass Spectrometry (SELDI-TOF-MS) is a method for discovering alterations in proteomic profiles. Few studies have looked at the serum proteome of resectable lung cancer however have used healthy cohorts or patients with benign lung diseases as controls. We found that benign lung diseases can have confounding effects on proteomic profiling in Lung Cancer[1]. The objective of this study was to examine proteomic profiles of lung cancer using their post operative samples as controls in idetifying potential surveillance markers.
Materials & Methods: Serum samples were collected from patients undergoing surgical resection of non small cell carcinoma before the operation and in the follow up period when they are disease free. Samples were analyzed in duplicates simultaneously using SELDI-TOF-MS analysis using an IMAC chip.The peaks were picked up and grouped after toptal ion current normalisation and baseline substration using Ciphergen's Biomarker Wizard Tool. The mean peak intensities for duplicate spectra was calculated prior to further analysis. Student t tests were used for statistical and a p value of ($p<0.01$) was considered as significant.
Results: 25 paired pre and post resection were identified and analysed. There were 19(76%) males in this cohort with a mean age of 69(range 53-81). There were 13 Squamous cell carcinomas, 10 Adenocarcinomas and 2 Large cell carcinomas with a stage distribution of Stage 1A: 4, IB: 11, IIB: 5, IIIA: 3, IIIB: 1 and IV: 1. This analysis revealed 170 distinctive peaks of which 35 achieved statistical significance in their intensities ($p<0.01$) between the preoperative and post operative samples of these 10 had $p<0.001$.
Conclusions/Uploads: Post operative samples in disease-free state can be used as good controls to identify proteomic profiles in non small cell lung cancer. This approach avoids other confounding factors and needs to be validated with larger numbers. [1] Clinical Proteomics, December, 2009
Disclosure: All authors have declared no conflicts of interest.

F-085 PRIMARY GASTRIC CANCER IN ESOPHAGEAL GASTRIC GRAFT AFTER ESOPHAGECTOMY

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Background/Objectives: Recent advances in surgical treatment of esophageal cancer have improved the prognosis of early, locally advanced esophageal cancer. Primary cancer from esophageal graft is rare, but could be detected in long-term survivor. We analyzed data of patients with primary gastric cancer in esophageal graft to evaluate the strategy of treatment and the survival.
Materials & Methods: We retrospectively reviewed the data of patients with primary graft cancer in esophageal graft at Samsung Medical Center Between September 1994 and December 2009. The clinico-pathologic features and prognoses were investigated. Long term survival rate was analyzed by Kaplan-Meier.
Results: Ten primary gastric graft cancers (5 EGC, 5 AGC) were diagnosed in all male patients. The average age was 67 (±5). Initial operation was Ivor-Lewis operation in 8 cases, three field lymphadenectomy in 2. The median period to detect the primary gastric graft cancer after esophagectomy was 50(9-102) months. 6 gastric graft cancers were diagnosed by regular endoscopic examination. EGCs were been treated with ESD in 2 cases, tumor resection in 1, and eophagocolojejunostomy in 3 including one patient operated after ESD. AGCs were treated with chemotherapy in 1, supportive care in 1 and esophagocolojejunostomy in 3. There was no adjuvant chemotherapy. Median follow up period after second operation was 10 months (range 1-96). During this period, 7 patients were alive. 3 patients were expired in 5 AGC patients. The gastric cancer didn't recur in operated patients. The esophageal cancer in one patient recurred on left upper lobe. It was treated by thoracosopic left upper lobectomy. Estimated 5 year survival rate was 70%.
Conclusions/Uploads: In a high prevalence area of stomach cancer, the regular endoscopic check-up on esophageal gastric graft could help to detect the gastric graft cancer early. The reoperation with colon graft might be one treatment option of primary gastric graft cancer.
Disclosure: All authors have declared no conflicts of interest.

F-086 BODY MASS INDEX KINETICS AFTER RADICAL ESOPHAGECTOMY FOR CANCER

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Background/Objectives: To investigate on body mass index (BMI) kinetics after radical transthoracic esophagectomy for cancer during the first postoperative year.
Materials & Methods: From a prospective single-institution database, we identified 131 subsequent one-year survivors having undergone a R0 transthoracic esophagectomy with gastric tubulisation between 2000 and 2008. BMI values were collected at the onset of the disease (initial BMI), at the time of surgery (preoperative BMI), and 1 year after esophagectomy (1-year BMI). Logistic regression was performed with adjustment for confounders. Odds ratios (ORs) for the loss of at least 15 percent of the initial body weight (BW) were estimated.
Results: Preoperatively, 26 patients (20%) were underweighted (BMI < 20kg/m2), 66 (50%) were normal (BMI= 20-24 kg/m) and 39 (30%) were overweighted (BMI >25 kg/m2). Mean initial, preoperative and 1-year BMI values were 24.7 ± 4 kg/m^2, 23.5 ± 3.8 kg/m^2, and 21 ± 4 kg/m^2, respectively. in 33 patients (25.2%). Age, gender, tumour location, histology, neoadjuvant therapy, preoperative weight loss, tumour p stage, and occurrence of postoperative complications did not correlate with a postoperative weight loss of at least 15 % of the initial BW at 1 year. At multivariate analysis, initial overweighting was the sole independent prognosticator of such a weight loss (p=0.035; OR: 2.59, [1.1-6.3])
Conclusions/Uploads: In contrast with other weight categories, obese patients experienced dramatic BMI changes postoperatively. Esophageal cancer surgery acted as a bariatric surgery in those patients. Further studies are necessary to demonstrate if this finding is part of the rationale of the so-called “survival paradox” previously reported in this segment of population.
Disclosure: All authors have declared no conflicts of interest.

F-087 MINIMALLY INVASIVE ESOPHAGECTOMY OF 99 CONSECUTIVE CASES: LEARNING CURVE AND LESSONS LEARNED

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Background/Objectives: Minimally invasive esophagectomy (MIE) is technically demanding and developing not as fast as other minimally invasive surgical procedures. Here, we present our experiences of 99 consecutive cases of MIE, discussed with learning curve and lessons.
Materials & Methods: From June 2006 to November 2009, 99 patients with esophageal cancer were treated by a single surgical team though MIE. The patients were divided into 4 groups according to date (Group 1:n=16; Group 2:n=24; Group 3: n=34; Group 4: n=25), data of clinical outcomes were compared to determine if a learning curve could be demonstrated.
Results: Total MIE (thoracoscopy/laparoscopy) was performed in 41 cases, while 58 patients underwent hybrid MIE (thoracoscopy/laparotomy in 54 or thoracotomy/ laparoscopy in 4). The mortality rate was 1.0%), and the overall complication rate was 39.4%. Total operation time decreased from a mean of 310.0 min in group 1 to 205.2 min in group 4($p<0.01$), and the thoracic time decreased from a mean of 161.3 min in group 1 to 68.4 min in group 4($p<0.01$). The blood loss also decreased in the later groups (group 3 and group 4). Thoracoscopic esophageal mobilization in prone position showed a more amount of lymph nodes retrieved than in lateral decubitus position (mean 19.5 vs 13.5, $p<0.01$). Gastric reconstruction of neck anastomosis from posterior mediastinal route rendered a lower rate of leakage than that from retrostenal route(15.4% vs 37.2%, $p<0.05$). There was no significant difference in factors of the patients, length of postoperational hospital stay, length of ICU stay and the complication rate between the 4 groups.
Conclusions/Uploads: MIE for esophageal cancer is a technically challenging operation with a significant learning curve. Thoracoscopic esophageal mobilization in prone position appears to have advantage in lymph node dissection. Posterior mediastinal route of gastric reconstruction is preferred as our first choice due to lower risk of neck anastomotic leakage.
Disclosure: All authors have declared no conflicts of interest.

F-088 TALC PLEURODESIS IN THE MANAGEMENT OF MALIGNANT PLEURAL EFFUSION: TALC POUDRAGE OR TALC SLURRY?

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Background/Objectives: Malignant pleural effusions (MPE) is a common condition in patients with oncologic disease. Any kind of tumor can present it, being more frequent in bronchopulmonar adenocarcinoma. Once diagnosis is established management is palliative. Chemical pleurodesis with talc has shown to be the most effective strategy, but the optimal route of administration has not been decided.
Materials & Methods: A prospective study was carried out between December 2007 and October 2009. Patients diagnosed with MPE were randomly included in the group of talc poudrage (TP) or talc slurry (TS). Clinical data on patients were recorded, same for data on the technique, pleural fluid (PF) pH values and glucose dosage. Efficacy of both techniques, defined as the absence of pleural effusion, was compared. Association of efficacy and PF parameters was analyzed and a cut-off point for PF-pH was calculated.
Results: Thirty-four pleurodesis were performed. Clinical characteristics of patients are shown in Table 1. Eighteen patients underwent TP (52.9%) vs. TS in 16 (47.1%). Procedure efficacy was 83.3% and 68.8% respectively (non-statistically significant, p=0.429). The mean PF-pH was 7.28±0.14 in the efficacious group, whereas 6.96±0.18 in the non-efficacious one (p=0.001). The mean dosage of glucose was 64.13±27.22 mg/dL and 85.77±29.06 respectively, non-statistically significant (p=0.071). A receiver operating characteristic curve was built with PF-pH values. The area under the curve (AUC) was 0,909 (95%CI, 0.739-1.079, p=0.001). A cut-off point for maximal sensitivity (S=100%) and specificity (S=87.5%) was calculated, being 7.07.Diagnostic values for this PF-pH point were calculated, resulting in a positive predictive value (PPV) of 96.29% and a negative predictive values (NPV) of 100%.
Conclusions/Uploads: There were no differences on efficacy between the use of TP and TS. PF-pH resulted to be a good parameter for predicting efficacy of pleurodesis. Conversely, glucose dosage was not associated with the outcome.
Disclosure: All authors have declared no conflicts of interest.

Table 1. Clinical characteristics of patients and data of techniques

	Total (n=34)	TP (n=18)	TS (n=16)
Age (yr): mean±SD	59.9±13.7	57.6±11.5	59.9±13.6
Gender			
Male	19	10	9
Female	15	7	8
Localization			
Right: n (%)	21	12	9
Left: n (%)	13	6	7
Time to TP/TS (d): mean±SD	9.32±6.75	12.05±10.95	6.25±3.66
Efficacy: n (%)	26 (76.5%)	15 (83.3%)	11 (68.8%)
PF Parameters			
pH: mean±SD	7.21±0.21	7.24±0.16	7.17±0.24
Glucose(mg/dL): mean±SD	80.68±29.73	75.1±24.80	85.22±33.56

Table 1

Wednesday, 02 June 2010
11:00 - 13:00
Abstract Session 14 - Mixed Benign

F-089 IMPACT OF POSTPNEUMONECTOMY EMPYEMA ON SURVIVAL AFTER RESECTION OF THORACIC MALIGNANCIES

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Background/Objectives: The aim of the underlying study was to analyze if prolonged infectious complication as postpneumonectomy-empyema (PPE) after resection for thoracic malignancies have a positive or negative impact on overall survival.
Materials & Methods: Between June 1998 and January 2008 43 consecutive patients with PPE after resection for lung cancer (NSCLC) or malignant mesothelioma (MPM) were treated at our institution with the accelerated treatment concept including repeated debridement and finally filling of the cavity with antibiotic solution. Overall survival (OAS) of NSCLC as well as MPM patients with PPE was compared to a tumor-stage and age matched group that was taken from our follow-up data registry by random selection.
Results: Median overall-survival of MPM patients with PPE (n=21) was 21 months (95% CI: 16; 26) in comparison to 25 months (95% CI: 15; 34) for patients without empyema (p=0.8). In the tumor-stage and age- matched NSCLC cohort median overall-survival did not differ significantly despite comparable TNM stages.
Conclusions/Uploads: Prolonged chronic infection after pneumonectomy for treatment of either non-small cell lung cancer or malignant pleural mesothelioma had no statistically significant impact on survival.
Disclosure: All authors have declared no conflicts of interest.

F-090 MICROBIOLOGY SPECIMENS OBTAINED AT THE TIME OF SURGICAL LUNG BIOPSY FOR INTERSTITIAL LUNG DISEASE: CLINICAL YIELD AND COST ANALYSIS

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Background/Objectives: In efforts to obtain complete results, current practice in surgical lung biopsy (LB) for interstitial lung disease (ILD) recommends sending portions of lung tissue samples for bacterial, mycobacterial, fungal, and viral cultures. This study assesses the value of this practice by evaluating the microbiology findings obtained from LB for ILD and their associated costs.
Materials & Methods: 108 consecutive patients (55 women, 53 men, mean age=58.6) underwent LB for ILD from 2002-2005. All had fragments of lung tissue sent for complete microbiology examination. Microbiology results and resultant changes in patient management were recorded. A cost analysis was performed based upon nominal hospital charges adjusted to current inflation rates. Cost data include cultures, stains, smears, direct fluorescent antibody studies and microbiologist consulting fees.
Results: 19 patients (17.6%) underwent open LB and 89 (82.4%) thoracoscopic LB. A total of 186 specimens were assessed (range 1-3 per patient). The most common pathologic diagnoses were idiopathic pulmonary fibrosis in 39 (36.1%), cryptogenic organizing pneumonia in 15 (13.9%) and lymphoma in 6 (5.5%). Microbiology testing was negative in 81 patients (75%). 26/27 positive results were clinically considered to be contaminants and resulted in no change in clinical management. The most common contaminants were Propionibacterium acnes (12 patients-48%) and coagulase negative Staphylococcus (5 patients-18.5%). In only one patient (0.9%) did the organism cultured (Histoplasma) result in a change in clinical management. The cost of microbiology studies per specimen was € 806 with a total cost for the study cohort of € 150,000.
Conclusions/Uploads: The yield and impact on clinical management of microbiology specimens from LB for ILD are very low. Routine culture of LB specimens is of questionable utility. We suggest this practice should be limited to those cases of ILD with a high suspicion of infectious etiology. Substantial cost savings are possible with this change in clinical practice.
Disclosure: All authors have declared no conflicts of interest.

F-091 MODULATION OF MCP-1 MRNA EXPRESSION BY ISCHEMIC PRECONDITIONING IN A LUNG AUTOTRANSPLANT MODEL

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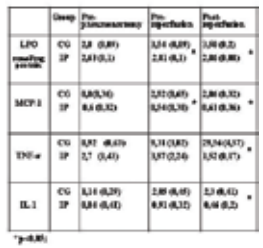
Background/Objectives: Although chemokines are functionally important in models of ischemia-reperfusion injury, little is known about their role in lung ischemia-reperfusion (IR) injury. Monocyte chemoattractant protein-1 (MCP-1/CCL2), a chemokine that regulates migration and activation of monocytes/macrophages, is believed to play a crucial role in this process. It is also known that the expression of MCP-1 in several epithelial cells is upregulated through TNF-α and IL-1, which are expressed in hypoxic condition. On the other hand, ischemic preconditioning (IP) has been proved to protect several organs from (IR) injury. The objective of the present study was to investigate the expression of MCP-1, TNF-α and IL-1 mRNA in lung tissue during IR injury, and to determine the effect of IP on these molecules expression.
Materials & Methods: Two groups (ischemic preconditioning-IP and control-CG) of 7 large-white pigs were submitted to a lung auto-transplant (left pneumonectomy; ex-situ superior lobectomy; lower lobe reimplantation). Before pneumonectomy was performed in the study group, IP was obtained by 2 cycles of 5 min. of left pulmonary artery occlusion with a 5 min. interval of reperfusion between the two occlusions. Blood samples and lung biopsies were obtained during surgery: 1) pre-pneumonectomy; 2) pre-reperfusion; 3) 10 min. post-reperfusion of the implanted lobe. Oxidative stress was evaluated by measuring lipid peroxides (LPO) in lung tissue. Lung samples were analyzed by real-time reverse transcription-polymerase chain reaction for expression of MCP-1, TNF-α and IL-1. Nonparametric tests were used to compare differences between groups.
Results: Main data expressed as mean (SEM) are shown in the table.
Conclusions/Uploads: In this model, lung IR injury induced the expression of MCP-1 mRNA and proinflammatory proteins TNF-α and IL-1 in control lungs. IP significantly reduced these chemokine and cytokines gene expressions. These features may be at least one of the possible mechanisms explaining the reduction of oxidative stress observed with IP.
Disclosure: All authors have declared no conflicts of interest.



F-092 DEVELOPMENT OF A NEW TRANS-ORAL ENDOSCOPIC APPROACH FOR MEDIASTINAL SURGERY ON THE BASIS OF NATURAL ORIFICE SURGERY: PRECLINICAL STUDIES ON SURGICAL TECHNIQUE, FEASIBILITY AND SAFETY

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Background/Objectives: Endoscopic surgical techniques have been adopted in many disciplines and natural orifice approaches are now under exploration to reduce surgical access trauma. We have developed a trans-oral endoscopic approach for endoscopic mediastinal surgery and tested this new technique in preclinical studies for feasibility and safety.
Materials & Methods: We conducted an experimental anatomical study in fresh frozen cadavers. By a midline sublingual incision an optical scissor was placed through a 6.0 mm trocar in the pretracheal region and a working space was created; two additional trocars were placed by bi-vestibular incisions in the oral cavity. The trachea was visualized and followed down to the main bronchi. Paratracheal and subcarinal lymph nodes were resected bilaterally, specimen were removed through the midline channel. In an additional animal study in pigs feasibility and safety was tested for this surgical approach. Anatomical dissection allowed an estimate of collateral damage.
Results: In all cases the target regions could be reached endoscopically, no conversion was mandatory. Landmarks (brachiocervical trunc, the azygos vein and the pulmonary artery) were visualized easily and kept intact. A working space in the mediastinum could by established by the insufflation of air at 6 - 10 mm Hg. Harvesting of the specimen through the midline channel was possible. Anatomical dissection of the cervical access route as well as of the mediastinal region showed no collateral damages. In the animal study we had to note seroma of the surgical field due to the conditions of the animal model.
Conclusions/Uploads: These preclinical studies showed that the mediastinum can be reached by a trans–oral endoscopic approach based on natural orifice surgery. Complete compartment resection of the paratracheal and subcarinal lymph node-stations was possible in a well defined and clearly visible working space. This approach could perhaps enhance the extent of mediastinal resections in oncologic surgery.
Disclosure: All authors have declared no conflicts of interest.

F-093 A COMPARISON OF BLIND TRANSBRONCHIAL WITH ENDOBRONCHIAL AND ENDOSCOPIC ULTRASOUND-GUIDED NEEDLE ASPIRATION IN DIAGNOSIS OF LUNG SARCOIDOSIS – A RANDOMIZED TRIAL

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Background/Objectives: The aim of the randomized trial was to compare the diagnostic yield of blind transbronchial needle aspiration (TBNA) with endobronchial (EBUS) and endoscopic ultrasound-guided (EUS) needle aspiration (NA) in stage I/II of lung sarcoidosis (LS).
Materials & Methods: In patients suspected for LS – TBNA or EBUS-TBNA or EUS-NA were being performed randomly under local anaesthesia and intravenous sedation. All patients with negative TBNA or EBUS-TBNA underwent EUS-NA and with negative EUS-NA underwent EBUS-TBNA. If both were negative, patients in stage I LS were scheduled for mediastinoscopy (MS) and in stage II LS for transbronchial lung biopsy (TBLB).
Results: From 01.01.2009 to 31.12.2009 in 100 patients suspected for LS there were performed primarily 34 TBNA, 30 EBUS-TBNA and 36 EUS-NA. TBNA was positive in 20 (58.8%), EBUS-TBNA in 23 (76.7%) and EUS-NA in 31 (86.1%) patients. In 14 negative TBNA and 7 negative EBUS-TBNA patients EUS-NAs were performed and in 5 negative EUS-NA patients EBUS-TBNAs were performed as a second procedure. EUS-NA was positive in 9 patients and EBUS-TBNA in none. In 17 patients with negative results of biopsies MS was performed in 6 and LS was confirmed in 2 of them and in next 11 patients LS was confirmed by TBLB. 152 mediastinal and hilar nodes were biopsied and 82% of them in station 7. A diagnostic sensitivity, specificity, accuracy, NPV of TBNA and EBUS-TBNA and EUS-NA were 62.5%, 100%, 64.7%, 14.3% and 79.3%, 100%, 80%, 16.7% and 88.6%, 100%, 88.9%, 25%, respectively. The sensitivity, accuracy and NPV of EBUS-TBNA and EUS-NA were significantly higher comparing with TBNA ($p<0,05$). A diagnostic yield of the combined approach of EBUS-TBNA and EUS-NA was 92.2%, 100%, 92.4% and 28.6%, respectively. No complications of all bioptic methods were observed.
Conclusions/Uploads: In stage I/II of LS the diagnostic yield of EBUS-TBNA and EUS-NA is significantly higher than of TBNA.
Disclosure: All authors have declared no conflicts of interest.

F-094 AWAKE THORACOSCOPIC BULLAPLASTY

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Background/Objectives: Staple excision of emphysematous bullae through general anesthesia is the standard surgical treatment of bullous emphysema. We have developed a new surgical technique entailing thoracoscopic non-resectional bullectomy (bullaplasty) performed in fully awake patients with sole epidural anesthesia.
Materials & Methods: This prospective nonrandomized trial included 35 patients undergoing awake thoracoscopic bullaplasty between 2002 and 2009. Preoperative work-up included spirometry with plethysmography, analysis of blood gases and computed tomography with algorithm for quantitative measurement of the bulla volume. Outcome measures included technical feasibility and patient's satisfaction with the anesthesia, scored into 4 grades (0=poor; 4=excellent); ratio of arterial oxygen tension to fraction of inspired oxygen (PaO2/FiO2), and postoperative assessment of standard clinical measures at 12 and 24 months.
Results: There were 29 men and 6 women with a mean age was 59±9 years. Bulla volume averaged 875±741 mL and 12 patients had a volume of more than 1000mL. Awake bullaplasty was successfully completed in 32 patients (91%). Intraoperatively, PaO2/FiAO2 decreased from 370±46 to 306±65 mmHg (P<0.0001) but returned towards baseline values 1 h after surgery. Technical feasibility and patient's satisfaction with the anesthesia scores were 3.4±0.9 and 3.5±0.7, respectively. There was no mortality while 4 patients had air leaks longer than 7 days. Mean hospital stay was 4.9±2.2 days. Comparisons between pre- to 12-month-postoperative measures showed that significant improvements (P<0.0001) occurred in FEV1 (+0.32±0.19L), residual volume (-1.2±0.6L), dyspnea index (-1.4±0.6) six minute walking test (+78±45m) and short form-36 quality of life score (+11±9). All these improvements remained significant for up to 24 months and no patient had recurrence of the treated bulla/ae.
Conclusions/Uploads: Our study suggests that awake thoracoscopic bullaplasty was well tolerated and easily performed in the majority of the patients. Hospitalization was satisfactorily short and significant clinical improvements occurred postoperatively at 12 and 24 months.
Disclosure: All authors have declared no conflicts of interest.

F-095 A MAJOR VATS PROGRAM REDUCES THE NEED OF RESOURCES IN THE WARD

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Background/Objectives: Two divisions of general thoracic surgery were united into one by January 2009. The division that moved to the other hospital had a dedicated VATS program including a big number of VATS lobectomies and this program was introduced in full scale in the new common division. This study looks on the impact that the surgical profile do have on the need in hospital resources.
Materials & Methods: Data are collected from the department's prospective database on procedures and the accounting database. Number of positions is converted to 37 hour/week for nurses. The number of beds is the maximum during the year.
Results: The total amount of major operations was increased 70%. VATS cases counted for 40% in 2008 and 59% in 2009. The profile of diseases treated did not change. Nursing staff, bed capacity and number of patient nights all increased between 17 and 21%. The number of nurses/bed was unchanged. The number of major procedures performed per bed changed from 21.1 to 29.7 (41%). The mean stay/procedure (operations and endoscopic procedures) was reduced from 3.8 to 2.4 nights.
Conclusions/Uploads: There is a significant difference in the increase of procedures performed and the extra resources allocated to the ward. The only change in the surgical profile that can explain this is the swift towards a minimal invasive approach. This gives a shorter hospital stay and a faster in-hospital recovery needing fewer resources in the ward. This indicates that a dedicated VATS program reduces the recourses needed in the ward.
Disclosure: All authors have declared no conflicts of interest.

	2008	2009	Change %
Operations in total	612	1040	70
Thoracotomy	286	1040	18
VATS	246	617	151
Oesophageal resections	80	85	6
Endoscopic procedures	1478	1744	15
Outpatient clinic visits	1560	3024	94
Qualified surgeons	6	9	50
Beds	29	35	21
Nights in ward	8023	9700	21
Nurses	36	42	17

F-096 EFFICACY OF ANTERIOR FISSURELESS TECHNIQUE IN REDUCING AIR LEAK AND HOSPITAL COSTS AFTER RIGHT UPPER LOBECTOMIES. A CASE MATCHED ANALYSIS

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Background/Objectives: The objective of this investigation was to verify whether the use of an anterior fissureless technique (FL) could prevent the occurrence of prolonged air leak after right upper lobectomy (RUL).
Materials & Methods: Observational analysis on 206 consecutive patients (2002-2009) submitted to RUL. Operations were performed through thoracotomy. Patients with complete fissures were excluded. Group TR: (146 patients) RUL by traditional intra-fissure dissection of pulmonary artery; group FL: (60 patients) RUL by fissureless division of all hilar vascular structures. Several perioperative variables were used in identifying propensity score matched pairs of patients undergoing traditional and fissureless lobectomies. The matched groups were then compared in terms of incidence of prolonged air leak, air leak duration, operation time, chest tubes duration, hospital stay and costs (table).
Results: Propensity score analysis yielded 58 well-matched pairs of patients operated by traditional or fissureless RUL. Compared to those in the traditional group, patients in group FL had a mean reduction in air leak duration, duration of chest tube and postoperative stay of 1.1, 1.4 and 1.2 days, respectively. This translated in to an average hospital cost saving of 569 Euro per patient (table).
Conclusions/Uploads: Anterior fissureless technique during RUL reduced the duration of air leak and hospital costs without incrresing the surgical time. Given its simplicity and efficacy, we regard it as a useful tool for implementing fast-tracking policies and cutting hospital costs.
Disclosure: A. Brunelli: The Author has the following conflict of interest:
-former Advisory Board Millicore
-Advisory board Medela Healthcare
All other authors have declared no conflicts of interest.

Variable	Tradional	Fissureless	P
Operation time (min)	180 (44)	183 (51)	0.8°
Postoperative stay (days)	7.7 (4.2)	6.5 (4.1)	0.04°
Air leak (days)	2.5 (5)	1.4 (2.8)	0.15°
Duration chest tube (days)	6.7 (6.4)	5.3 (6.3)	0.004°
Effusion 48 hrs (ml)	810 (392)	679 (374)	0.04°
Postopoerative costs (Euro)	3436 (2216)	2867 (2307)	0.046°
Perioperative costs (Euro)	5336 (2734)	4767 (2332)	0.07°
PAL >5 days (n)	4	2	0.7*

Table. (°) Mann Whitney Test; (*) Fisher's exact test

F-097 VIDEOTHORACOSCOPIC LUNG BIOPSY IN THE DIAGNOSIS OF INTERSTITIAL LUNG DISEASE. A SPANISH PROSPECTIVE MULTICENTRIC STUDY WITH 224 PATIENTS

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Background/Objectives: We designed a study in Spanish Thoracic Surgery Departments with the objectives of evaluating if the site, number and laterality of the videothoracoscopic lung biopsy (VATS-LB) influence the diagnosis of diffuse interstitial lung disease (DILD) and to asses the applicability of an Outpatient Program (OP).
Materials & Methods: A prospective multicentric study of VATS-LB for suspected DILD from 11/2007 to 12/2009 including 224 patients from 13 Spanish centers (mean age 57.1 years; 52.6% females). Patients with pO2<60 mmHg were excluded. Data were prospectivelly collected in every institution and sent to the coordinator center for analysis.
Results: Mean FEV1:76.1%, DLCO: 55.3%, KCO: 77.8%, pO2:73.5 mmHg. Most affected areas in chest CT were inferior lobes (51.9%). Bronchoscopy was performed in 84%. 70 patients (31.3%) were included in an OP. Three ports were used in 95% and left side in 59.5%. Mean number of endostaplers was 3.4. Chest tube was removed <48h after surgery in 89.7% and discharge <24h in 61.5% of patients. Complications after discharge were seen in 12 patients out of 224 (5.4%). Similar postdischarge complication rates were observed between patients admitted postoperatively (9/154: 5.8%) and those included in an OP (3/70: 4.3%). In 179 cases (79.9%) more than one biopsy was performed. Diagnostic concordance in these cases was 97.2%. A definite histopathologic diagnosis was obtained in 195 (87%). Idiopathic pulmonary fibrosis was the most frequent diagnosis (26%).
Conclusions/Uploads: The site, number and laterality of the biopsy specimen did not seem to influence on diagnosis. VATS-LB patients included in an OP had a complication rate comparable to the admitted cases, so this procedure can be included in an Outpatient Program. VATS-LB is a powerful and safe tool for diagnosis of suspected DILD, it results in a definite diagnosis for the majority of patients with a low morbidity rate.
Disclosure: All authors have declared no conflicts of interest.

F-098 RISK FACTORS FOR POSTOPERATIVE PULMONARY COMPLICATIONS FOLLOWING THORACIC SURGERY

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Background/Objectives: Postoperative pulmonary complications (PPC) are frequently observed following lung resection, with significant clinical and economic impact such as increased observed mortality, morbidity, length of stay and associated cost. Recent changes in guidelines mean patients with increasing risk may now be considered operable. Hence our aim was to identify PPC risk factors including potentially modifiable ones, which may be important in optimisation strategies to reduce morbidity and mortality in high risk groups.
Materials & Methods: A prospective observational study was performed on all patients following lung resection via thoracotomy in a UK regional thoracic centre between October 2007 and January 2010. PPC was assessed using a scoring system based on chest x-ray, elevated white cell count, pyrexia, microbiology, purulent sputum and oxygen saturations.
Results: 402 subjects were observed (92% lung cancer), 235 male (59%). Mean (SD) age was 64 (19) years and FEV1 80% (20). Surgical procedures included pneumonectomy, lobectomy, wedge resections and segmentectomy. Seventy seven subjects (19%) had clinical evidence of PPC. The PPC patient group demonstrated a significantly longer length of stay (LOS), High Dependency Unit LOS and higher ITU admission and mortality. Age $\geq$ 75, preoperative FEV1, predicted post-operative (PPO) FEV1, preoperative activity level <400 metres, ASA $\geq$ 3, smoking history, COPD and reduced postoperative mobility were all significantly ($p<0.05$) associated with PPC on univariate analysis. Multivariate analysis confirms that age over 75, ASA $\geq$ 3, smoking history, COPD and reduced postoperative mobility are significant independent risk factors in the development of PPC ($p<0.05$).
Conclusions/Uploads: The clinical and cost impact of developing a PPC is marked. Potentially modifiable risk factors include postoperative mobility, smoking status and COPD. Optimisation of pre and postoperative physiotherapy, pulmonary rehabilitation, and smoking cessation interventions may be beneficial to these high risk patients. The impact of targeted therapy for these patients requires further evaluation.
Disclosure: All authors have declared no conflicts of interest.

F-099 THORACOSCOPY FOR ACUTE LUNG PARENCHYMAL DESTRUCTIONS

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Background/Objectives: Acute lung abscesses and lung gangrene are rare pathology in developed but relatively common in developing countries. Treatment is generally supportive; the principles are debridement and drainage. Indications for surgical treatment for acute pulmonary destructions are not well established. We present results of thoracosopic treatment of acute lung abscesses and lung gangrene in the specialized Department of Lung Surgery for Purulent Diseases that serves region of 5 million people.
Materials & Methods: A retrospective review of patients who underwent thoracoscopy between January 1, 2007, and January 1, 2009, for management of acute lung abscesses or lung gangrene.
Results: Fifty six patients underwent thoracoscopy and abscessoscopy under local anesthesia: necrotic tissue and debris from purulent cavities were removed, the cavities were washed with antiseptic solution, the lung surface was carefully cleaned, suction drainages were inserted into the pleural and/or abscess space. 24 patients had lung gangrene and the other patients had abscesses. 18 patients (32%) had histories of intravenous drug and alcohol abuse, were HIV-positive or had documented hepatitis B.. All patients presented with pulmonary sepsis, and also had the following: empyema (n=47), air leak (n=42), hemoptysis (n=15). Three patients previously were ventilator depend. In all patients prethoracoscopic antibiotics and percutaneous drainage was done but treatment was not successful. With the exception of one patient who died of multiple organ failure no surgery related complications were seen. In 52 patients good clinical result was achieved. An average hospital stay was 16,4 days.
Conclusions/Uploads: Thoracoscopy for acute lung parenchimal destructions is a reasonable option because of rapid control of severe life-threatening conditions in desperate cases of lung abscess and lung gangrene at a low operative risk.
Disclosure: All authors have declared no conflicts of interest.

F-100 FREQUENCY OF TRUE SHORT OESOPHAGUS IN NON AXIAL HIATUS HERNIAS (NAHH)

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Background/Objectives: The length of the abdominal oesophagus (AO) in patients undergoing surgery for NAHH is still controversial. This lack of information may concur to the high rate of hernia's recurrence after repair. We measured intra operatively the distance between the gastrooesophageal junction (GOJ) and the hiatus in patients undergoing surgery for NAHH.
Materials & Methods: 34 patients (26 females 76.4%, mean age 65.3 range 41-84 yrs) underwent a laparoscopic approach. After full isolation of the GOJ and complete resection of the sac, the position of the gastric folds was localized endoscopically and two clips were applied. The distance between the clips and the apex of the diaphragm was measured with a dedicated ruler before and after the esophageal dissection. In case of AO <1.5 cm a Collis-Nissen was performed.
Results: Mean duration of symptoms was 100 months (r. 12-360), reflux symptoms were moderate in 21/34 (61.7%), severe in 13/34 (38.3%), oesophagitis was present in 16/34 (47%). NAHH were type II (para-oesophageal) in 4 (11.8%), type III 24 (mixed) (70.6%), type IV (organo-axial volvolus) in 6 (17.6%). Before dissection the AO was ≤1.5 cm in 26 pts (76.4%), median length of the mediastinal dissection was 10 cm (range 6-13 cm). After dissection AO was still <1,5 cm in 17 (50%), respectively in 0/4 of type II, in 13/24 of type III and in 4/6 of type IV. No difference was calculated between AO longer or shorter than 1.5 cm with respect to duration and severity of symptoms and oesophagitis. 17 pts (50%) underwent the Collis-Nissen.
Conclusions/Uploads: Short oesophagus is present in 50% of NAHH , mainly in type III and IV. The intra operative measurement of the length of the AO is an objective method for recognizing these cases.
Disclosure: All authors have declared no conflicts of interest.

NOTES

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Sunday, 30 May 2010
08:30 - 17:00
Poster Session - Sunday Posters

P-101 OUR EXPERIENCE ON SURGICAL TREATMENT OF DIAPHRAGMATIC HERNIA

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Background/Objectives: Diaphragmatic hernia are rare diseases, but may not be easily detected and can lead to significant morbidity and mortality. General Thoracic Surgeons should be familiarised with these processes and be able to repair from either abdominal or thoracic approaches. The aim of this paper is to show our experience on surgical repair of diaphragmatic hernia.
Materials & Methods: A retrospective case note analysis was performed of all patients treated for diaphragmatic hernia in our Hospital between June 2000 and December 2009. We analysed kind of hernia, associated injuries, surgical repair and approach, and outcome.
Results: We have study 22 patients. Gender: 12 males, 10 females. Mean age: 51 years (range 23-74). Aetiology: Morgagni (congenital) 4, Blunt trauma: 14, Penetrating trauma: 3, Post-laparotomy: 1. Left-sided: 16 cases; Right-sided 6: patients. Associated injuries were present in 65%. In order of frequency the approaches for repair were thoracotomy (13), laparotomy (6) and laparoscopy (3). Surgical technique were: Primarily suture (6), muscle reinforcement technique (8) and onlay patch (8). Post-operative pulmonary complications occurred in 20% of patients. One patient died (4,5%).
Conclusions/Uploads: Diaphragmatic hernia are easily repair by general thoracic surgery. Most frequent aetiology are postraumatic hernias and both approches (abdominal and thoracic) have good results with low morbidity and mortality.
Disclosure: All authors have declared no conflicts of interest.

P-102 ANY PREDICTOR OF PERSISTENT AIR LEAK ? THE SERENDIPITOUS IDENTIFICATION OF THE "PLEURAL SWOOP" SIGN

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Background/Objectives: Persistent air leak (PAL, >7 days) is one of the most frequent complications after lung resection and significatively prolongs hospital stay. Its occurrence remain unpredictable, as no evident predictive factor has been identified yet. The study hypothesis was that postoperative digital recording of air leaks may help in identifying new PAL predictors.
Materials & Methods: Air leaks from a consecutive series of 50 patients undergoing pulmonary resection was monitored by the use of a digital chest drainage system (DigiVent®, Millicore AB, Sweden). Patients were divided in two groups, according to the presence (group A) or absence (group B) of PAL. Preoperative (sex, age, smoking status, FEV1, induction treatment), intraoperative (pleural adhesions, procedure of fissure completion, type of resection, use of aerostatic device) and postoperative variables (median air leak expressed in ml/min on each postoperative day, POD, amount of maximal intrapleural negative pressure, patterns of air leak) were compared between groups.
Results: Postoperative PAL was recorded in 15 out of the 51 patients enrolled in the study (29.4%). None of the examined variables resulted as being significant at univariate analysis. By serendipity, it was noted that none of the patients presenting a rapid deflection in the maximal intrapleural pressure (defined as the "pleural swoop" sign, n=9) had PAL (p 0.04). Considering patients having air leak on POD3 (n= 24), the "pleural swoop" sign was the only predictor of air leak resolution within POD7 (OR 2.6, CI 1.8-3.9).
Conclusions/Uploads: The absence of the "œpleural swoop" sign during the first 96 postoperative hours allows to define patients likely to develop PAL. This information, if confirmed, may improve standardization in chest tube management after lung resection.
Disclosure: All authors have declared no conflicts of interest.

P-103 PULMONARY FUNCTIONS IN THE LATE POSTOPERATIVE PERIOD ARE BETTER PRESERVED AFTER VIDEO-ASSISTED THORACOSCOPIC SURGERY LOBECTOMY THAN LOBECTOMY VIA STANDARD THORACOTOMY

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Background/Objectives: Numerous studies have shown that lobectomy by video-assisted thoracoscopic surgery (VATS) has some advantages over lobectomy via standard thoracotomy (ST), however, the effects on pulmonary functions (PF) in late period has not been studied before. This study aims to compare how pulmonary functions are affected in the late period after two different surgical approaches.
Materials & Methods: Fifty three patients were included in this controlled case series. VATS group (n=27) consisted of patients having either clinical stage-I bronchogenic carcinoma or inflammatory lung diseases requiring lobectomy who underwent a VATS lobectomy (using one 4-6-cm access and two 1.5-cm port incisions, without rib spreading) while thoracotomy group included the patients who were in same clinical status and underwent lobectomy via ST (n=26). Preoperative routine work-up was done in both groups of patients including PF tests. The predicted postoperative forced expiratory volume in 1st second (ppoFEV1) was calculated. During follow-up in 6th month postoperatively, PF tests were repeated and the best of the 3 measured FEV1 was recorded. The accuracy of estimation value was calculated by dividing measured postoperative FEV1 to ppoFEV1 for all patients in both groups and statistical comparison was done.
Results: Both groups have statistically similar peri-operative characteristics. One patient from VATS group and two from thoracotomy group were lost in follow-up. All other patients were alive in 6th month and there were either no local recurrences or distant metastases or major disability. In both groups, the measured postoperative FEV1 values were better than ppoFEV1 values. The accuracy of estimation value was better in VATS group (1.140±0.113) than that of thoracotomy group (1.049±0.133), (p=0.012).
Conclusions/Uploads: In late postoperative period, PFs are preserved better in patients who underwent VATS lobectomy than patients who underwent lobectomy via thoracotomy. No muscle cut and no rib injury in VATS approach might be the probable explanation of better PF preservation.
Disclosure: All authors have declared no conflicts of interest.

P-104 VIDEO ASSISTED THORACIC SURGERY LOBECTOMY FOR BRONCHIECTASIS

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Background/Objectives: Video assisted thoracic surgery (VATS) method for pulmonary resections is an appealing alternative to thoracotomy, especially for the treatment of early stage lung carcinoma. But the experience of using VATS lobectomy for bronchiectasis is limited probably due to the presence of dense pleural adhesions, multiple hilar inflammatory lymph nodes and tortuous bronchial arteries in these patients. We report our experience with VATS lobectomy in patients with bronchiectasis.
Materials & Methods: Patients having history of repeated attacks of lower respiratory tract infections and mucopurulent sputum expectoration with or without haemoptysis and showing radiological findings of localized bronchiectasis were considered for surgical resection of affected lobe. VATS lobectomies were performed through two 15 mm ports and a 4-6 cm utility incision, without rib spreading. All patients were followed-up 3 to 20 months postoperatively.
Results: We could perform successful VATS lobectomy in 11 of 14 patients with bronchiectasis in our clinic between March 2008 and October 2009. Conversion to thoracotomy rate (3/14) was 21%. All patients had symptoms lasting for 6 to 30 years. Seven patients complained of haemoptysis; mild and rare in 5 patients and moderate in 2. Resected lobes were; left lower in 4, right middle in 3, right lower in 3 and left upper in 1 patient. Conversion to thoracotomy was necessitated either due to very dense pleural adhesions (1 patient) or inability to dissect hilar structure (2 patients). No morbidity or major complication was seen postoperatively. Residual pleural space was observed in 1 patient and mild subcutaneous emphysema in other 3. The mean amount of postoperative drainage was 340 ml, the mean hospital stay were 4.1 days. During their follow-up, all patients expressed that they were free of previous symptoms.
Conclusions/Uploads: Although the rate of conversion to thoracotomy is higher than usual, VATS lobectomy is a safe and feasible approach in patients with bronchiectasis.
Disclosure: All authors have declared no conflicts of interest.

P-105 UNIPORTAL VIDEO ASSISTED THORACIC SURGERY FOR PRIMARY SPONTANEOUS PNEUMOTHORAX USING A SINGLE INCISION LAPAROSCOPIC SURGERY PORT: A FEASIBLE AND SAFE PROCEDURE

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Background/Objectives: Video-assisted thoracic surgery (VATS) strongly reduces patient postoperative pain when compared to traditional thoracotomy incisions; however conventional VATS has changed into a smaller and a fewer working ports surgical procedures to reduce even more postoperative pain, chest wall paraesthesia and hospital stay. The purpose of this work is to perform uniportal VATS apical lung bullae resections using a single flexible port.
Materials & Methods: We operated nine patients of primary spontaneous pneumothorax, from September 2009 to December 2009. Patients underwent single lung ventilation. 2 cm. long incision was made at the sixth intercostal space in the median axillary line. Pleural space was entered by blunt dissection to place a single flexible port multiple instruments access (SILS PT12 ™ Covidien-Tyco Healthcare). 5-mm 0º videothoracoscope, roticulating grasper and EndoGIA stapler, were introduced through port channels. Apical lung blebs were stapled and resected; mechanical Marlex® mesh pleural abrasion and 24 Fr. chest tube was introduced under camera visualization and placed to the pleural apex.
Results: Six patients were male (66,6 %) and three were females. Median age of the patients was 27,3 years (ranged from 19 to 42). No intraoperative complications were recorded. One patient (11,1 %) was converted into three port VATS procedure because extense pleural adhesions. Postoperatory pain was mild in seven patients (77,7 %) and moderate in 2; no use of opiates was required. Overall postoperative hospital stay was 2,2 days. Mild chest wall paraesthesia presented in two patients (22,2 %), who complained of numbness distal to the incision site.
Conclusions/Uploads: SILS port allowed adequate roticulated instruments maneuverability in stapling and resecting apical lung blebs.The procedure is feasible and safe. This is the first report of using SILS port in VATS. Further work and development of proper thoracic single port are needed to define uses and potential advantages of this uniportal technique.
Disclosure: All authors have declared no conflicts of interest.

P-106 PREVALENCE AND CHARACTERISTICS OF BENIGN LESIONS SUBMITTED TO SURGERY FOR SUSPECTED LUNG CANCER IN THE PET ERA

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Background/Objectives: Positron emission tomography (PET) has emerged as a promising diagnostic modality to characterize indeterminate solitary pulmonary lesions, potentially reducing the rate of unnecessary invasive procedures. We analyzed our experience, in the PET era, with focal pulmonary lesions, suspicious for malignancy and then proven benign on surgical resection.
Materials & Methods: From January 2000 to December 2009, 388 pulmonary resections for indeterminate solitary pulmonary lesions were performed in our Department. We retrospectively investigated the clinico-pathologic features of 63 (16%) patients who showed a benign disease at the final pathological examination. PET was performed in 52 (81%) patients.
Results: The pulmonary resection was performed by thoracotomy in 32 (51%) patients and by VATS in 31 (49%). Fifty-seven (87%) patients had a wedge resection, 3 had a segmentectomy and 3 had a lobectomy. There was no postoperative mortality. Five (7.9%) patients developed a postoperative complication including atrial fibrillation in two cases, prolonged air leak in two and pneumonia in one case. The histologic examination of the resected specimens showed healed or non specific granuloma in 19 (30%) patients, hamartoma in 18 (28%), active granulomatous infections in 8 (13%), pneumonia in 5 (8%), fibrosis in 4 (6%) and other findings in 9 (14%). PET suggested malignancy (max-SUV>2.0) in 28 (53%) of 52 patients. The remaining 35 patients underwent surgery because the lesion was growing (n=20) or considered malignant at the CT scan (n=15).
Conclusions/Uploads: Despite recent improvement in diagnostic techniques, 10-20% of patients continue to undergo surgery for benign disease. However, the exeresis of the lesion can generally be accomplished by a wedge resection with consequent minimal functional loss and negligible operative risk. Because of its low specificity, PET positive results should be evaluated in the context of a meticulous clinical history, advanced imaging technology and needle biopsy, before proceeding to surgery.
Disclosure: All authors have declared no conflicts of interest.

P-107 BRONCHOGENIC CYSTS: DIAGNOSIS AND TREATMENT

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Background/Objectives: Bronchogenic cysts are congenital malformations of the airway and can be seen in the mediastinum and lungparenchyma. They are often detected in the asymptomatic patient as an incidental finding with imaging studies. Growth can cause compression of airways and vessels, resulting in clinical symptoms and serious complications. On computed tomography (CT) scans, bronchogenic cysts frequently appear as a solid tumor. In the symptomatic patient, surgical resection is generally recommended. However, the natural history of bronchogenic cysts is unknown and resection in the asymptomatic patient remains controversial. We present a review of 11 adults with a bronchogenic cyst and discuss diagnostic strategy and management.
Materials & Methods: Retrospective case study of 11 adults with a bronchogenic cyst. The CT scan of all patients was revised and location, size, Hounsfield Units (HU) and appearance (cystic or solid) of the lesions were reported. Lesions were arbitrarily considered cystic or solid when the radiographic density was below or above 20 HU, respectively.
Results: Eleven adults were diagnosed having a bronchogenic cyst. Median age was 52 years (range 31-69). Patients were followed for at least 2 years after diagnosis. Eight of 11 detected lesions were judged as being solid, based on the radiographic density on CT images (Table). Nine of 11 patients were treated by surgical resection. Two asymptomatic patients were not operated and remained asymptomatic without enlargement of the cysts during 2 years follow-up. One postoperative bleeding, 1 persisting pneumothorax, 1 cyst recurrence was seen. No mortality was observed.
Conclusions/Uploads: In asymptomatic patients, nonoperative strategy with regular follow-up might be considered, preventing unnecessary surgical treatment and related morbidity. The diagnostic imaging method of choice is CT, however distinction between a solid and cystic lesion is not always possible, in which endoscopic ultrasound might have additional value. FNA should be avoided because it can complicate subsequent resection of the cyst.
Disclosure: All authors have declared no conflicts of interest.

#	Presentation	Location	Ø (mm)	HU	Conclusion radiologist
1	Dry cough	Mediastinum	33	7	Solid
		Intrapulmonary	18	57	Solid
2	Dry cough	Mediastinum	6	43	Solid
3	Asymptomatic	Mediastinum	14	MRI	Cystic
4	Asymptomatic	Mediastinum	6	4	Solid
5	Dyspnea	Mediastinum	7	3	Solid
6	Dysphagia	Mediastinum	6	5	Solid
7	Asymptomatic	Mediastinum	37	2	Cystic
8	Dyspnea	Mediastinum	11	33	Solid
9	Dry cough	Mediastinum	57	1	Cystic
1	Dyspnea	Mediastinum	78	3	Solid
11	Recurrent pneumonia	Mediastinum	8	2	Cystic

P-108 EFFECTS OF THORACIC SURGERY OPERATIONS ON QUALITY OF LIFE

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Background/Objectives: The aim of therapeutic procedures is to provide the patient to attain back the life comfort by treating the diseases. But some therapeutic procedures cause loss of life comfort while treating the disease. We aimed to determine the effects of thoracic surgery operations on quality of life.
Materials & Methods: Seventy patients who underwent posterolateral and mini-thoracotomy were accepted to the study. Age, gender, thoracotomy pattern, resection size, diagnosis, development of complications and length of hospital stay of the patients were recorded. Quality of life survey (SF-36) was used to assess the alterations in life comfort. SF-36 survey was performed preoperatively and in the 15th day, 1st, 3rd, 6th and 12th months postoperatively.
Results: In the postoperative first 3 months thoracotomy was observed to worsen physical function, difficulty in physical roles, pain, general health status, energy and social function scores. There was no change in difficulty in emotional roles and mental health scores. The parametres which worsen in the postoperative first 3 months were observed to improve in the postoperative 6th month and consequent follow-ups. However, comparing preoperative scores with the postoperative 6th and 12th month scores, surgical treatment was found to have no significant effects on physical function and general health status whereas it significantly improved other scores.
Conclusions/Uploads: Thoracic surgery operations caused considerable discontent in the life comfort of the patients in the postoperative first 3 months. However, this discontent was observed to improve in the consequent follow-ups. Preoperative physical function and general health status scores did not significantly improve after surgery, whereas other quality of life scores significantly improved.
Disclosure: All authors have declared no conflicts of interest.

P-109 PULMONECTOMY IN PATIENTS WITH TUBERCULOSIS

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Background/Objectives: Pulmonectomy is considered as one of the severe surgical interventions in patients with tuberculosis characterized by the high rate of postoperative complications (12%) and lethality (5%) among which the great part goes to a bronchus stump failure.
Materials & Methods: Current study aims to analyze the results of pulmonectomy performed in 198 patients with tuberculosis at National Center of Tuberculosis from 1995 to 2008. The patients' age varied within 18-58. Among the studied patients 155(73,3%) - were men and 44(26,7%) women. At pulmonectomy lung hilus elements in 102 patients (group I) have been processed and stitched separately using mechanic stapler produced by different companies without pleuralization. In 96 patients (Group II) lung hilus elements have been stitched in common block by using mechanic stapler with additional knot stitches on it made by monofilament thread and with further pleuralization of bronchus stump area.
Results: After surgery the obtained results have been studied by using 6 month. In this data in group I bronchus stump failure has been revealed in 5(4,9%) patients (morbidity); 2(1,9%) of which died (lethality). Duration of the operation was 110min. In 4(4,2%) patients (group II) fistulas were developed and 1(1,1%) patients died. Duration of surgical intervention – 90min.
Conclusions/Uploads: On the background of the obtained results it should be concluded that the rate of development of bronchial fistula in patients with tuberculosis was not reduced by the method of isolated processing of lung hilus elements at post operational period. At the same time skeletization of bronchus wall doesn't take place at stitching of lung hilus elements by using of common block and there is a less chance of stump ischemia and fistula to be developed. Otherwise, at stitching by the method of common blocking the rate of intraoperational bleeding was reduced by 10% and duration of surgery by 12%, respectively
Disclosure: All authors have declared no conflicts of interest.

P-110 LUNG TUBERCULOSIS: THE SURGICAL METHOD IN COMPLEX TREATMENT OF PATIENTS

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Background/Objectives: Ukraine lives in epidemia of tuberculosis from 1995. As a result of lack of effectiveness of chemotherapy in 20 - 35% of patients with newly diagnosed lung tuberculosis (NDLTB) cause irreversible changes, develops chronic tuberculous process, which requires the use of surgical methods of treatment.
Materials & Methods: 741 patients with LTB were analysed of surgical treatment in 1 thoracic department in 2002 - 2008.
Results: 1275 patients were cured with lung tuberculosis: fibero-cavernous LTB was diagnosed in 170 patients, disseminative - 175, infiltrative - 128, focal - 87, tuberkuloma - 135, TB empyema - 285, TB pleurisy - in 170, spontaneous pneumothorax - in 125. 741 (58.12%) patients were operated, aged 18 - 80(males - 1075, 84%; females - 220 , 15,7%). There were following interventions: pulmonektomy - 15, lobectomy - 20, bilobektomy - 15, segmental resection - 92, thoracoplasty - 16, pleurectomy with decortication - 21, pleural drainage - 470. Urgent abdominal surgery were performed in patients with LTB: tuberculosis with intestinal perforation and peritonitis - in 19 patients, acute intestinal obstruction - in 13, perforated gastric ulcer and duodenal ulcer - in 9, ulcerative colities with perforation and peritonitis - in 5, apendektomy - in 13. 51 (6.88%) patients died: 26 (3.51%) people after thoracic operations(after pulmonektomy - 2, after bilobektomy - 2; after draining TB empyema - 22: 8 persons up to 1 day from multiple organ failure, 14 people - by the progression of bilateral LTB), and 25 (27.17%) persons died after general surgery operations (92): TB peritonitis - 15 (78.95%) of 19, an acute intestinal obstruction - 6 (46, 15%) of 13 patients, suturing of perforated ulcers of the stomach and duodenum - 4 (44.44%).
Conclusions/Uploads: There's tendency to increase the number of persons with destructive LTB, TB pleural empyema - 470 (38.37%) and abdominal complications of LTB.
Disclosure: All authors have declared no conflicts of interest.

P-111 EMERGENCY TRACHEOTOMY IN PATIENTS WITH POSTINTUBATION TRACHEAL STENOSIS; AN UNCERTAIN AND RISKY PRACTICE

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Background/Objectives: Usually, postintubation tracheal stenosis can be diagnosed by history and physical examination. Early diagnosis will lead to favorable results of treatment modalities. Emergent tracheotomy is performed in some patients who present with severe dyspnea because of delayed diagnosis. In our view, dilatation of the stenosis can resolve the patient's acute issues and prevent complications of tracheotomy. In this study, we evaluate the results and complications of emergent tracheotomy compared with dilatation.
Materials & Methods: This retrospective, case-control study performed on patients with postintubation tracheal stenosis in a seven year period. The case group was patients who underwent emergent tracheotomy prior to admission to our center. The control group had not been undergone tracheotomy and the relief of dyspnea was accomplished by rigid bronchoscopy and dilatation. Patients who received elective tracheotomies were excluded of the study. Tracheal resection and anastomosis was performed for all patients who had favorable condition after initial supportive therapy. The variables including length of stenosis, length of resection, duration of hospitalization, subglottic involvement, results of surgery, and unresectability were compared between two groups. T-test and Chi-square were used as the statistical tests. The average follow-up time was 9.8 (1-33 months) in the case group and 10.2 (1-52 months) in the control group.
Results: 721 patients (511 male, 210 female) were evaluated, with a mean age of 27.2 years. 104 patients received emergent tracheotomies. Subglottic involvement and unresectability were greater and response to bronchoscopy and dilatation was lower in the case group ($P<0.05$). Following factors were also higher in the case group, although the difference was not statistically significant: age (younger), length of resection and failure in surgery.
Conclusions/Uploads: Emergent tracheotomy in these patients is an avoidable procedure which can lead to failure of desired results. In critical cases, severe acute stenosis can be the best managed with rigid bronchoscopy and dilatation.
Disclosure: All authors have declared no conflicts of interest.

P-112 A NOVEL TREATMENT OF BRONCHIAL ASTHMA: BOTULINUM TOXIN LOCAL INJECTIONS

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Background/Objectives: Having experience in local intramuscular injections of Botulinum Toxin A (Disport) for achalasia since 2002 we decided recently to stretch this method for treatment of bronchial asthma.
Materials & Methods: Under local anaesthesia bronchoscopy was performed. Following rules of antiseptics intramuscular injections of the preparation Disport were administered around tracheal bifurcation and lower trachea. Cumulative dose of the Disport not exceeded 250 units.
Results: The described method was used for treatment of 19 patients with bronchial asthma who had failed conventional therapy. Males were 8, females 11. Age of the patients varied from 20 to 81 years. There were no complications connected with the procedure and/or the Disport injections. All patients demonstrated positive immediate results.
Conclusions/Uploads: Using Botulinum Toxin A (Disport) local intramuscular injections for the group of 19 patients with bronchial asthma we received positive results in all. Profound studies of this method are worthwhile.
Disclosure: All authors have declared no conflicts of interest.

P-113 SHFJV (SUPERIMPOSED HIGH FREQUENCY JET VENTILATION) IS A FEASIBLE METHOD TO ACHIEVE ADEQUATE OXYGENATION DURING LUNG SURGERY

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Background/Objectives: We report the findings on 15 patients which underwent tumor resection in the lung using SHFJV. SHFJV is defined as weight based ventilation combined with superposition of two jet-streams. The high frequency jet-stream is responsible for the oxygenation and the normofrequency jet eliminates the CO2. In all patients preoperatively lung function was severely restricted.
Materials & Methods: Basic Patient characteristics (mean/SD):
FEV1 below 2,1 ± l Litre
O2 saturation below 92% at room air conditions
PaO2 71,8mmHg ± 5 mmHg
PaCO2 41,5mmHg ± 5 mmHg
Based upon these facts conventional single lung ventilation during surgery was considered to be most likely insufficient and therefore ventilation with SHFJV was prepared for stand by. The trachea was intubated with a double lung tube. After one unsuccessful trial of conventional single lung ventilation using 100% oxygen we switched to SHFJV before any signs of hypoxic pulmonary vasoconstriction and desaturation occurred. Oxygenation goals were a PaO2 between 80mmHg and 100mmHg and a PaCO2 level between 35mmHg and 45mmHg. We ventilated the dependent lung by conventional ventilation (IPPV) and the non-dependent lung by jet-ventilation.
Results: Findings: After 10 minutes SHFJV resulted in (mean/SD) PaO2 114,7mmHg PaCO2 41,43mmHg Mean operating time was 41 minutes; 14 patients were transferred to an IMC-ward, 1 patient to an ICU. In no patients pneumonia occurred.
Characteristics of SHFJV:
- Rapid increase of SaO2
- No CO2 increase
- Reduction of shunt volume
- No time constrained for the use
- No risk of barotrauma (open system conditions)
- No airtrapping (open system conditions)
- Laser application without fire risk (laser safe mode)

Conclusions/Uploads: SHFJV is a safe and effective method of ventilation in order to achieve suffi-cient oxygenation during lung surgery even in patients with compromised lung functions and therefore can be seen as an optimal approach within the open lung concept.
Disclosure: All authors have declared no conflicts of interest.

P-114 SHORT AND LONG-TERM RESULTS OF IDIOPATHIC LARYNGOTRACHEAL STENOSIS SURGICAL ENDOSCOPIC MANAGED WITH LASER PLUS TOPICAL MITOMYCIN-C: A SURVEY OF 12 CASES

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Background/Objectives: Idiopathic laryngotracheal stenosis is a cicatricial stenosis, localized in the subglottic larynx and upper trachea that occurred without known cause. They can be managed successfully in one stage resection follow by laryngotracheal reconstruction. There is a limited experienced in treating with laser resection more mitomycin-C. The objective of these review is analyzed the results of our series of idiopathic laryngotracheal stenosis resected with ND-yag laser plus mitomycin-C at short and long term.
Materials & Methods: From 2000 to 2009, 12 cases of idiopathic laryngotracheal stenosis were treated with laser plus mitomycin-C. Inclusion criteria were: symptomatic laryngotracheal stenosis without history of intubation, or any specific airway disease. The cartilage was to be untouched. The work-up included history, bronchofibroscopy, spirometry and CT. We perform a rigid bronchoscopy under general anaesthesia. After the laser, the raw-irradiated surface was treated with mitomycin-C 0,1mg/ml/2â€². We review de patients at 1, 3, 12 months and annually.
Results: The age was 64±24 years; all were female that experienced dyspnea on exertion. On bronchoscopy the stenosis had length of 11,8±5-25 mm. After treatment we got a complete resolution clinically, bronchoscopically and spirometrically on 10/84% of the patients. There were a clinical resolution on 1/8% and 50% improvement on 1/8%. This improvement was long standing; the mean free time to the recurrence was 52±12 months, at the end 7/58% recurred. These patients responded completely to a second treatment.
Conclusions/Uploads: Adding to laser resection a single adjuvant topical application of mitomycin-C at a dose of 0,1 mg/ml/2 min allow complete and long standing resolutions of idiopathic stenosis.
Disclosure: All authors have declared no conflicts of interest.

P-115 MANAGEMENT OF POST-INTUBATION TRACHEAL STENOSIS BY SELF-EXPANDABLE COVERED NITINOL STENTS: LONG-TERM RESULTS IN 11 CASES

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Background/Objectives: The optimal management of post-intubation tracheal stenoses is surgical resection and reconstruction of the airway. The long-term results of management of post-intubation tracheal stenoses with insertion of self-expandable, covered, nitinol stents in patients with major comorbidities were evaluated.
Materials & Methods: Twelve patients (10 men, mean age: 47.83±20.38 years) with post-intubation tracheal stenosis, major comorbidities and long ICU stay underwent tracheal steting with self-expandable nitinol stents between 2000 and 2004. Stenoses were localized to the upper trachea while in 3 cases the stenosis involved the subglottic larynx also. All patients had a tracheostomy tube in place during the procedure and stenting was performed by flexilble bronchoscopy. Stenting was successful in 11 patients. In one patient with stenosis involving the subglottic larynx the attempt to insert the stent failed. Follow-up of the 11 patients was made by virtual bronchoscopy.
Results: Immediate relief of symptoms after stent insertion was observed in all patients. Stent dislodgement in two patients (23 days and 6 months after the procedure) was treated with removal of the stent and insertion of a new stent in the first and stent-on-stent insertion in the second case. Good patency of the stent was observed in 3 patients for 60-96 moths. Four patients with patent stent died from their comorbidities after 24-48 months. Three patients developed obstructive granulation tissue at the edges of the stent 12-43 months after stenting and required further interventions to restore patency of the airway. One young patient underwent stent removal and complex laryngotracheal reconstruction 6 months after stent insertion.
Conclusions/Uploads: Self-expandable, covered, nitinol stents can be safely applied in patients with post-intubation tracheal stenosis. Nitinol stents have the risk of dislodgement and granulation tissue formation at the edges of the stent and consequently they can be considered a good alternative to surgery only in patients with comorbidities and imited life expectancy.
Disclosure: All authors have declared no conflicts of interest.

P-116 REGIONAL EXPERIENCE WITH EPIDURAL VERSUS EXTRA-PLEURAL ANALGAESIA FOR THORACOTOMY

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Background/Objectives: Optimal pain management after thoracotomy is critical and plays a vital role in reducing post-op morbidity. At our institution patients either receive an epidural or an extra-pleural-catheter (EPC) if undergoing a thoracotomy. The aim of this study was to examine the quality of pain-relief and length of hospita-stay in patients undergoing thoracotomy.
Materials & Methods: Prospectively entered data was reviewed and 75 patients identified, who underwent postero-lateral thoracotomy and isolated lobectomy from April 2004 to September 2009. Pain was scored on first post-operative day on a scale of 1-10. The presence of nausea and hypotension(defined as reduction in systolic blood pressure (SBP) to 30% or greater of the admission SBP for 2 or more readings, 2 hours apart) was recorded. The length of hospital-stay was recorded for all patients.
Results: Data from 37 patients in epidural-group and 38 in EPC-group were examined. The results are summarised in Table-1. The demographics and pre-operative function in both groups were similar. Patients with hypotension in both groups didn't require critical care admission. There was no significant difference in length of hospital-stay.
Conclusions/Uploads: Similar pain relief is achievable with either analgaesic modality. Length of hospital-stay is not dependent on the modality used. Due to rare but potentially catastrophic complications such as CNS-infections and total paralysis with epidural analgesia, extra-pleural-catheters can be used successfully to treat acute pain following thoracotomy.
Disclosure: All authors have declared no conflicts of interest.

Categories	Epidural-Group	EPC-Group	Significance
No. of patients	37	38	Not significance (ns)
Mean Age	63	65	ns
Male:Female ratio	20:17	25:13	ns
Mean FEV1 (%of predicted)	86	85	ns
Mean POSSUM	9.8	8.5	ns
Mean Nausea Score 1st 24hrs	0.17	0.13	ns
Mean Pain Score at rest 1st 24hrs	1.1	0.97	ns
Mean Pain Score on movement 1st 24hrs	2.6	2.3	ns
Critical incidents	1	1	ns
No. of subject with hypotension	7	4	ns
Mean hospital-stay	8.7	7.9	ns

Table 1: Summary of results

P-117 MINIMALLY INVASIVE SURGERY (NUSS) IN RECURRENT PECTUS EXCAVATUM (RAVITCH)

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Background/Objectives: Nearly 3-5% of patient reoperated for recurrence who underwent correction for pectus excavatum by ravicth procedure. We reviwed operated recurrent patient in our department which were operated by ravitch procedure .
Materials & Methods: We reviwed 9 patients retrospectively who had minimal invasive intervention in our department for recurrent pectus excavatum between February 2007 and May 2007. All patients preoperative clinic datas, operative findings and postoperative complications are verified.
Results: 8 (%89) were male, 1 (11%) were female and mean age was 19,44. On one patient we used double bar, and other 8 patients we used single bar. On dual bar used patient each of bar stabilized by absorbable stabiliser. Other 8 patient's bars stabilized by steel stabiliser. Mean operation time was 65 minutes. Mean hospital stay time was 4 days. One patient was reoperated one month after the operation because of bar remove. One patient had peroperatif left thoro-cal drenaige system for adhesions. Postoperative 2 patients had pnomothorax and one of them required tube thoracostomy. There were no mortality
Conclusions/Uploads: Surgery with classical open surgery technique in PE patients need wide dissection area, cost much more operation time than first, had risc of bleeding and hard to perform the operation also hospital stay time is longer and it reduce the satisfaction. However minimal invasive technique has short operation time, less blood loss, less dissection and fine patient satis-faction. For that minimal invasive technique is an alternate for clasical open surgery in recurrent PE. Keep in your mind that it is hard to satisfy who already disappointment patient.
Disclosure: All authors have declared no conflicts of interest.

P-118 ELECTIVE PECTUS BAR REMOVAL FOLLOWING NUSS PROCEDURE FOR PECTUS EXCAVATUM: A SINGLE-INSTITUTION EXPERIENCE

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Background/Objectives: Very few data are available on complications following elective bar removal after Nuss procedure for pectus excavatum. The objective of this study was to investigate the data from 344 patients in a single institution.
Materials & Methods: From 2003 to 2009, 344 patients (85% males) had their pectus bar removed. Nine patients were excluded because of bar removal before planned. Data were recorded from hospital records regarding: operation time, formation of callus around the bar, unilateral or bilateral incision, complications, postoperative hospital stay and if a senior resident or an intern performed the operation.
Results: The median age at the time of bar removal was 19.1 years. The median time for removal after insertion of the bar was 1149 days (range 293-2575). The mean operation time was 32 minutes (range 5-183). There was no difference in operation time between interns and senior residents. The operation time depended on formation of callus around the bar, the need for bilateral incision and the number of bars to be removed. Eight patients (2.4%) had complications after the surgery. Five patients had pneumothorax of which three were treated with chest tubes and two controlled with chest x-ray. Three patients had heamothorax. Two were treated with a chest tube for 2 and 5 days and the third required open surgery and ligation of an intercostal artery. Most of the patients were discharged on the day of surgery (94%) or the day after surgery (4%). Only 6 (2%) required more than a single day of admission.
Conclusions/Uploads: Bar removal following the Nuss procedure is a short and safe operation with very few complications. Occurrence of complications and overall operation time is not depending on the experience of the surgeon.
Disclosure: All authors have declared no conflicts of interest.

P-119 VIDEO-ASSISTED TREATMENT OF PANCOAST TUMORS: A NOVEL TECHNIQUE

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Background/Objectives: To describe a novel video-assisted technique for the treatment of Pancoast tumors.
Materials & Methods: This is a continuous cohort of patients treated in 3 different tertiary referral centers from March 2004 to November 2009. Surgery began positioning the patient to allow an anterior or a posterior thoracotomy, and thoracoscopic findings dictated the site of thoracotomy: anterior, posterior or combined.
Results: Overall 13 patients with Pancoast tumors were treated. The median age was 61 (SD 9) years, and three were females. All patients underwent preoperative chemo-radiation. Three patients with pleural carcinosis at thoracoscopy did not undergo surgery. Seven lobectomies and three wedge-resections were performed with an en-block chest-wall-resection and mediastinal lymphadenectomy. The surgical approach was a transmanubrial L-shaped incision, a posterior thoracotomy and a combined transmanubrial and posterior thoracotomy in one, eight and one cases respectively. In one patient the subclavian artery was replaced with a PTFE-graft, and in another a partial vertebrectomy (D2-D3) and spine stabilization was performed. Pre-operative staging was: IIB (n=4) and IIIA (n=9). Median operative time was 200min (range, 185-280 minutes); R0 resection was achieved in all patients; median blood loss was 325mL (range 250-1200 mL). There were no deaths; in one patient a liquoral fistula was treated intra-operatively. The post-operative course was complicated in 3 patients by pneumonia. Median length of hospital stay was 9 days (8-30 days).
Conclusions/Uploads: Video-assisted resection of Pancoast tumors is feasible and safe allowing excellent visualization of anatomical structures; potentially reduces the magnitude of surgery, either sparing a thoracotomy in those patients who are not resectable or optimizing the thoracotomy site; and it may have a significant educational role.
Disclosure: All authors have declared no conflicts of interest.

P-120 THORACIC OUTLET TUMORS. SURGICAL TREATMENT VIA TRANSMANUBRIAL ANTERIOR APPROACH

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Background/Objectives: Thoracic outlet is an anatomical region located at the limit of cervical and superior thoracic cavity, and it is crossed by important neurovascular structures. Tumors arising in that zone may contact and compromise such elements (subclavian vessels, phrenic nerve, cervical plexus, etc). Various types of approaches have been described. We analised patients treated via transmanubrial anterior approach (TMA) to excised tumors arising at the thoracic outlet.
Materials & Methods: From January 2007 to December 2009, five patients were diagnosed of thoracic outlet tumor. Lung cancer patients were not included. Preoperative work-up included blood tests and serum tumoral markers, chest x-ray, thoraco-abdominal CT scan, PET-CT scan, ECG, and spirometry.
Results: Five patients were operated on: 3 females, 2 males. Mean age 51.4 (20-78). Side: right 4, left: 1. Four TMA were performed and one right cervicothoracic approach (not TMA, tumor was removed without need for elevation of any osteomuscular flap). One patient was formely operated twice without complete tumor resection (right lateral thoracotomy and transclavicular approach). In this patient, a subclavian-innominate artery ringed-PTFE graft was interposed, for he had total occlusion of the right subclavian artery.
Histology : Benign schwammoma – 2 cases
Mature teratoma – 1
plexiform neurofibroma – 1
Solitary fibrous tumor – 1
Mean size 6.4cm (3.5-11.5)
Postoperative complications: right arm paralysis in one patient (neurofibroma), phrenic nerve and sympathetic chain paralysis in one patient (schwammoma). Follow-up: no signs of recurrence. Mean period 7.2 months (1-18). Good functional movility (except in the patient with right arm paralysis) and good cosmetic results (no visual collapse on the cervicothoracic surface).
Conclusions/Uploads: Complications were observed when tumor had neurological histology (section of the tumor may cause lesion on dependent nerve). Otherwise, good cosmetics and functional results were observed. TMA is a good approach to neurovascular control in thoracic outlet tumors, even when previous surgical attemp was performed.
Disclosure: All authors have declared no conflicts of interest.

P-121 TRANSABDOMINAL SUBCOSTAL APPROACH IN SURGICAL MANAGEMENT OF MORGAGNI HERNIA

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Background/Objectives: Morgagni hernia is an uncommon type of diaphragmatic hernias and pathophysiology is not clear. We aimed to retrospectively evaluate morbidity, mortality and treatment outcomes in 13 cases of Morgagni hernia treated with the subcostal approach.
Materials & Methods: Between 1993 and 2009, 13 patients with Morgagni hernia were operated in our department. Of 13 patients with a mean age of 61.4 years (range 13-78), twelve were female. Chest roentgenograms, thorax CT, barium enema roentgenographic studies were used as diagnostic utilities. The contents of the hernia as diagnosed with CT and confirmed at surgery were omentum and colon in all patients
Results: All the patients were operated electively except one patient on ventilation treatment. Transabdominal repair with the subcostal approach was performed in all patients. There was no operative morbidity and mortality.
Conclusions/Uploads: We recommend the transabdominal subcostal approach in patients with Morgagni hernia for surgical exposure, easy repair of the hernia sac and an acceptable morbidity.
Disclosure: All authors have declared no conflicts of interest.

P-122 CHALLENGING SURGICAL EMERGENCY DUE TO POST TRAUMATIC RECRUDESCENCE OF DIAPHRAGMATIC HERNIA LEADING TO HEPATOTHORAX AND ACUTE NECROTIC PANCREATITIS

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Background/Objectives: Post-traumatic right diaphragmatic hernia is a rare injury. When the recognition is late, the clinical history is silent and the size is small, clinical control is sometimes preferred to surgery. We report an uncommon case of a severe necrotic pancreatitis due to trans-diaphragmatic thoracic dislocation of abdominal organs
Materials & Methods: A 43- years old man was admitted in November 2009 to Intensive Care Unit with a necrotic pancreatitis and respiratory insufficiency. A CT scan showed a big diaphragmatic hernia reaching the azygous vein with dislocation of right liver, gall bladder twisting the biliary duct, part of transverse colon, omentum and some small intestine. In his clinical history was reported a post-traumatic asymptomatic unrepaired small right diaphragmatic hernia, diagnosed 10 years before and probably due to a previous motorbike accident. It was unchanged at a 5-years CT scan control. In August 2009 the patient suffered a buttocks trauma due to a trivial fall from the bicycle. At the entrance in our hospital he underwent an emergency right thoracotomy that showed a 12 x 5 cm diaphragmatic tear. A combined synchronous subcostal laparatomy was necessary to enlarge the tear and replace herniated organs into the abdominal cavity. The repair was accomplished by both direct suture and prosthetic graft. Pancreatic necrosectomy and peritoneal effusion drainage were performed. A transverse laparostomy permitted continuative postoperative lavages. Laporostomy was repaired by vacuum-assisted closure system. Definitive closure was achieved by cutaneous coverage after 39 days.
Results: Respiratory insufficiency immediately disappeared. Necrotic pancreatitis recovered in a month. Patient was discharged in good general conditions 49 days after the first operation.
Conclusions/Uploads: In our patient a buttocks trauma enlarged previous diaphragmatic tear promoting liver dislocation into the thorax and mechanical pancreatitis. This experience suggests that in diaphragmatic hernias surgical repair must always be considered to prevent late complications due to even trivial trauma.
Disclosure: All authors have declared no conflicts of interest.

P-123 SAFETY AND EFFICACY OF NITINOL THERMO-REACTIVE CLIPS FOR TRANSSTERNAL CLOSURE AFTER DOUBLE LUNG TRANSPLANTATION

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Background/Objectives: The accurate closure and stabilization of sternum is critical in double-lung transplantation (DLT) to facilitate early rehabilitation. Objective: to compare 2 methods of sternal closure after clamshell incisions in patients undergoing DLT.
Materials & Methods: One hundred sixty six patients undergoing DLT from 1994 to 2009 at our Institution were reviewed. A historical group of 144 recipients (1994-2007) in which the sternum was closed using two crossed sternal wires (with or without the addition of segments of intramedullary Kirschner wires) (group A), was compared with a prospective cohort of 22 recipients (2008-2009) in which the sternum was closed with 2 thermo-reactive Nitinol clips (Flexigrip®) (group B). Prior to the application, Nitinol clips are measured and topically cooled (8ºC) to become malleable. After implantation, they return to its original shape by applying heat (35ºC). Demographic data, indication, comorbidities, body mass index (BMI), mineral bone density (MBD), laboratory data, preop. steroids, and thoracotomy complications were collected and compared between both groups.
Results: Group A recipients were 77M/67F, 32±16 years old, transplanted for cystic fibrosis (44%), emphysema (26%), pulmonary fibrosis (10%), bronchiectasis (7%), and other indications (12%). Group B recipients included 17M/5F, 43±15 years old, transplanted for cystic fibrosis (27%), emphysema (27%), pulmonary fibrosis (18%), and others (28%). Comorbidities, BMI, MBD, and preop. steroids did not differ between groups. There were no sternal complications in group B (0%) as opposed to 7 patients in group A (4.8%) (3 dehiscence, 3 Kirschner migration + luxation, and 1 necrosis). 29% were receiving preop. steroids.
Conclusions/Uploads: Our initial experience suggests that, in patients undergoing DLT, sternal closure with Nitinol clips provides better sternal fixation than conventional procedures. This is an easy, safe and effective method that allows early patient mobilization, with lower complication rates compared to conventional wire closure. Additional studies are required to validate these preliminary results.
Disclosure: All authors have declared no conflicts of interest.

P-124 VASCULAR ENDOTHELIAL GROWTH FACTOR (VEGF) IN PLEURAL FLUID FOR DIFFERENTIAL DIAGNOSIS OF BENIGN AND MALIGNANT ORIGIN AND ITS CLINICAL APPLICATION

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Background/Objectives: To evaluate the predictive value of VEGF in pleural effusion (PE) for differential diagnosis of benign and malignant effusions and its potential use in the planning of invasive diagnostic procedure.
Materials & Methods: From January 2006 to November 2009, 79 consecutive patients presenting with undiagnosed unilateral PE were enrolled. PEs were categorized as transudates or exudates including benign and malignant effusions. Pleurosies were then splitted into benign and malignant according to PE cytology or pleural biopsy findings. In all patients, VEGF levels (pg/mL) were measured using enzyme-linked immunosorbent assay (ELISA) and then correlated to aetiology of PEs.
Results: There were 14 transudative PEs (10 heart failure, 3 liver disease, 1 neprhotic syndrome) and 65 exudative PEs including 49 malignant PEs (25 extrathoracic cancer, 11 primary lung cancer, 13 mesothelioma) and 16 benign PEs (13 parapneumonic and 3 tubercolosis). VEGF levels in transudative PEs were significantly lower than those in exudative PEs (272±118 vs 746±435, $p<0.0001$, Mann-Whitney test). Among exudative PEs, VEGF concentrations were significantly higher in malignant effusions than those of benign effusions (778±404 vs 381±218, $p<0.0001$, Mann-Whitney test). No difference was observed between the different sub-groups of malignant PEs split according to histology or primary tumor localization. Using receveir operating characteristics analysis (ROC), the determinated diagnostic cut-off point of VEGF levels for malignant PEs was 386 with sensitivity and specificity of 91% and 83%, respectively (Figure 1). However 22/23 patients with cytology-negative malignant PEs could be identified by VEGF
Conclusions/Uploads: VEGF levels are significantly raised in malignant compared with benign PEs. It may represent a helpful adjunct in the routine work-up of patients with clinical data suggestive of malignant PEs, but negative pleural cytologic analysis. In these instances, the elevation of VEGF may indicate the need for confirmatory pleural biopsy.
Disclosure: All authors have declared no conflicts of interest.

P-125 SEMI-FOWLER VERSUS LATERAL DECUBITUS POSITION FOR THORACOSCOPIC SYMPATHECTOMY IN TREATMENT OF PRIMARY FOCAL HYPERHIDROSIS

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Background/Objectives: The aim of this study is to compare usefulness of semi-Fowler position vs. lateral decubitus position for thoracoscopic sympathectomy in treatment of primary focal hyperhidrosis
Materials & Methods: From January 2009 to January 2010, 263 consecutive patients with palmar and axillar hiperhidrosis underwent thoracoscopic sympathectomy Th2-Th4. Patients were divided into two groups: group A (n=133) underwent thoracoscopic sympathectomy through lateral decubitus using double lumen endotracheal intubation, and group B (n=130) underwent thoracoscopic sympathectomy through semi-Fowler supine position (semi sitting with arm abducted) using single lumen endotracheal intubation without insuflation of CO_2, but with short apnea period. All operations were performed through two5mmoperating ports, videothoracoscopic camera 0 and endoscopic ultrasound activated harmonic scalpel.
Results: There were 107 males and 156 females with median age 30.31±8.35 years. Two groups were comparable in gender, age, severity of sweating. All operations were successfully performed with no complications or perioperative morbidity. For group A average operation time for both sides was 31.2±3.87min and for group B average time was 14.19±4.98min. In group B apnea period per one lung lasts 2.86±1.15 min and during that period observed saturation was 92.65±5.66%. without significant cardiorespiratory disturbances. Pleural drains were taken off on operation table after forced manually lung reexpansion. Patients were discharged from hospital few hours after the operation and radiologic confirmation of complete lung reexpansion.
Conclusions/Uploads: Based on this data (shorter operating time, lack of incomplete lung collapse, insignificant apnea and better reexpansion of lungs) we concluded that thoracoscopic sympathectomy through semi-Fowler supine position is highly effective and easy to perform for primary hyperhidrosis.
Disclosure: All authors have declared no conflicts of interest.

P-126 THOPAZ® COMPARED WITH CONVENTIONAL POSTOPERATIVE THORAX DRAINAGE

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Background/Objectives: In our hospital, after thoracotomy or video assisted thoracoscopie (VATS), usually two drains are placed. An apical- to remove air, and a caudal to remove fluid. These drains were traditionally closed to a sentinel seal connected to a low vacuum pump (conventional drainage). In the end of 2008 we started to use the Thopaz® pump from Medela on a trial. Thopaz allows continues registration of air leakage, and gives independence to ambulate. The aim of this study was to determine whether Thopaz has advantages with regard to conventional drainage.
Materials & Methods: In a period of 10 months patients who underwent a VATS procedure or thoracotomy were randomized for Thopaz- or conventional drainage. The "fluid drain" was removed when the production was ≤200m/24h. The "air drain" was removed when the air leakage was two hours ≤20ml/min in case of Thopaz drainage, and when leakage was absent in case of conventional drainage. The duration of "air drainage"˜, "fluid drainage", and hospitalization was determined. Besides, a cost analysis was performed.
Results: Within 48 patients a conventional drainage was performed, and within 27 patients a Thopaz-. Using conventional drainage the median duration of "air drainage" was 4 (3-6) (1^{e}-3^{e} quartile range), of "fluid drainage" was 4 (3-5.5), and of hospitalization was 8 (6-12) days. Using the Thopaz system the median duration of "air drainage" was 3 (2-4), of "fluid drainage" was 3 (2.5-5), and of hospitalization was 7 (4.5-9) days. According to registration with Thopaz the median length of "air drainage" could be further reduced to 1 (1-1.3) day. Costs of conventional drainage were 7900, of Thopaz were 5176 euros a year.
Conclusions/Uploads: Using the Thopaz system "air-" and "fluid drain" could be removed earlier, and the duration of hospitalization was shorter. The Thopaz system caused a reduction in costs.
Disclosure: All authors have declared no conflicts of interest.

P-127 THE EFFICACY OF INTERCOSTAL EXTRAPLEURAL CATHETER (ON-Q® PAIN BUSTER®) IN POST-THORACOTOMY PAIN MANAGEMENT

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Background/Objectives: Operative morbidity after thoracotomy can be reduced by effective postoperative pain control. The aim of this prospective study was to compare the efficacy of the epidural blockade (EB), the continuous intercostal blockade (CIB) and patient controlled analgesia (PCA).
Materials & Methods: 56 patients were studied after elective lateral thoracotomy and lung resection (wedge resection/segmentectomy/lobectomy). The EB was applied prior the induction of anaesthesia. The CIB (On-Q® Pain Buster®, Braun) was surgically placed prior to the thoracic closure. The continuity of analgesia was guaranteed by elastomeric pump. The patients were divided in three groups: EB (n=24), CIB (n=22), PCA (n=10). The following data were recorded: analgesic efficacy (visual analogue scale, VAS) in calm and effort in the first six postoperative days, additional medication, rate of postoperative pneumonia and adverse effects. Results were analysed by Mann-Whitney U, chi-square and Fisher'exact test, and a p-value of < 0.05 was accepted to be statistically significant.
Results: Regarding VAS, higher values were detected in PCA group than in the EB and CIB group. The difference was significant in the second postoperative day in clam (EB: 2.2, CIB: 1.75 vs. PCA: 3) and in the first postoperative day in effort (EB: 4.2, CIB: 4.95 vs. PCA: 5.8). Between EB and CIB was no difference in VAS. There were no significant differences in additional pain medication, postoperative pneumonia and adverse effects between all three groups. The costs of epidural blockade are lower as of intercostal blockade (80 vs. 160 euro).
Conclusions/Uploads: The epidural and intercostal blockades are superior to patient controlled analgesia. By the cost-effectiveness, the epidural blockade is the method of choice. If the epidural blockade is contraindicated, the continuous intercostal blockade might be preferred.
Disclosure: All authors have declared no conflicts of interest.

P-128 EVALUATION OF THORAQUIK2® IN ASPIRATION OF PNEUMOTHORAX AND PLEURAL EFFUSION

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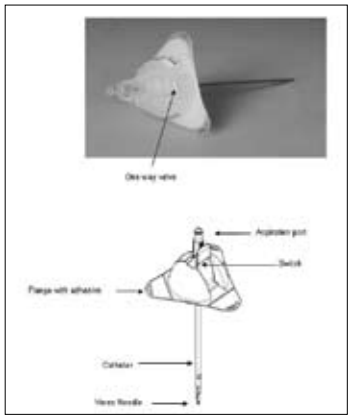
Background/Objectives: Aspirations for pneumothorax and pleural effusions are performed using various kits which need assembly prior to use and are not fit for purpose. ThoraQuik2®, which has an unique design incorporating an aspiration port and one-way disc valve controlled by a three way tap, is designed to be fit for purpose. It also has a spring loaded Veres needle which offers added safety. We evaluated the safety, efficacy, operator handling, and acceptability of the ThoraQuik 2® device for the treatment of pneumothorax and pleural effusion.
Materials & Methods: A prospective, observational clinical trial with ethics and MHRA approval was conducted in a single centre. Patients with diagnosed pneumothorax (including tension pneumothorax) and pleural effusion were consented and recruited into the study. The ease of device introduction, penetration and ease of use were evaluated. Clinical and radiological improvement were clinical endpoints. The study also evaluated the operator feedback regarding the role clarity of instructions, ease of handling and procedure satisfaction.
Results: 21 patients recruited between September 2008 and July 2009. One withdrew consent and two devices were used in one patient (n:20). The mean age was 63.4 years (range: 30-90 years) with 75 % males. 9 patients had pneumothorax (tension pneumothorax n=4) and 11 had pleural effusions in the study. Nineteen patients completed the study with symptomatic and radiological resolution. One patient was withdrawn due to poor pain threshold disproportionate to the procedure (both with the needle, thoraquik and finger dissection). No complications were encountered. 68% had complete clinical and radiological resolution and 32% had partial resolution (these patients needed a definitive drain hence weren't aspirated to completion). The operator feedback in the study rated the device as very good or excellent in 90% patients.
Conclusions/Uploads: Our Study found the use of ThoraQuik2® to be safe and easy in draining pneumothorax and pleural effusions.
Disclosure: All authors have declared no conflicts of interest.



ThoraQuik 2
The Device and Schematic diagram explaning the parts

P-129 SLEEVE LOBECTOMY PROVIDES BETTER SURVIVAL RATES THAN PNEUMONECTOMY IN PATIENTS WITH NSCLC

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Background/Objectives: Beneficial effects of parenchyma saving resections are well known and thus, sleeve lobectomies are being performed more frequently in recent years. This study presents our experience performing sleeve lobectomies and simultaneously compares its results with that of pneumonectomies.
Materials & Methods: Between January 2006 and December 2009, one-hundred and nineteen patients undergoing sleeve lobectomy (Group S; n=40) or pneumonectomy (Group P; n=79) with a mean age of 57.9±8.9 were retrospectively reviewed. Groups were compared in view to their demographic and clinical findings including morbidity, mortality and survival rates.
Results: In comparison to pneumonectomy rates, the number of sleeve lobectomies remarkably increased by 1.7 fold (from 24% to 40%) over the last four years. Both groups were similar demographically and all patients underwent complete resection of their tumors. There was no difference between the groups regarding pStage, cell type, additional chemo and/or radiotherapy, hospital stay, re-admission to intensive care unit and thirty-day mortality. Group P patients developed more postoperative complications than group S (n=29; 37% vs. n=7; 18%, respectively; p<0.04). Re-hospitalization rate was also higher in group P; however, this did not reach statistical significance (n=17; 21% vs. n=3; 8%, respectively; p=0.07). Overall survival was 91% and 65% at 3 year in groups S and P, respectively (Log-rank p<0.01).
Conclusions/Uploads: Considering detrimental effects of a pneumonectomy, parenchyma saving sleeve lobectomies not only improve quality of life, but also increase the overall survival of patients undergoing a major lung resection for NSCLC. Therefore, we strongly suggest that every attempt should be made to perform a sleeve lobectomy whenever possible, provided that general oncological principles are met.
Disclosure: All authors have declared no conflicts of interest.

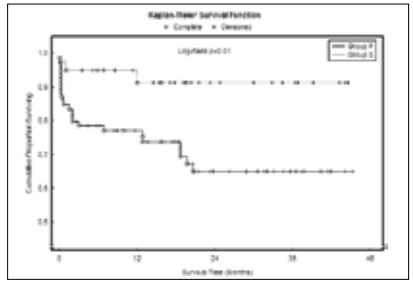

Figure 1.
Group P= Pneumonectomy group
Group S= Sleeve lobectomy group

P-130 RIGHT SIDED APPROACH FOR MANAGEMENT OF LEFT MAIN BRONCHIAL STUMP PROBLEMS

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Background/Objectives: Although the incidence of bronchopleural fistula (BPF) has decreased in the last decades, it remains a serious complication following pulmonary resections. Herein we report our experience managing 5 left main bronchial stump (LMBS) problems through a right thoracotomy route.
Materials & Methods: Five women who underwent left pneumonectomy and later developed BPF were managed with this novel procedure at our Institution. BPF appeared between 12 days and 24 years after pneumonectomy. Diagnosis was made by CT scan and flexible bronchoscopy. Through a right posterolateral thoracotomy, the LMBS was re-stapled and covered with pedicled flaps in all cases. In patient 4, carinal resection was performed also, with temporary ECMO support.
Results: Main results are depicted in table. In all cases, encircling of the LMBS and stapling at the level of the carina was performed without difficulties. In all patients but one, resection of the bronchial stump remnant was added. There is no evidence of fistula recurrence in any patient.
Conclusions/Uploads: We advocate the right posterolateral thoracotomy route for management of LMBS problems as an alternative to trans-sternal trans-pericardial and transthoracic closures. It is a safe, feasible and time-efficient approach that avoids previously manipulated operative fields.
Disclosure: All authors have declared no conflicts of interest.

	Patient 1	Patient 2	Patient 3	Patient 4	Patient 5
Symptoms	Chest pain	Aspiration pneumonia	Respiratory failure	Asymptomatic	Putrid secretion, respiratory failure
Age (years)	48	28	5	57	60
Disease	Cancer	Bronchiectasis	Bronchiectasis	Cancer	Tuberculosis
Type of fistula	BPF	BEF	BPF	Tumor recurrence	BPF
Interval for pneumonectomy	6 months	24 years	1.5 years	4 years	12 days
Procedure	stump resection+pericardial flap	stump resection+fat pad	stump resection+fat pad	stump+carinal resection+omental flap	Stump stapling+pericardial flap
Outcome	No recurrence of fistula	No recurrence of fistula	No recurrence of fistula	No recurrence of tumor	No recurrence of fistula
Follow-up (months)	7	72	12	24	1

Table. BPF: Bronchopleural fistula. BEF: Bronchoesophageal fistula

P-131 EVALUATION OF NOVEL PNEUMOTHORAX DEVICE USING A DEVELOPED TEST METHOD

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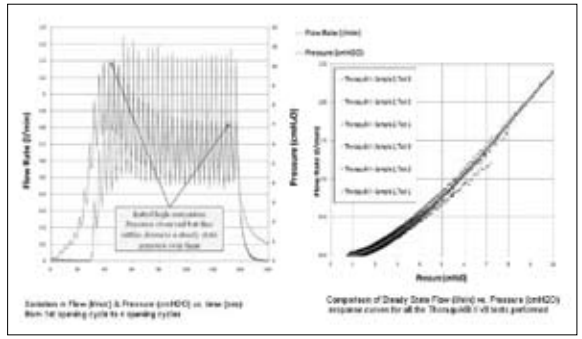
[2]*Research Nad Development, Medical Devices Innovations Limited, Daresbury/UK,*
[3]*Thoracic Surgery, Birmingham Heartlands Hospital, Birmingham/UK*

Background/Objectives: Pneumothorax and tension pneumothorax are potentially life threatening conditions. The key to the efficacy of the device is decompression of the tension pneumothorax at a low cracking pressure and having a high flow. We have evaluated a novel pneumothorax drainage device, ThoraQuik 2 using a developed test simulation model .
Materials & Methods: Two samples of the Thoraquik2® were tested consecutively three times. The Thoraquik2® device is inserted into the second rib space in the mid-clavicular line into the simulated pleural cavity. The flow sensor is connected to the outlet of the device's one-way valve. The tensile tester and bellow pump are operated and the pressure in the pleural cavity is increased until the Thoraquik2® one-way valve is initially cracked and the bellow pump is then operated until the simulated breathing pressure and flows stabilize. A physical test method comprising of the Lloyd LRX tensile tester with a bellow pump, TPT simulator which was adapted from the TPT Simulaid system and a pleural cavity was used. Data was gathered with a Honeywell AWM 5000 series flow sensor and Honeywell 40PC Series pressure sensor.
Results: The study shows the steady state response of the various tests performed and the average response obtained from these tests. Figure 1 shows the variation in Flow (l/min) and Pressure (cmH2O) versus time (seconds) from over a number of breathing cycles. There is a large difference is observed from the initial opening to an eventual steady state response. The valves opened within the first few seconds and at very low cracking pressures. The flow rates were replicatable and achieved a steady state. (Figure 2)
Conclusions/Uploads: ThoraQuik 2 device had a functional utility in tension pneumothorax as its one way duck bill valve opened at low pressures and it achieved a steady state of flow in decompressing the Tension pneumothorax.
Disclosure: M. Yoeman: Continuum Blue performed the device evaluation for MDI limited. A. Cizinauskas: Continuum Blue performed the device evaluation for MDI limited. T. Kink: Tom Kink was employed by MDI limited the developers of ThoraQuik2. All other authors have declared no conflicts of interest.



Figures 1 and 2

P-132 INTEGRATED FAST TRACK PROTOCOL USING CONVENTIONAL TECHNOLOGY RESULTS IN MORE RAPID RECOVERY AFTER PULMONARY RESECTION

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Background/Objectives: Horizontally and vertically integrated multidisciplinary protocols using standard technology for post-thoracotomy pulmonary and physical therapy rehabilitation can result in improved results after minimally invasive lobectomy compared to national benchmark data.
Materials & Methods: All patients undergoing pulmonary lobectomy for malignancy (single surgeon, single institution) between 2003 and 2008 were included in this analysis. Standard minimally invasive operative techniques and chest tube drainage systems were used to control costs. Protocols were developed to minimize post-operative laboratory studies and imaging studies, and to incorporate pain control techniques, patient education, physical & respiratory therapy and directed nursing into the patient's progress along the clinical pathway.
Results: 387 lobectomies were performed and analyzed. Age, sex distribution, pre-op pulmonary function, and smoking history were not significantly different than the STS General Thoracic Surgery Database demographics. There were 36 major complications (9.3%) and 3 perioperative deaths (0.8%). The most common complication was prolonged air leak > 3 days (6.3%), which was managed by discharge home with a chest tube connected to a Mini500™ or Pneumostat™ device. All patients had resolution of the air leak by their follow-up post-operative visit at 10-14 days. The median post-operative length of stay was 3 days compared with 6 days for the cohort in the STS General Thoracic Surgery database over the same time period. The mean post-operative length of stay was 3.7 days compared with 7.3 days for the entire STS database. The median length of chest tube duration was 3 days (Data analyses of the STS database General Thoracic Surgery Database, 2007).
Conclusions/Uploads: An integrated protocol using conventional technology for multidisciplinary management of the post-operative course after minimally invasive pulmonary lobectomy results in:
1.Less postoperative pain
2.Shorter length of stay and chest tube duration
3.Reduced overall cost
4.Faster return to full activity
5.More effective administration of adjuvant chemogtherapy
6.Preservation of pulmonary function
7.Fewer overall complications
Disclosure: N.M. Cohen: Consultant to Atrium Medical Corporation.
Consultant to Ethicon Endo-Surgery. Medical Advisory Board Salar, Inc. and PneumRx

P-133 USE OF 8FR. ASPIRATION CATHETER FOR DELAYED HEMOTHORAX – IS TRADITIONAL RIGID CHEST TUBE ESSENTIAL FOR DELAYED HEMOTHORAX?

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Background/Objectives: Delayed hemothorax is usually caused by blunt rib fracture and frequently requires drainage. Many thoracic surgeons continue to use the traditional rigid chest tubes for delayed hemothorax, which is associated with significant pain at insertion, removal and continuous drainage, restriction of deep breathing, and atelectasis. We compared 8 Fr. aspiration catheter (group I) versus 24 Fr. chest tube (group II) for the management of delayed hemothorax.
Materials & Methods: During the past two years, we have treated 20 consecutive patients treated by 8Fr.aspiration catheter and 20 consecutive patients treated by 24 Fr. chest tube. Number of rib fractures, Injury Severe Score (ISS), operative time, amount of local anesthesia used at operation, amount of drainage, duration of drainage, occurrence of atelectasis, occurrence of empyema or fibrothorax were compared. Moreover, we examined drainage, number of pletlet, prothrombin time (PT), activated partial thromboplastin time (APTT), coaglation time.
Results: The groups (group I vs. II) were similar with regard to number of rib fractures (mean 4.5 vs. 4.3; P = ns), ISS (mean 30.0 vs. 28.9; P = ns), amount of drainage (mean 1020 vs. 920 ml; P = ns), duration of drainage (mean 3.5 vs. 4.5 days; P = ns), number of pletlet ($2.1x10^4$ vs. $2.3x10^4$; P = ns), PT (over 30 sec vs. over 30 sec; P = ns), APTT (over 300 sec vs. over 300 sec; P = ns). Other factors, operative time (mean 3.2 vs. 10.2 min; $P < 0.05$), amount of local anesthesia used at operation (mean 5.0 vs. 12.2 ml; $P < 0.05$), occurrence of atelectasis (0 vs. 4 cases), occurrence of empyema or fibrothorax (0 vs. 1 case), were less in group I.
Conclusions/Uploads: Drainage of delayed hemothorax is difficult to coaglate and we suggest 8Fr. aspiration catheter for delayed hemothorax because of its effective, safety, ease, and reliability.
Disclosure: All authors have declared no conflicts of interest.

P-134 OUTPATIENT THORACIC SURGERY: PATIENT SATISFACTION SURVEY

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[2]*Anesthesiology, Sagrat Cor University Hospital, Barcelona/ES*

Background/Objectives: Outpatient Thoracic Surgery (OTS) is a practice made available to our patients since April 2001 for VATS procedures. The objective is to find out the degree of satisfaction of the patients surgically treated by OTS.
Materials & Methods: From April 2001 to October 2009, 632 patients were operated in our OTS program. From March to October 2009, 45 consecutive patients answered anonymously and voluntarily a patient satisfaction questionnaire. The design is cross-sectional, descriptive and qualitative and was distributed and compiled by the nursing staff at discharge and collected on the first medical visit a week after the operation.
Results: One incomplete questionnaire was discarded so 44 patients between 16 and 83 years of age (mean 44.2), 50% female, were analysed. The procedures were: 21 clipping (47.7%), 10 lung biopsies (22.8%), 9 mediastinoscopies (20.4%) and 4 others (9.1 %) – resection of pulmonary nodule, removal of Nuss bar, lymph node and chest wall biopsy. 54% came from the same city, 22.7% from the outskirts, and the rest from the province. 56% had pre-university or university academic level. Two patients (4.5%) presented complications – untreatable pain and transitory paresis of the brachial plexus, which required admission into hospital. 95.4% did not need more painkillers than those prescribed on discharge. 100% felt an excellent or good attention by hospital staff. 90.9% felt highly satisfied with the OTS program. 68.1% thought it was "very easy" or "easy" their return to daily activities. 90.9% (40 patients) would use the OTS program again if they had to be operated upon, and 4 patients showed themselves more reticent.
Conclusions/Uploads: OTS is a safe program that reduces hospital costs in a significant way, according to prior studies. It enjoys a high acceptance and satisfaction rate by the user. A high educational level has a positive influence in the acceptance of the system.
Disclosure: All authors have declared no conflicts of interest.

P-135 C-VATS SEGMENTECTOMIES FOR EARLY STAGE LUNG CARCINOMA

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Background/Objectives: Feasibility of c-VATS segmentectomies for clinical stage I lung carcinoma.
Materials & Methods: Prospective observational study. Complete three-port VATS segmentectomy, bi- or trisegmentectomy with individual vessel and bronchus stapling, and parenchyma stapling.
Results: From 2006 to 2009, 13 male and 7 female patients aged 68 (57-84) years with median 3.65 relevant comorbidities were included. 9 patients were unfit for lobectomy, 11 had tumours not suitable for diagnostic wedge resection. They underwent 13 segmentectomies, 3 bisegmentectomies, and 4 trisegmentectomies with lymphadenectomy of the N1 stations and mediastinum for 5 right-sided (3x S2, 2x S6) and 15 left-sided tumours (3x S1-3, 3x S2, 3x S 4/5, 5x S6,1x S 8-10) with a median diameter of 2,3 (1,0 – 5,2) cm. Median duration of the procedures was 212 (91 – 397) min. Conversion rate to open surgery was 20% due to positive N1 nodes or not tolerated single lung ventilation. Conversion rate to lobectomy was 10% due to positive N1 nodes or margins. In 5 patients, we observed 10 postoperative adverse events: 5 general (Afib, NYHA IV, pneumonia, respiratory insufficiency), and 5 surgical (prolonged air leak, pleural space, recurrent nerve paralysis) complications. Median drainage time was 6, median hospital stay 8.5 days. There were no readmissions, and zero 30 day mortality. pTNM was Ia, Ib, IIb, and IIIa in 10, 3, 1 and 6 patients. The distance between tumour and parenchyma stapling line was more than 2 cm in 45%, 20% and 0% for T1a, T1b and T2 tumours, and exceeded the tumour diameter in 56%, 0% and 0%, respectively.
Conclusions/Uploads: C-VATS segmentectomies are feasible, with favourable outcome in old, multimorbid patients. For sufficient margins, the tumour diameter should not exceed 2 cm in patients fit for lobectomy, and 3 cm in functionally compromised. Systematic nodal dissection is mandatory.
Disclosure: All authors have declared no conflicts of interest.

P-136 CHEST TUBE MANAGEMENT AFTER VATS: FAST, FASTER, FASTEST

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General Surgery, Atrium Medical Centre, Heerlen/NL

Background/Objectives: Chest tube (CT) drainage is mandatory after VATS lobectomy. Although there is generally agreement among surgeons on the indications for CT insertion, there is little consensus on subsequent management of CT. With the introduction VATS lobectomy we wanted to decrease length of hospital stay and chest tube drainage is one of the parameters that determine length of stay.
Materials & Methods: With the introduction of VATS lobectomy we started with a new CT management protocol by leaving just one CT (Ch 28), which we tried to remove within the first 24 hour after surgery. CT was removed if no airlekkage and drainage < 400 ml /day. One Chest x-ray was made in the recovery department and after that only on clinical indication.
Results: From 2006 until 2009 105 c-VATS lobectomies where performed. Average length of stay was 7,7 days with a median of 6. CT was in for an average of 2,1 days, median of 1,0. In 58 % of patients CT was removed within 24 hours and in 80 % within 48 hours. Reasons for prolonged CT drainage where incomplete lungexpansion, airlekkage and continues drainage. One patient (0,95 %) had a pneumothorax after removal of the drain. 7 patients suffered from subcutaneous emphysema, which responded well to removal of the drain.
Conclusions/Uploads: In more than half of the patients (58 %) after VATS lobectomy CT could be removed within 24 hours. In simple wedgeresections it is even possible to leave no drain, CT is removed with positive airway pressure and under waterseal after the camera has confirmed complete expansion of the lung. The introduction of a new CT management protocol was safely accomplished along with the introduction of the VATS technique and has led to decrease in CT drainage time and length of hospital stay.
Disclosure: All authors have declared no conflicts of interest.

P-137 CHRONIC AIR LEAK: COMBINED APPROACH BY USING ENDOSCOPIC VALVES AND MYOPLASTY

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[2]*Spiration Corporated, Spiration Corporated, Redmond/US*

Background/Objectives: The persistent air leak (PAL) has a low incidence (1-2%), but represent a major source of morbidity and mortality in patients undergoing pulmonary resection. We adopted for the first time in Europe the combined endoscopic and surgical approach for the definitive treatment, by using the IBV Spiration valve system and myoplasty after the open drainage of the pleural cavity
Materials & Methods: We treated three patients with chronic air leack and empyema by an open window thoracostomy to drain and clean the pleural cavity. Air leaks were reduced with the positioning of IBV. A balloon catheter was used via flexible bronchoscopy to block and measure airways that communicate with the fistula. Appropriate size valves were placed and the decrease of air leaks was monitored by direct visualization of a water trap system. Only after this procedure a myoplasty were performed. We did not take in consideration other surgical option with an high mortality risk (30%) for poor general condition and pulmonary function. Myoplasty alone was not possible due to the severity of air leaks. In the table are listed the patient details.
Results: In all 3 cases the valves decreased or stopped the air leaks. In one case the valves were removed due to persistent cough, stopped after removal of the valves; no other complications were observed. In the other 2 cases the comoplete control of air leak allowed to perform a myoplasty to seal the fistula and to close the open window thoracostomy.. At the one year follow up there were no clinical or radiological evidence of relapse.
Conclusions/Uploads: The treatment of the chronic air leak with the endoscopic and surgical approach is effective, the results are good at one year follow-up. The endoscopic position of IBV, by reducing the air leak, increases the chance of a successful sealing myoplasty.
Disclosure: All authors have declared no conflicts of interest.

P-138 INFLUENCE OF CONVENTIONAL IMMUNOSUPPRESSION ON VANCOMYCIN CONCENTRATIONS IN TRANSPLANTED LUNG IN RATS

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Background/Objectives: To assess influence of conventional immunosuppression on vancomycin concentrations in allogenic transplanted rat lung tissue in acute and hyperacute rejection models.
Materials & Methods: Left lung allotransplantations were performed from Brown Norway donors to Fisher F344 recipients in the group of acute rejection model (animals were sacrificed 5 days after transplantation) as well as Brown Norway donors to Wistar recipients in group of hyperacute rejection model (animals were sacrificed 2 days after transplantation). Immunosuppression (cyclosporine A 5mg/kg/bw, aziathioprine 4 mg/kg/bw, methylprednizolon 4mg/kg/bw) was administered daily. Control lung transplantation rats received no immunosuppression and were sacrificed on day 2 or 5 respectively. Rejection was confirmed by arterial blood gas assessment pO_2 and lung histological examination sampled at a day of sacrifice. Single dose vancomycin administration 30 mg/kg/bw. ip. was effectuated in all animals on day 2 or 5, respectively of the model. The blood and lung specimens were sampled 0,5h, 1h, 2h, 4h and 6h from the drug injection.
Results: Arterial blood gas assessment level pO_2 was significantly higher in acute rejection group with immunosuppression 245.3±100.0 in contrast with the control group 50.7±14.3 mmHg. Histopatological examination revealed lower rejection in the immunosuppression groups. No differences in vancomycin concentration in transplanted lungs as well as vancomycin transplanted lung /plasma ratio were revealed between groups with the immunosuppression and control groups.
Conclusions/Uploads: Immunosuppression has no influence on vancomycin concentration in transplanted lung.
Disclosure: All authors have declared no conflicts of interest.

P-139 DONOR - RECIPIENT MATCHING IN LUNG TRANSPLANTATION: GENDER MATTERS!

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Background/Objectives: Donor to recipient (D-R) matching in lung transplantation (LTx) is usually done based on blood group and size (predicted total lung capacity). The importance of other characteristics such as CMV (+/-), gender (F/M), and age in determining long-term outcome is less known.
Materials & Methods: The outcome in all lung transplant recipients (n=461) between July 1991 and December 2009 (149 single and 312 double) was compared between different D-R combinations according to gender (M/F), age (<20/21-45/>45 years), CMV (+/-), blood group (identical/compatible), and predicted total lung capacity (<10%/>10%Î”). Predictors of survival were analyzed in a multivariate analysis.
Results: Overall actuarial 5-year, 10-year and median survival rates were 66 %, 51 % and 126 months, respectively. Survival in recipients differed significantly according to combinations of D-R gender (p=0.01) but not age, CMV, blood group and TLC (p=0.46, p=0.16, p=0.56, and p=0.69, respectively). The best surival at 5 years was seen in F-F (79%), the worst in F-M (43%), and intermediate in M-F (62%) and M-M (60%). In a multivariate analysis, D-R gender mismatching was found to be sole significant (p=0.004) determinant of survival [Hazard Ratio (95% CI): 2.1(1.3-3.4)].
Conclusions/Uploads: D-R gender matching significantly affects long-term survival after lung transplantation. The combination of F-D to M-R should be avoided. The exact reason remains unclear.
Disclosure: D.E. Van Raemdonck: Dirk Van Raemdonck is supported by grant G.3C04.99 from FWO-Flanders. All other authors have declared no conflicts of interest.

	5-Year Survival Rate	Univariate p value	Multivariate p value	Hazard Ratio (95% CI)
Sex matching		0.01	0.004	2.1(1.3-3.4)
• Match	67			
• Mismatch	50			
Age (<20, 21-45,>45)		0.46	0.50	1.4(0.7-1.6)
• Match	68			
• Mismatch	65			
Size (TLC)		0.69	0.42	1.2(0.8-1.6)
• Match	65			
• Mismatch	67			
CMV		0.16	0.11	1.3(0.9-1.9)
• Match	72			
• Mismatch	59			
Blood group		0.56	0.34	0.7(0.3-1.3)
• Match	66			
• Mismatch	60			

P-140 MARGINAL LUNG DONORS: POSTOPERATIVE OUTCOMES

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[2]*Intensive Care Unit, Vall d´Hebron Hospital, Barcelona/ES*

Background/Objectives: The shortage of suitable donors for lung transplantation have resulted in a gradual relaxation of acceptability criteria. Many reports have shown contradictory results. We reviewed our experience with marginal donors for adult lung transplantations in one single institution.
Materials & Methods: We performed a retrospective review of 130 consecutive adult lung transplants from January 1, 2007, to December 31, 2009. Donors were considered marginal if two criteria of the next was found at the moment of evaluation of the donor: age greater than 55 years, abnormal chest roentgenogram, duration of ventilation greater than 120 hours, tobacco history, purulent secretions and positive culture. Recipients were stratified in two groups according to wheter they received a standard or a marginal organ.
Results: The 30-day mortality was 10.8% , in-patient mortality was 13,8%, donors older than 55 years old were 31,5%, mechanical ventilation for more than 120 hours was 12,3%, history of smoking in 32,3 %, abnormal chest roentgenogram in 22,3% and purulent secretion was found in 10,8%. Of a total of 130 consecutive lung transplants, 32.3 % match the criteria for marginal donors. The marginal group had a 30-day mortality of 0 versus 16.1% for the standard donors (p = 0.005). In-patient mortality was 4.8% vs. 18.4% (p=NS). ICU stay was 18.2 vs. 23.9 days (p=NS). In-patient days was 43.3 vs. 41.4 days (p=NS). Mechanical ventilation was 20.5 vs. 18.3 days (p=NS). Primary graft dysfunction was 11.9% vs. 15.5% (p=NS). FVC postransplant was 53,4% vs. 55,9% (p=NS), FEV1 was 55,4% vs. 60,5% (p=NS).
Conclusions/Uploads: Lung transplantation from marginal donors have good postoperative outcomes compared with the standard donor group. The use of marginal donors might help to overcome donor shortage.
Disclosure: All authors have declared no conflicts of interest.

NOTES

NOTES

Monday, 31 May 2010
08:30 - 17:00
Poster Session - Monday Posters

P-141 POSTOPERATIVE CHEST X-RAY AFTER MEDIASTINOSCOPY – NECESSARY OR NOT?

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Background/Objectives: The necessity of chest X-ray following mediastinoscopy is still under debate throughout Europe. Whereas in some centres/countries it is regulary performed (sometimes only because of legal aspects), others almost never do it. Complications exclusively detected by X-ray are rare, therefore the wide indication of postoperative chest X-ray in our country must be discussed critically. Clinical examination may be as valuable as the technical method. Therefore a prospective study was performed.
Materials & Methods: Patients undergoing mediastinoscopy were randomised to two groups either to receive chest X-ray 3 to 4 hours after surgery (Group A) or not (Group B). As standard in our clinical practice after short observation in the recovery room patients were transferred to the ward and discharged the next day. In addition to controls of vital signs, clinical examination was performed 8-10 h postoperatively for phonation abnormalities, dysphagia, stridor, local or sternal pain and local hematoma. Findings were documented. Additional chest X-ray could be ordered if indicated.
Results: Over 6 months 51 consecutive patients were enrolled. 24 patients (47%) received X-ray, while 27 patients (53%) were controlled clinically. One patient was excluded because additional videothoracoscopy was performed. During clinical examination 3 patients showed local hematoma. 7 complained of dysphagia, 4 of local pain, one patient of huskiness and one had paresis of Nervus recurrens. No patient had to undergo surgical revision because of either radiological or clinical examination. One patient (Group B) received chest X-ray on the first postoperative day because of dysphagia, without consequences.
Conclusions/Uploads: Postoperative chest X-ray is not necessary when patients are controlled clinically, because no further information can be gained. Good documentation of clinical findings will ensure that even legal aspects are covered. As a result of our study we have abdicted X-ray with reduction of radiation exposure of patients.
Disclosure: All authors have declared no conflicts of interest.

P-142 SHOULD LUNG RESECTION PATIENTS WITH COPD AND/OR OVER THE AGE OF 75 RECEIVE PROPHYLACTIC MINITRACHEOSTOMY?

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Background/Objectives: Prophylactic minitracheostomy (PM) reduces postoperative pulmonary complications (PPC). The study objective was to determine independent factors associated with the need for rescue minitracheostomy (RM) in order to determine benefit of PM.
Materials & Methods: Data was collected prospectively regarding MT insertion, PPC, length of stay (LOS) and HDU admission on lung resection patients. Univariate analysis was used to test differences in outcome, and binary logistic regression to determine independent risk factors associated with RM and PM ($p<0.05$).
Results: 271 consecutive patients [150 males (55%), mean age 65 (±12) years and mean FEV1 77% (±19)] underwent lung resections. 44 underwent MT (16%) of which 24 had PM, based on the surgeon's peri-operative clinical assessment, and 21 had RM following postoperative sputum retention. Age >75 years (OR 2.9, CI 1.0 – 9.0) and COPD (OR 4.1, CI 1.2 – 13.3) were independently associated with need for RM on multivariate analysis and characterised 75% of the RM group. There was a significantly increased length of stay (LOS), HDU stay and rate of PPC in the RM group compared to PM patients and those not requiring MT ($p<0.05$). Age >75 years (OR 4.6 CI 1.7 – 12.3) and COPD (OR 3.7 CI 1.3 – 10.5) were also independently associated with PM. If all COPD patients and/or those over the age of 75 (n=95) received PM, 75% of RM (n=15) could have been avoided in this patient population. Only minor complications of MT were noted in 2 patients (surgical emphysema, hoarseness of voice).
Conclusions/Uploads: Age >75 years and COPD were independently associated with the need for minitracheostomy. Rescue mini-tracheostomy is associated with significantly worse outcome but prophylactic minitracheostomy in high risk patients has been shown to improve outcome. In our study, if all patients >75 years and/or with COPD received a prophylactic minitracheostomy 6 would have be performed to prevent 1 rescue minitracheostomy.
Disclosure: All authors have declared no conflicts of interest.

P-143 INTRAOPERATIVE ENDOBRONCHIAL SWAB AFTER MAJOR LUNG RESECTION: DOES IT INFLUENCE THE COURSE OF POSTOPERATIVE PULMONARY INFECTIONS?

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Background/Objectives: To determine whether culturing swabs obtained intraoperatively from the bronchus cut-end after major lung resection may affect early treatment of postoperative pulmonary infections.
Materials & Methods: All patients undergoing lobectomy/pneumonectomy for lung cancer in a 20 months-period were included (group A). Two swabs systematically obtained at the bronchus cut-end of resected lung were cultured. A control group of patients was considered (group B - bronchial swabs not obtained). Empirical antibiotic therapy (piperacilline+tazobactam 4gx2/day and ciprofloxacine 400mgx2/day) was started in presence of two of the following: fever >38°C, hypoxemia/desaturation, atelectasis/pulmonary infiltrates. If isolated agents resulted resistant, antibiotics were adjusted according to antibiogram. Primary endpoint was length of hospital stay; secondary endpoints were readmission to ICU and need for invasive/non-invasive ventilatory support. ANOVA was applied for statistical analysis.
Results: Bronchial swabs were obtained from 161 patients (group A). Empirical antibiotics were successfully undertaken in 18 patients (11,2%); five had a positive bronchial swab. Group B counted 101 patients: fourteen (13,9%) undertook effective empirical antibiotic therapy: complications rate was not significantly different ($p=0.52$). Mortality rate was not significantly different ($p=0.31$). Length of hospital stay was not statistically different ($p=0.43$) between group A (mean 12,6 days; range 4-200) and group B (14,3; 6-315). Both groups accounted 50% of complicated patients readmitted to ICU. 16,7% (group A) vs. 14,3% (group B) required invasive/non-invasive ventilatory support ($p=0.41$). Considering group A, thirty-five swabs (21,7%) resulted positive (80% were gram-positive bacteria). Empirical antibiotics were administered in 5/35 cases (14,3%). 13/126 (10,3%) patients with negative bronchial swabs were successfully treated with empirical therapy. Hospital stay, complications and mortality rate was not significantly different ($p=0,31$, $p=0,51$ and $p=0.058$ respectively).
Conclusions/Uploads: Systematic intraoperative bronchial swab doesn't affect early treatment of postoperative pulmonary infections and shows to be not effective at reducing hospital stay, ICU readmission or need for ventilatory support after major lung resection.
Disclosure: All authors have declared no conflicts of interest.

P-144 THE ROLE OF TACHOSIL® IN LYMPHOSTASIS AFTER SYSTEMATIC MEDIASTINAL LYMPHADENECTOMY IN LUNG CANCER PATIENTS

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Background/Objectives: Systematic lymphadenectomy may be an important reason for elevated postoperative drainage, and may increase the risk of complications. We report preliminary results of prospective randomized study to assess the influence of Tachosil® applied on mediastinum after systematic lymphadenectomy, on postoperative clinical course and postoperative local immune response, in patients subjected to anatomical pulmonary resections due to lung cancer.
Materials & Methods: 24 patients, without pleural adhesions, were enrolled. In 12 patients Tachosil® was applied on areas after lymphadenectomy, while in the control group coagulation alone was allowed. Postoperative pleural drainage on three subsequent postoperative days and its hemoglobin concentration, total amount and duration of drainage, blood transfusion and clinical complications were noted. Pleural concentrations of IL-6, IL-1ra and IL-8 on postoperative days 1, 2 and 3 were measured, with ELISA method.
Results: Postoperative complications occurred in 5 patients from each group, with no mortality. No differences in amount of drainage on postoperative days 1, 2 and 3, total amount and duration of drainage between the groups were observed. Median hemoglobin concentration in pleural fluid in Tachosil® and control group was 0.3(0.3-0.4) and 1.2(0.78-1.6)g%, p=0.09 on day 1; 0.3(0.25-0.4) and 0.4(0.25-1.15)g%, p=0.4 on day 2; and 0.15(0.13-0.18) and 0.2(0-0.3) g%, p=0.95 on postoperative day 3, respectively. No significant differences of IL-6, IL-1ra and IL-8 in pleural fluid on postoperative days 1, 2 and 3 between the groups were observed.
Conclusions/Uploads: This preliminary report shows no impact of application of Tachosil® on mediastinum after systematic lymphadenectomy, on postoperative clinical outcome and local immune response. The only advantage of application of Tachosil® on mediastinum after systematic lymphadenectomy may be lower hematocrite of the drained pleural fluid on the first postoperative day. However, final results of this study may be different, because the learning curve of application of Tachosil® on mediastinum is possible.
Disclosure: All authors have declared no conflicts of interest.

P-145 IS THERE ANY MAXIMUM STANDARDIZED UPTAKE VALUE DIFFERENCE AMONG PET/CT SCANNERS FOR MEDIASTINAL STAGING IN NSCLC PATIENTS?

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Background/Objectives: The maximum standardized uptake value (SUV_{max}) varies among PET/CT centers in staging of NSCLC. Thus we evaluated the ratio of the optimum SUV_{max} cut-off of the lymph nodes to the median SUV_{max} of primary tumor at different scanners. The aim of this study was to understand SUV_{max} difference between PET/CT centers and define the most appropriate SUV_{max} in N2 staging of NSCLC with PET/CT.
Materials & Methods: PET/CT and mediastinoscopy or thoracotomy is performed on consecutive 337 NSCLC patients between September 2005 and March 2009. Thirty six patients with who had neoadjuvant chemotherapy (n:15), exploratory thoracotomy (n:12), and previous history of NSCLC (n:9) were excluded from the study. Patients with negative mediastinoscopy underwent surgical resection. The pathological results were correlated with PET/CT findings.
Results: Histopathological examination was performed on 1136 N2 lymph nodes at 10 different PET/CT centers. There was pathologic evidence of metastasis in 128 (11.3%) of 1136 lymph nodes in 78 (25.9%) of 301 patients. Majority of patients (Group A: 240 patients) having same PET/CT scanner at 4 different centers. Others were categorized group B. The optimal SUV_{max} cut-off for N2 nodes in groups A, and B were 2.75, and 3.25 by means of receiver operator characteristic (ROC) analysis. When we look into the group A for centers 1, 2, 3, and 4 of SUV_{max} cut-off value were 3.35, 2.75, 2.9, and 3.55 respectively. The ratio of the optimum SUV_{max} of the lymph nodes to the median SUV_{max} of primary tumor at groups A, and B were 0.18, and 0.22. The same ratio for centers 1, 2, 3, and 4 were 0.2, 0.21, 0.21, and 0.23 respectively. The optimal SUV_{max} cut-off for all N2 nodes was 2.75 by ROC analysis (sensitivity 84%, specificity 87%).
Conclusions/Uploads: The ratio of the optimum SUV_{max} of the lymph nodes to the median SUV_{max} of primary tumor was similar among different scanners. Thus SUV_{max} is valuable cut-off for comparing among all centers. SUV_{max} value higher than 2.75 is more accurate cut-off value for mediastinal lymph node staging by PET/CT.
Disclosure: All authors have declared no conflicts of interest.

P-146 THE FEASIBILITY OF NEUTROPHIL ELASTASE INHIBITOR IN THE TREATMENT OF ACUTE LUNG INJURY OF POST PNEUMONECTOMY PATIENTS

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Background/Objectives: The critical morbidity and mortality of post pneumonectomy patients is high due to acute lung injury (ALI). Although various intensive treatments are performed to treat ALI, the mortality could not be decreased. A neutrophil elastase (NEI) inhibitor, used in the treatment of ALI with systemic inflammatory response syndrome (SIRS), leads to improved lung function, reduced duration of mechanical ventilation, and a shortened stay in the intensive care unit (ICU). We used NEI to decrease the mortiality of post pneumonectomy patients.
Materials & Methods: From April 2004 to May 2008, 37 patients underwent pneumonectomy and 9 patients developed ALI after pneumonectomy. Group I (n=5) had undergone conventional intensive ventilator care before November 2006, Group II (n=4) underwent NEI treatment since December 2006. We retrospectively analyzed the clinical result between two groups.
Results: The mean lung injury score (LIS) of post acute lung injury 1day, 2 days, 3 days, 4 days is 1.5±0.7, 1.3±0.6, 1.6±0.8, 1.2±1.1 in group I, and 1.3±0.7, 0.7±0.9, 0.6±1.2, 0.4±0.9 in group II respectively. LIS was improved in group II. In group I, 40% (2/5) was possible to extubate, but one patient was death due to recurred respiratory failure, in group II, 75% (3/4) was possible to extubate and there was no reintubation. The 30 days mortality of group I and II is 80% (4/5),and 25% (1/4) respectively. All patients were death due to respiratory failure in group I, but, the cause of death was acute myocardiac infarct in group II.
Conclusions/Uploads: We can not confirmatively propose that the NEI has the survival benefit because the number of post pneumonectomy patients ALI is not enough to confirm the statistical significance. However, the neutrophil elastase inhibitor maybe usable to increase the lung function and survival rate in the treatment of ALI of pneumonectomy patient.
Disclosure: All authors have declared no conflicts of interest.

P-147 AGE AND EGFR MUTATION IN FEMALE PATIENTS WITH NON-SMALL CELL LUNG CANCER

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Background/Objectives: Our previous report showed associations between age and outcome in gefitinib-treated female patients with non-small cell lung cancer (NSCLC). However, there are rare molecular studies in respect to presence of epidermal growth factor receptor (EGFR) mutations according to age. This retrospective study was performed to evaluate a possible association between age at diagnosis and the presence of EGFR mutations in female patients with NSCLC.
Materials & Methods: Tissue samples were obtained from specimens of 99 female patients with primary NSCLC subjected to curative surgical resection from January 1992 to December 2002 at the Korea Cancer Center Hospital. The EGFR Scorpions kit was used to detect mutations.
Results: Most of the study population comprised never-smokers (82 %) and patients with adenocarcinoma (81 %). The age at diagnosis ranged from 34 to 74 (median 57.2). When a median age was used as a cut off value, old patients were more likely to have EGFR mutations than young (69.4 % versus 40.0 %; P=0.005). After controlling effects of histology, smoking history, and stage, the old age remained a significant predictor for EGFR mutations (odds ratio, 4.686; P=0.001). We observed that age at diagnosis was associated with the presence of EGFR mutation, a molecular evidence for our previous study.
Conclusions/Uploads: Our data suggest that the age at diagnosis might be helpful in discriminating patients who harbor EGFR mutations, a strong indicator for favorable outcomes.
Disclosure: I.I. Na: This work was partly supported by AstraZeneca Pharmaceuticals. All other authors have declared no conflicts of interest.

P-148 CHEST PHYSIOTHERAPY: EVALUATION OF ITS INFLUENCE ON THE OVERALL CARDIO-RESPIRATORY MORBIDITY AFTER PULMONARY RESECTION

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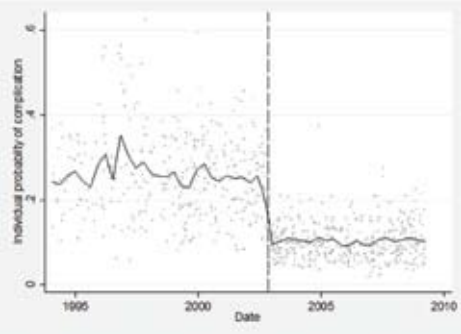
Background/Objectives: Perioperative chest physiotherapy constitutes a routine in most thoracic surgery units but its use is not evidence based. The objective of this investigation is to evaluate if the perioperative chest physiotherapy (considered as a binary variable) decreases the risk of cardio-respiratory morbidity after lobectomy for NSCLC.
Materials & Methods: This is a quasy-experimental interrupted time-series analysis of the prospective data obtained of a series of 779 NSCLC patients scheduled for lobectomy. General perioperative management of all cases was homogenous except for the type of physiotherapy: 419 cases underwent an implemented perioperative program of physiotherapy by a dedicated physiotherapist started in November 2002. Analyzed variables: Occurrence of postoperative cardio-respiratory complications (Dependent); Independent: age, BMI, PreopFEV1%, ppoFEV1%, Charlson index, clinical T status and type of physiotherapy. Statistical analysis: basic homogeneity analysis using parametric and non-parametric test as appropriated. Risk modelling of the data by constructing two logistic models using resampling boostrap technique and comparing the individual risk data obtained using ROC curves and plotting it on date when surgery was performed.
Results: Overall mortality was 2.18% (17 cases, 4 in the physiotherapy group). Clinical variables of both series of cases are homogeneous except more cT4 patients were operated in the physiotherapy group (p=0.09). Regression Model A included age (p=0.004), preopFEV1% (p=0.002), ppoFEV1% (p=0.008) as prognostic variables. Model B included the same variables and physiotherapy (p=0.000). Risk estimation: C-index: 0,64 (Model A) and 0.7 (model B) (p=0.006). In the figure individual risk estimation calculated by Model B (including physiotherapy) is plotted on date when surgery was performed. The dotted vertical line represents when the physiotherapy program started. A dramatic decrease of the estimated risk can be seen after implementing a dedicated perioperative physiotherapy program.
Conclusions/Uploads: In conclusion, implementing a program of perioperative intensive chest physiotherapy reduced the overall cardio-respiratory morbidity after lobectomy for lung cancer.
Disclosure: All authors have declared no conflicts of interest.



Temporal Series
Individual risk of complication calculated by regression Model B. Vertical dotted line represents the onset of the dedicated physiotherapy program.

P-149 THROMBOELASTOGRAPHIC EVALUATION OF COAGULATION DISORDERS IN SURGICALLY TREATED NSCLC PATIENTS: A PROSPECTIVE STUDY

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Background/Objectives: The relation between tissue factor and malignant tumors is well established in the literature, while the formation of clots in the presence of malignancy may lead to tumor growth, angiogenesis and metastasis. The aim of this study was to evaluate the role of thromboelastography in the diagnosis and monitoring of coagulation disorders in patients with non-small cell lung cancer (NSCLC) submitted to complete surgical resection.
Materials & Methods: Forty-two patients with NSCLC (adenocarcinoma: 21, squamous cell carcinoma: 17, Large cell carcinoma: 4, stage I:11, II:18, IIIA:13), submitted to complete surgical resection with extended mediastinal lymph node resection, were evaluated preoperatively for coagulation disorders. Patients receiving anti-platelet or anti-coagulant therapy for other causes were excluded from the study. Baseline coagulation tests included platelet count, prothrombin time, activated partial thromboplastin time, fibrinogen level, and D-Dimmers. Coagulation disorders were estimated preoperatively in all patients with thromboelastography; specific variables measured included reaction time (R), α angle, K-coefficient, maximal amplitude (MA), clot strength (G) and coagulation index (CI). All patients were reevaluated one month after surgery with the same standard coagulation tests and thromboelastography.
Results: The preoperative and postoperative values of coagulation standard laboratory tests were normal in all patients. Although 9 (21.4%) patients presented normal overall coagulation index, the remainder 33 patients revealed increased values ($P<0.001$) in at least one of the thromboelastographic parameters (mean value: 3.6). Pathological values returned to normal in all but five patients (15.1%), one month postoperatively ($P<0.001$).
Conclusions/Uploads: The standard coagulation tests are not competent to reveal the hypercoagulopathy that characterizes the patients with NSCLC. Changes in thromboelastography occur before changes in the standard coagulation tests are seen, indicating that lung cancer patients have an increased propensity to clotting and fibrinolytic system .
Disclosure: All authors have declared no conflicts of interest.

P-150 POSTOPERATIVE NONINVASIVE POSITIVE PRESSURE VENTILATION IN HYPOXEMIC PATIENTS WHO UNDERWENT PULMONARY RESECTION

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Background/Objectives: We evaluated the efficacy of noninvasive positive pressure ventilation (NIPPV) in postoperative hypoxemic patients who underwent pulmonary resection.
Materials & Methods: This is a prospective, observational study. Sixty patients who underwent lobectomy or wedge resection owing to their diseases (lung cancer or metastasis) were enrolled in this study. Postoperative hypoxemia is determined as follows in this study; arterial oxygen tension (PaO_2) on room air in the immediate postoperative period is lower than 70 mmHg. All postoperative hypoxemic patients received NIPPV therapy till the next morning, otherwise, non-hypoxemic patients received only oxygen. Ventilation was provided via a facial mask. NIPPV maintained the positive endoexpiratory pressure (PEEP) at 5 cmH_2O, the pressure support at 10 cmH_2O above PEEP. Friction of inspired oxygen (FiO_2) was adjusted for SpO_2 higher than 97%. Patients were divided into 4 groups; lobectomy with NIPPV group (n=19), wedge resection with NIPPV group (n=20), lobectomy without NIPPV group (n=11), and wedge resection without NIPPV group (n=10). Arterial blood gases were also measured in the next morning and the difference was statistically evaluated.
Results: Thirty-nine patients received NIPPV therapy. Eight patients stopped NIPPV therapy because of increased air leak (n=2) and dyspnea (n=6) and were excluded from this analysis. NIPPV therapy significantly increased PaO_2 of hypoxemic patients with lobectomy (n=14) from 61.7 ± 5.7 mmHg to 75.9 ± 8.4 mmHg ($p < 0.001$), however, NIPPV did not increase PaO_2 of hypoxemic patients with wedge resection (n=17) from 59.9 ± 5.1 mmHg to 63.0 ± 9.8 mmHg ($p = 0.15$). PaO_2 of non-hypoxemic patients with lobectomy (n=11) and non-hypoxemic patients with wedge resection (n=10) did not differ from 79.4 ± 6.3 mmHg to 80.9 ± 7.5 mmHg and from 77.0 ± 10.1 mmHg to 74.9 ± 9.8 mmHg, respectively.
Conclusions/Uploads: NIPPV was well-tolerable in patients with postoperative hypoxemia with a few associated side effects. Hypoxemic patients who underwent lobectomy took the most advantage of NIPPV therapy.
Disclosure: All authors have declared no conflicts of interest.

P-151 SURVIVAL AFTER CURATIVE RESECTION FOR ADENOCARCINOMA AT THE GASTRO-ESOPHAGEAL JUNCTION WITH ADJUVANT POSTOPERATIVE CHEMORADIOTHERAPY OR SURGERY ALONE

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Background/Objectives: We present the survival data of a cohort of patients curatively resected for adenocarcinoma at the gastro-esophageal junction and postoperatively treated with adjuvant chemo-radio therapy according to the Intergroup 0116 protocol. The survival was compared with the survival after curative resection from 1992 through 2009 in patients who underwent surgery only.
Materials & Methods: From 1992 through 2009, 350 patients underwent curative resection. Group 1 includes 137 patients that underwent curative resection from 1992 through 2003. In 2003, the Intergroup 0116 protocol was implemented in our institution. From 2003 through 2009, 96 patients underwent surgery only (group 2) and 117 patients received postoperative adjuvant therapy (group 3). The operation was carried out as a modified Lewis-Tanner procedure: A two-phase abdominal and right chest approach for en-bloc subtotal esophagectomy followed by a double-stapled esophago-gastric anastomosis. The postoperative adjuvant treatment consisted of chemotherapy with fluorouracil plus leucovorin and loco-regional radiation according to the Intergroup 0116 protocol. All deaths due to complications after surgery and patients with superficial tumours (T0N0/T1N0) were excluded from the analysis, in order not to overestimate the benefit of adjuvant therapy.
Results: The overall disease-free 3-year survival in group 1, 2 and 3 was 39%, 45% and 53% respectively (Log rank test: P=0.58). Figure 1 shows disease-free survival after curative resection where lymph node involvement was found in the resected specimen. In these patients, 3 year survival in the surgery only group (group 2) was 29%. Median time of survival was 16 month (CI:12-20). In the postoperative adjuvant therapy group, the survival was 48%. Median time of survival was 29 month (CI:11-47) (Log rank test: P=0.014).
Conclusions/Uploads: Our results support, that postoperative chemoradio therapy is a reasonable option in curatively resected patients with adenocarcinoma at the gastro-esophageal junction and positive node status in the resected specimen.
Disclosure: All authors have declared no conflicts of interest.

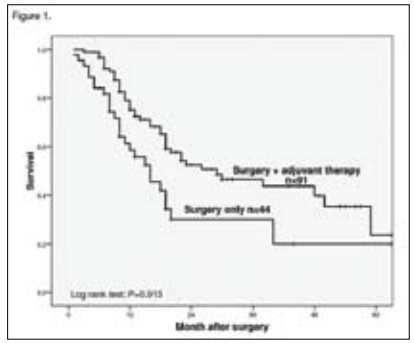

Figure 1

P-152 ADJUVANT TREATMENT IS MORE TOLERABLE AFTER SLEEVE RESECTION THAN PNEUMONECTOMY

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Background/Objectives: This study reveals the completeness and the tolerability of the adjuvant treatment after sleeve resections and pneumonectomies.
Materials & Methods: 44 men and 10 women underwent 23 sleeve lobectomies and 31 pneumonectomies for lung cancers, and for all of them adjuvant treatments were indicated. Sleeve lobectomies were as follows: 10 right uppers, 2 right lowers, 2 lower bilobectomies, 6 left uppers and 3 left lowers. There were 18 left and 13 right side pneumonectomies. Histology and stages were as follows: squamous cell carcinoma 12 and 17, adenocarcinoma 8 and 10, small cell carcinoma 2 and 3, carcinoid 1 and 1, and IA 3 and 2, IB 6 and 4, IIA 7 and 2, IIB 7 and 6, IIIA 0 and 12, and IIIB 0 and 5 in the sleeve and pneumonectomy cases, respectively. For 53 patients adjuvant chemotherapies and in 10 cases adjuvant irradiations were indicated.
Results: The planned adjuvant treatment was completely given in 82.6% (19/23) after sleeves and in 45.2% (14/31) after pneumonectomies (p=0.016). Reasons of treatment suspension are as follows: 5 neutropenias, 4 diminished performance status, 3 cardiac ischemias, 3 neurologic problems, 2 empyemas (one fistula) among pneumonectomies, and 2 kidney problems, 1 diminished performance status and 1 neutropenias in the sleeve group. In the sleeve group the treatment was reduced but not stopped because of 3 neutropenias and 1 MRSA infection. The median survival were 44 and 30 months in the sleeve and pneumonectomy groups, respectively (p=0.494), but it was significantly different between the patients who received the whole adjuvant treatment (44 months) and who did not received the complete treatment (20 months) (p=0.009).
Conclusions/Uploads: The adjuvant treatments were more complete and its complications were more tolerable after sleeve resections than pneumonectomies. The survival was significantly better if the patients could received the entire adjuvant treatment.
Disclosure: All authors have declared no conflicts of interest.

P-153 INDUCTION CHEMOTHERAPY IS NOT A CONTRAINDICATION WHEN STARTING A VATS LOBECTOMY PROGRAM

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Background/Objectives: Recently also in Europe, VATS (Video Assisted Thoracic Surgery) lobectomy has gained increasing acceptance as an alternative treatment option for early stage NSCLC (non small cell lung cancer). High volume centers have recommended to start the initial learning curve for technical and oncologic reasons in patients with cT1-2 N0 lesions who had not undergone induction therapy.
Materials & Methods: From February 2009 to January 2010 64 patients underwent VATS lobectomy. 10 of them had received induction chemotherapy. Complete thoracoscopic lobectomy with individual control of vascular and bronchial structures and oncologic lymph node sampling was performed through three non rib-spreading thoracocenteses. Retrospective analysis of prospectively collected data was performed.
Results: Standard induction therapy was with docetaxel, CDDP and Cetuximab. Median operative time, conversion rate, complication rate, redo-operation rate, 30 days mortality and length of stay were 190 minutes, 12%, 10%, 8%, 4% and 9 days for the non-neoadjuvant group and 192 minutes, 10%, 20%, 0%, 0% and 7 days for the post-induction therapy group, respectively. In both groups lymph nodes from median 5 stations were sampled.
Conclusions/Uploads: Early outcomes after VATS lobectomy do not differ in patients who had undergone induction chemotherapy when compared to initially surgically treated patients. Thus, induction chemotherapy is not an absolute exclusion criteria even in the early phase of a VATS lobectomy program. This has oncologically to be proven by mid-and long-term results and may - considering its scaring effects - technically not hold true if radiation therapy was part of an induction therapy protocol.
Disclosure: All authors have declared no conflicts of interest.

P-154 THE PROGNOSTIC IMPACT OF CARCINOMA-STOMA RATIO IN RESECTED NON-SMALL CELL LUNG CANCER (NSCLC) TUMORS

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Background/Objectives: The TNM staging in lung cancer has proven to be the most important prognostic factor. However, patients with the same stage of disease can have markedly different rates of disease progression. Previous studies have shown that the carcinoma-stroma ratio can influence the outcome in several cancer types, such as breast and colon. In this study we evaluated the carcinoma-stroma ratio for NSCLC.
Materials & Methods: Tumor tissues from 219 patients diagnosed with NSCLC pathologic stage I to IIIB who underwent curative surgery were analyzed. None of the patients received pre/post chemo- or radiation therapy. Patients with recurrence or death within 1 month were excluded. The carcinoma-stroma ratio was estimated using microscopic analysis of H&E stained slides. Patients were divided into 4 groups according their carcinoma %: <25(I), 25-50(II), 50-75(III) and >75%(IV). Analysis of the survival curves was performed using Kaplan-Meier Survival Analysis.
Results: The overall 3-yr and 5-yr survival of the 219 included patients was 56.4% and 46.0% respectively, the 3-yr and 5-yr disease free survival was 54.1% and 48.8%. None of the 3 patients with a carcinoma-stroma ratio of <25% died. Overall 3-yr and 5-yr survival of group II was 77.2% and 55.1%, for group III both 53.3% and for group IV 53.5% and 41.6% (Log rank test: p=0.417) The hazard ratio of the T-stage on overall survival was 1.792 (95%-CI: 1.391-2.308) per T-stage increment (p<0.001) and of the N-stage was 1.701 (95%-CI: 1.223-2.367) (p=0.002).
Conclusions/Uploads: There was no statistical significant difference between the carcinoma percentage and overall survival. However there is a trend towards patients with a low carcinoma percentage who had a better overall survival. Only T-stage remained significantly associated with overall survival.
Disclosure: All authors have declared no conflicts of interest.

P-155 DOES THE DURATION OF ANTIBIOTIC PROPHYLAXIS INFLUENCE THE PROBABILITY OF INFECTIONS AFTER PULMONARY RESECTION FOR LUNG CANCER?

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Background/Objectives: Thoracic operations are associated with considerable risk of infections; therefore antibiotic prophylaxis has become routine practice in lung resection surgery. However there is no consensus about prophylactic antibiotic regimen. In this study, effect of duration of antibiotic prophylaxis on surgical-site infections in lung cancer surgery was evaluated.
Materials & Methods: Between May 2003 and October 2008, 138 patients underwent lung resection for non small cell lung cancer. Twenty-eight of the patients were excluded from the study because of preoperative antibiotic using and/or using prophylactic agents except cefazolin. The patients were divided into 2 groups (group A and B) according to the duration of antibiotic prophylaxis. One dose cefazolin was routinely administered 30 min before the operation in both groups. Group A was included 55 of the patients who were operated between 2003 and 2006 years and cefazolin 2gr/day (2x1 I.V.) were used for prophylaxis until removing of chest tubes. Group B was included 55 of the patients who were operated between 2006 and 2008 and cefazolin was used only 24 hours (totally 3gr).
Results: This 2 group were comparable in risk factors as age, sex, stage of the disease, resection types, induction therapies and Charlson comorbidity index. Five infections developed in both groups (9 %). In group A; pneumonia was seen in 3 of the patients and empyema was seen in 2. In group B; pneumonia was seen in 2 patients and empyema was seen in 3. Broncho-pleural fistulas developed only in 1 patient in each group. No surgical site infections occurred.
Conclusions/Uploads: The duration of a prophylactic antibiotic regimen was not effectively minimizing the probability of postoperative infection. Three dozes prophylaxis (24 hr) with cefazolin is as effective as more than 48 hours prophylaxis in lung cancer surgery.
Disclosure: All authors have declared no conflicts of interest.

P-156 AIR LEAKS AND RESPIRATORY COMPLICATIONS FOLLOWING PULMONARY RESECTION FOR MALIGNANCY

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Background/Objectives: Air leaks are one of the most common complications after pulmonary resection. The aims of this study were to analyze risk factors for postoperative air leak and to evaluate the role of air leak measurement in identifying patients at increased risk for respiratory complications and persistent air leak.
Materials & Methods: From March to December 2009, 142 consecutive patients underwent pulmonary resection (bilobectomy 5, lobectomy 103, segmentectomy 6, wedge resection 28) for primary or secondary lung malignancy, and were prospectively followed up. Air leaks were quantitatively labeled twice daily by using a volumetric air leak meter contained within a commercially available chest drainage system.
Results: There were 52 (36.6%) patients identified who had an air leak on postoperative day 1, and 32 (22.5%) patients had an air leak on day 2. Air leak was ³ 180 mL/min in 12 (37.5%) of these. Variables associated ($p<0.05$) with air leak on day 2 were forced expiratory volume in 1 second (FEV1) <80% predicted, residual volume >120% predicted, type and site of pulmonary resection, presence of adhesions, and incomplete fissures. At multivariate analysis, FEV1 <80% predicted, type of pulmonary resection, and presence of adhesions emerged as independent predictors of air leak. Respiratory complications were significantly higher (34.4%) in patients who experienced air leak on day 2 than in those who did not (14.5%) ($p=0.01$). Nine (75%) out of 12 patients with air leak ³ 180 mL/min on day 2 had a persistent air leak (>5 days) ($p=0.000001$).
Conclusions/Uploads: Following pulmonary resection for malignancy, predictors of having an air leak on day 2 are FEV1 <80% predicted, having a lobectomy, and presence of adhesions. Respiratory complications are significantly higher in patients with air leak on day 2. Patients who have air leak ³ 180 mL/min on day 2 are at increased risk of persistent air leak.
Disclosure: All authors have declared no conflicts of interest.

P-157 ADJUVANT CHEMOTHERAPY FOR SURGICAL RESECTED N1 NSCLC: RESULTS IN CLINICAL PRACTICE

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Background/Objectives: Adjuvant chemotherapy for N1 surgical resected NSCLC has been proved in controlled trials to significantly decrease the risk of cancer correlated deaths and thus survival. However, the impact of such positive results in clinical practice is not confirmed yet.
Materials & Methods: From 2005, after the publication of the last large trials on the subject, we decided to submit all patients with pathological N1 (stage II) disease and PS 0-1, to adjuvant chemotherapy. The aim of this study was to compare this group of patients with those who did not before 2005, in order to verify if the advantage on survival was confirmed even in clinical practice outside controlled studies.
Results: From 1998, 193 patients (154 male) with surgical resected N1 NSCLC were considered. Adjuvant treatment (platinum based chemotherapy) was performed from 2005 in 58 (30%) patients (group 1). The inclusion criteria were the following: anatomic resection with radical lymph nodes dissection, PS 0-1, no previous history of cancer, no synchronous tumors. Stage IIA and IIB were 18% and 82% respectively. N1 single station was identified in 67% of patients. At the last follow-up 119 (62%) patients were still alive, 18 (9%) with disease. 30 % of patients died for disease. 39 % of patients experienced systemic recurrences. The result of the study is summarized in figure 1. Overall Survival, disease specific survival and disease free survival were all significant improved using adjuvant chemotherapy. The advantage in survival of adjuvant treatment is maintained either in single or multiple N1 involvement.
Conclusions/Uploads: Adjuvant chemotherapy with platinum base regimens in N1 surgical resected NSCLC improves survival even in clinical practice. The advantages seem to be more than those expected.
Disclosure: All authors have declared no conflicts of interest.

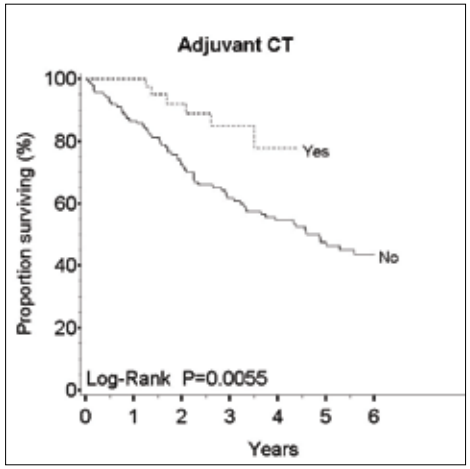

Figure 1.
Chemotherapy vs. non-chemotherapy groups overall survival

P-158 ENDOBRONCHIAL ULTRASOUND-GUIDED NEEDLE ASPIRATION IN NON-SMALL CELL LUNG CANCER RECURRENCE – A PROSPECTIVE TRIAL

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Background/Objectives: The aim of the prospective cohort study was to assess the diagnostic yield of the endobronchial ultrasound-guided transbronchial needle aspiration (EBUS-TBNA) in the non-small cell lung cancer (NSCLC) recurrence.
Materials & Methods: Consecutive NSCLC patients suspected for mediastinal or hilar recurrence on CT scans more than one year after anatomical lung resection with lymphadenectomy underwent EBUS-TBNA. All procedures were performed under local anaesthesia and intravenous sedation. All patients with negative result of EBUS-TBNA underwent six months radiological and clinical follow up.
Results: Between 01.05.08 and 30.06.09 in 52 patients who underwent EBUS-TBNA 70 mediastinal and hilar lymph nodes were biopsied (stations: 2L – 1, 2R – 3, 4R – 13, 4L – 2, 7 – 18, 10R – 25, 10L – 8). EBUS-TBNA revealed metastatic lymph node involvement in 16/52 patients (30.8%) and in 25/70 biopsies (35.7%). 36 patients (69.2%) with negative EBUS-TBNA underwent clinical follow up and metastatic nodes were diagnosed in 3 of them (5.8%). A diagnostic sensitivity, specificity, accuracy, PPV and NPV of EBUS-TBNA per patient basis was 84.2%, 94.1%, 92.3%, 97% and 91.4%, respectively. No complications of EBUS-TBNA were observed.
Conclusions/Uploads: EBUS-TBNA is highly effective and safe technique for mediastinal and hilar recurrence in NSCLC patients.
Disclosure: All authors have declared no conflicts of interest.

P-159 PROGNOSTIC SIGNIFICANCE OF PLASMA LEVELS OF ALPHA CRYSTALLIN ANTIBODIES IN OPERATED NSCLC PATIENTS

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Background/Objectives: Molecular staging of NSCLC refers to the assessment of the prognostic significance of different biologic markers and provides the improvement in survival in addition to the conventional TNM staging system. To determine the significance of the plasma levels of alpha-crystallin antibodies in NSCLC patients and to study their prognostic role after surgery.
Materials & Methods: A total of 48 consecutive NSCLC patients underwent different resections and a systematic mediastinal lymph node dissection. Fifteen patients were in stage I (IA-5; IB-10), 15 in stage II (IIB-15) and 18 in stage III (IIIA-16; IIIB-2). Twenty-nine patients (60.4%) had negative mediastinal lymph nodes and 19 cases (39.6%) had N1-N2 disease. ELISA with primary polyclonal rabbit anti-alpha crystallin antibody was applied. Plasma levels of alpha crystallin antibodies were determined.Chi-square analysis was performed to study the correlation between the levels of antibodies and the clinicopathological parameters. The patients' follow-up varied between 2 and 19 months.Kaplan-Meier and log-rank test evaluated the 1-year survival rate and the prognostic significance of the marker.
Results: The level of alpha-crystallin antibodies was higher (0.523) in patients with lymph node metastases compared to those with no mediastinal spread of the disease (0.3695) - (p=0.045). Patients with early stages NSCLC (IA, IB, IIB) had smaller mean values of 0.368, while those with advanced stages (IIIA-IIIB) were with higher mean values of 0.532 (p=0.038). In addition to a p-stage the plasma levels of alpha-crystallin antibodies could subdivide patients in risk subgroups with statistically significant difference in the survival rate (p=0.036).
Conclusions/Uploads: The plasma levels of alpha-crystallin antibodies in operated on NSCLC patients are potential biomarkers for the metastatic spread of the tumor and the disease progression. They could also be used to stratify the patients into risk subgroups, but this data needs further investigation.
Disclosure: All authors have declared no conflicts of interest.

P-160 LUNG FUNCTION AND QUALITY OF LIFE AFTER SOLITARY AND MULTIPLE 1318 NM LASER LUNG METASTASECTOMIES

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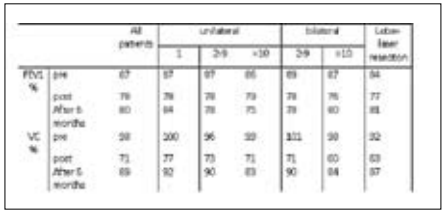
Background/Objectives: Aim of this study is to demonstrate persistent good quality of life in patients after extended laser metastasectomies on the basis of their lung function, morbidity, complications and performance status.
Materials & Methods: Between 1996 and 2003 328 patients with solitary and multiple metastases underwent surgery. All parenchyma resections were carried out as tissue saving precision 1318 nm laser resections with a 5 mm rim to the tumor. Patients with bilateral lesions had two staged thoracotomies with an interval of 6 weeks. In all patients lung function tests preoperatively, before discharge and 6 months postoperatively were documented together with the performance status (Karnofsky score). Patients were divided into 3 groups: 1) unilateral thoracotomy subdivided into patients with solitary metastasis (n=81), 2-9 (n=94) and over 10 metastases (n=13), 2) bilateral thoracotomy subdivided into patients with 2-9 (n=63) and over 10 metastases (n=54), 3) lobectomy combined with laser resections (n=23) (Table).
Results: In 328 patients (aged 20 to 80) 3267 lesions (10 per patient) in the range 1-137 were resected. Lobectomy rate was 7%. No operative nor in hospital stay mortality was observed. 6 major complications occurred and were treated conservatively. Overall loss of VC and FEV1 between the preoperative and 6 months after surgery values was 9% and 7% respectively. Patients after lobectomy combined with laser resections and after bilateral thoracotomies with over 10 metastases had a VC value loss down to 63%/ 60% respectively at discharge but recovered to 87%/ 84% 6 months later. In all patients Karnofsky score of 90- 100% was described.
Conclusions/Uploads: Figure 1 The results underline the experience that patients easy tolerate limited metastasectomy but confirm furthermore persistent good quality of life after extended metastasectomies provided that 1318 nm laser technique is used. This technique should be integrated more frequently in the multimodality treatment of stage IV cancer patients.
Disclosure: All authors have declared no conflicts of interest.



Table

P-161 LYMPH NODE INVOLVEMENT IN T1 NSCLC: SUV AND MAXIMAL DIAMETER CRITERIA COULD BE CONSIDERED PREDICTORS?

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Background/Objectives: Considering the introduction of new modern staging system, such as Computed Tomography (CT) and Positron Emission Tomography/CT (PET/CT) with Fluorodeoxyglucose (FDG), an increased number of small peripheral lung cancer has been detected in early stage. We analysed the behaviour of pathological T1 non small cell lung cancer (NSCLC) to identify predictive criteria of nodal involvement and the role of cancer size on lymph node metastases.
Materials & Methods: We retrospectively analysed 219 patients affected by pathological T1 NSCLC. All patients were staged by high resolution CT and PET as stage I, and underwent anatomical resection and radical lymphadenectomy. Our data were collected based on: pathological nodule size (0-10mm; 11-20mm; 21-30mm), morphological features of lung nodule and FDG uptake of the tumour measured by standardized uptake value (SUV).
Results: One hundred ninety patients (87%) were pN0, 14 (6%) pN1 and 15 (7%) pN2. Nodal involvement was observed in none of the 62 patients with nodule size less than 10 mm, in 20 of 120 patients (17%) with nodule size of 11-20 mm and 9 of 37 tumours (28%) of 21-30 mm in size (p=0.0007). All 55 patients with SUV of nodule < 2.0 and all 26 non solid lesions were pN0 (respectively, p=0.0001 and p=0.03). All nodal metastasis occurred among the group of 132 patients with size larger than 10 mm and SUV higher than 2.0 with a rate of nodal involvement of 22% (29 patients) (p<0.0001).
Conclusions/Uploads: Based on our analysis we can suggest that radical lymphadenectomy could be avoid in NSCLC <1 cm or SUV <2 . A randomized trial should be performed to validate our data.
Disclosure: All authors have declared no conflicts of interest.

P-162 CHEST TUBE MANAGEMENT FOLLOWING PULMONARY LOBECTOMY: CHANGE OF PROTOCOL RESULTS IN FEWER AIR LEAKS

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Background/Objectives: Chest tube placement following pulmonary lobectomy is common practice. Much controversy exists about management of chest tubes. We combined recent findings in order to create an evidence based protocol in managing chest tubes postoperatively. The objective of this study was to evaluate this protocol in our hospital.
Materials & Methods: We retrospectively analysed 133 consecutive patients who underwent pulmonary lobectomy from January 2005 to December 2008. A new chest tube protocol was introduced on January 1st 2007. This protocol includes placement of a single chest tube (with 10 cm H2O suction and early application of water seal) instead of two chest tubes with delayed change from suction to water seal. If the lung was fully expanded on an immediate postoperative chest roentgenogram, the tube was placed to water seal the same day. The chest tube was removed if there was no air leak and (non-chylous) fluid drainage was less than 400 ml/day. In the old protocol the cutoff value for removal was 150 ml/day. The results of patients in the old (n=68) and the new protocol (n=65) were compared retrospectively.
Results: In the new protocol group the median duration of air leak was significantly lower and we did not observe any patients with prolonged air leak (table 1). The number of days the chest tubes remained in place declined significantly from a median of 4 to 2 days. Also the length of hospital stay decreased significantly to a median of 8 days. Number of reinterventions and thirty day morbidity and mortality rates did not differ significantly.
Conclusions/Uploads: Our data suggest that placement of a single chest tube and early conversion from underwater suction to water seal decreases duration of air leak and chest tube drainage. Chest tubes can safely be removed when air leak is absent and fluid drainage is less than 400 ml/day.
Disclosure: All authors have declared no conflicts of interest.

Variables	Group 1 (old protocol) n = 68	Group 2 (new protocol) n = 65	*p* value
Duration of suction (days)	2 (5.3)	0 (0.8)	<0.001
Duration of air leak (days)	2 (6.4)	0 (1.4)	<0.001
Prolonged air leak (n, %)	17 (25)	0	<0.001
Duration of chest tubes (days)	4 (8.3)	2 (2.5)	<0.001
Hospital stay (days)	11 (9.3)	8 (6.1)	<0.001

Table 1. Comparison of postoperative variables between the old and new protocol group. Results are expressed as median ± standard deviation, unless otherwise specified.

Table 1

P-163 PROGNOSTIC IMPACT OF PLATELET COUNT ON SURVIVAL AFTER SURGERY FOR STAGE I LUNG CANCER

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Background/Objectives: A number of studies reported an association between thrombocytosis and survival in patients with lung cancer. To guide decisions regarding adjuvant therapy, the prognostic impact of platelet counts was tested in a series of patients who underwent surgery for stage I non-small cell lung cancer (NSCLC).
Materials & Methods: Electronic records from the Rotterdam Cancer Registry were used to select patients who underwent surgery for stage I NSCLC in two hospitals during the period 1989-2002. Information on platelet count and vital status was gathered retrospectively. The study group (277 men and 77 women with a median age at diagnosis of 69 yrs) was stratified by platelet count (<150, 150-225, 226-399, >400) and variation in actuarial survival was assessed with the log-rank test and with proportional hazard analysis.
Results: Univariate survival analysis suggested age (p=0.02), extent of surgery (p=0.04) and platelet count (p=0.0003) as prognostic factors. Absolute five-year survival by platelet count subgroup was 36%, 68%, 68% and 35%, respectively. In multivariate analysis, the hazard ratios for platelet count <150 and >400 were 3.2 and 3.1, as compared with normal platelet counts.
Conclusions/Uploads: Low platelet counts and thrombocytosis are both associated with poorer survival in patients operated for stage I NSCLC. The mechanism as well as the impact of this phenomenon are yet unclear. It is likely, however, that further research on this subject may reveal new treatment options, e.g. that adjuvant therapy may be considered for patients with abnormal platelet counts, whereas patients with normal platelet counts may be treated expectantly. Platelet counts are, therefore, mandatory in the preoperative workup for lung cancer.
Disclosure: All authors have declared no conflicts of interest.

P-164 COEXISTENCE OF TUBERCULOSIS INDEPENDENTLY DECREASES THE SURVIVAL IN PATIENTS WITH RESECTED NON-SMALL CELL LUNG CANCER

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Background/Objectives: Tuberculosis can be coincidently found in patients with non-small cell lung cancer. The patients with tuberculosis are usually administered anti-tuberculosis therapy after the resectional therapy for lung cancer. However, the clinical importance of tuberculosis has been undefined. We aimed to investigate the impact of tuberculosis on morbidity, mortality and survival in patients.
Materials & Methods: Seven-hundred seventyfive patients (730 men, 45 women)who had undergone complete surgical resection for non-small cell lung cancer between January 1995 and December 2008 were investigated. Mean age was 57.0 (ranging from 17 to 84) years. Mean follow-up time was 25 months (ranging from 1 to 175 months). Kaplan Meier analysis along with log-rank test and Cox multivariate analysis were used. The diagnosis of tuberculosis was made when it was bacteriologically and/or histologically proven before and/or after the surgical resction.
Results: Five year survival of in our series was 55.5%, median survival time was 88±7 months (95% CI:85-111 months). The mortality and morbidity rate was %4.8 and 24.4% respectively. Tuberculosis was found 34 patients (%4.4). The presence of tuberculosis did not effect mortality or morbidity (p=0.43, p=0.66 respectively). The rate of bronchopleural fistula was not higher in patients with tuberculosis (p=0.23). Tuberculosis seemed to be associated with N1 disease. The patients with tuberculosis had statistically significant worse survival compared to non-tuberculous patients (p=0.02). Multivariate analysis revealed that, tuberculosis in non-small cell lung cancer patients was an independent prognostic factor (p=0.01).
Conclusions/Uploads: Presence of tuberculosis should not prevent or delay the planned surgery for non-small cell lung cancer. However, it seemed to decrease the survival. It could be speculated to be due to immunological factors or postoperative performance status. Further studies are warranted in order to elucidate the mechanism of this effect.
Disclosure: All authors have declared no conflicts of interest.

P-165 LUNG CANCER CT SCREENING FACILITATES MINIMALLY INVASIVE THORACIC SURGERY

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Background/Objectives: The aim of Lung Cancer CT Screening is to detect early stage lung cancer. VATS lobectomy has proved to be a safe and effective method for treating early lung cancer. The relation between Lung Cancer CT Screening and Minimal Invasive Thoracic Surgery has not yet been described in the literature. Does early detection of lung cancer facilitate the use of minimal invasive thoracic surgery?
Materials & Methods: In the Danish randomized Lunge Cancer CT Screening Trial (DLCST), 4104 smokers and previous smokers from 2004 to 2006 were randomized to either screening with annual low dose CT scans for 5 years or no screening. Until December 2009, 53 patients with lung cancer were detected in the CT screened group. Furthermore one patient with lung metastasis, one patient with lymphoma and seven patients with a benign nodule underwent surgical treatment due to suspicion of malignancy. Since CT guided biopsy is difficult in small nodules, we used VATS wedge resection and frozen section as a diagnostic tool. In case of lung cancer, VATS lobectomy was performed within the same procedure.
Results: 40 of the 53 lung cancers were eligible for surgical treatment. 31 patients had a VATS lobectomy, of which two were converted to thoracotomy. Four patients had a VATS wedge resection. Four patients had an open lobectomy. One patient had an open pneumonectomy. 33 of 40 patients (83%) were treated with Minimal Invasive Thoracic Surgery. The seven patients with metastasis, lymphoma and benign nodules were treated with VATS wedge resections and in one case a VATS lobectomy.
Conclusions/Uploads: Lung Cancer CT Screening seems to facilitate the use of Minimal Invasive Thoracic Surgery in the treatment of lung cancer with an 83% rate (95% confidence interval: 67%-93%) in our data. Furthermore all benign nodules could be removed by Minimal Invasive Thoracic Surgery.
Disclosure: All authors have declared no conflicts of interest.

P-166 LUNG CANCER RESECTION IN ELDERLY PATIENTS: VATS OFFERS FASTER RECOVERY

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Background/Objectives: Advanced age is a risk factor for developing lung cancer, but paradoxically curative lung resection surgery in elderly patients carries higher risk. Video-Assisted Thoracic Surgery (VATS) may potentially reduce operative morbidity, but evidence for its use in very elderly patients is limited.
Materials & Methods: Consecutive patients aged 75 years or over receiving curative resection for clinically early-stage primary lung cancer from March 2006 to November 2009 were recruited for study. The choice of surgical approach was at the surgeon's discretion. All demographic, clinical and follow-up data were retrieved from hospital patient records.
Results: Seventy-six patients with a median age of 78 years (range: 75-85) were recruited. The resections performed included 7 wedge resections, 63 lobectomies and 5 bi-lobectomies. A complete VATS approach was used in 22 patients (29%). There was no in-hospital mortality in any patient, but minor complications occurred in 30 patients (39,5%). Overall actuarial recurrence-free survival rates at 1 year and 3 years were 94,4% and 62,2% respectively. The VATS approach gave similar survival rates as open thoracotomy, but patients receiving VATS had significantly shorter operation times (159 mins versus 206 mins; p=0,005) and a trend towards shorter chest drain durations (4,7 days versus 6,1 days; p=0,079). Patients receiving the VATS approach had significantly shorter hospital stays (6,9 days versus 9,6; p=0,004). Use of VATS significantly reduced the proportion of patients requiring prolonged hospital stays of over 7 days (36,1% versus 70%; p=0,006). No other demographic or clinical variable was associated with improved post-operative outcome or development of complications.
Conclusions/Uploads: Major lung resection for very elderly patients is safe and feasible, and offers reasonable survival in lung cancer. For these patients, the use of a VATS approach may offer faster recovery and potentially less morbidity. Further studies are required to confirm the role of VATS for very elderly patients.
Disclosure: All authors have declared no conflicts of interest.

P-167 THE FOURTH DIMENSION OF LUNGS: FRACTAL GEOMETRY AND BRONCHIAL TREES

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Background/Objectives: Bronchial trees exhibit fractal nature. A theoretical mathematical models relating fractal lungs is presented.
Materials & Methods: Lung model was constructed measuring fractal dimension of in situ vascular tree from cross-sections of host tissue specimen stained with blood-vessel marker. Any cross-section was randomly selected and examined microscopically by resolution suitable to relevant vascular sizes. Vessel's radius (r) was measured from minor axis of vessel, and number of vessels larger in radius was counted to calculate density per-unit area (D). Distributions of morphological quantities, along vessel size, have been estimated in semi-quantitative ways in systemic vasculatures (Figure 1.a). In stochastic approach, we have introduced aggregated branch-length and related it to probability density function φ(r). Aggregated branch-length was defined as branch-length of vessels in group sorted for radius around r within certain minute deviation (dr), by employing density function of aggregated length la(r): $la(r)dr=\lambda\varphi(r)dr$.
Results: When acquired power function of r is normalized with total count, it represents probability (r) that branch larger than r in radius is observed in any unit area of cross-section and can be written with probability density function Φ(r) (Figure 1.b). Surface area (ΔS) (Figure 1.c) and content volume (ΔV) of branches (Figure 1.d) are obtained by integrating for given radius range. When values of D and λ are given, ΔS and ΔV can be calculated from fractal-based integrals for any radius range.
Conclusions/Uploads: Fractal-based integrals describe structural parameters of bronchial trees with discrete functions of branch radii. Distribution of content air volume (ΔV) may provide accurate modeling of diffusion and ventilation processes of gases in bronchial duct branches and alveoli. Integral of surface area (ΔS) is informative when bronchial ducts contain drugs. Further elaborations, between ΔV and vessel radius, may provide a model for lung perfusion. Fractal geometry of life may be envisaged, and considered as belonging to new sub-discipline: fractalomics.
Disclosure: All authors have declared no conflicts of interest.

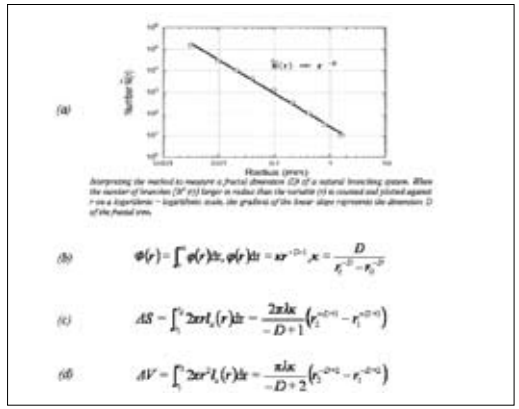

Figure 1.
(a) Interpreting the method to measure a fractal dimension (D) of a natural branching system; (b) Probability density function, Φ(r); (c) Surface area, ΔS; (d) Content volume of branches, ΔV.

P-168 EXPRESSION OF MELANOMA-ASSOCIATED ANTIGENS (MAGE) IN STAGE I NSCLC

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Background/Objectives: Despite a favorable prognosis of stage I NSCLC still a fraction of the patients relapse. Predictive molecular markers could identify patients who migh benefit from adjuvant therapies. Tumor associated antigens (TAA) have been used in advanced NSCLC as targets for specific immunotherapy. Nevertheless, data of their expression in early-stage NSCLC are not yet available. Here we analyzed the prevalence and the prognostic significance of the C/T family members MAGE-A and NY-ESO in stage I NSCLC.
Materials & Methods: We constructed a tissue microarray (TMA) comprising 519 surgical specimens from stage I NSCLC patients, who underwent surgery either at the University Hospital Basel or Berne. Semi-quantitative expression of the MAGE-A and NY-ESO proteins was determined by immunohistochemistry. We analyzed the association with morphological parameters the proliferation marker Ki67, and prognosis.
Results: 44% of NSCLC stage I tumors expressed either MAGE-A or NY-ESO protein. Squamous cell carcinomas (SCC) showed the highest prevalence of MAGE-A protein expression (58%, 131 of 223), and in these tumors, the expression of both C/Ts correlated significantly with each other ($p<0.001$). Adenocarcinomas (AC) were less frequently MAGE-A and NY-ESO positive as compared to SCC and LCC ($p<0.05$). In AC MAGE-A positivity was associated with poor histological grade and increased tumor cell proliferation ($p<0.05$ each). In LCCs, but not in SCC, increased MAGE-A and NY-ESO protein expression were associated with tumor cell proliferation ($p<0.05$ each). Survival analysis revealed that the expression of C/T proteins does not impact on prognosis of stage I NSCLC patients.
Conclusions/Uploads: MAGE-A and NY-ESO protein expression prevails in more than 40% of stage I NSCLC. Although their expression does not correlate with prognosis, this subset of stage I patients might be candidates for a specific immunotherapy targeted against TAAs.
Disclosure: All authors have declared no conflicts of interest.

P-169 NON-SMALL-CELL LUNG CANCER WITH SYNCHRONOUS BRAIN METASTASIS: PROGNOSTIC FACTORS IN SURGICAL PATIENTS

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Background/Objectives: 25%-38.1% of lung cancer patients have brain metastases; 7.4% synchronous to lung tumor. Although that situation contraindicates curative lung surgery, the case of brain and adrenal metastasis are the exception. Those indications still remain controversial, so in this work we try to find prognostic factors that warrant it.
Materials & Methods: Case-control study. Inclusion criteria: consecutive patients between 1990-2009 with NSCLC and synchronous, unique and localized brain metastasis, that achieve surgical criteria. Patients must have undergone brain curative treatment prior to lung surgery. Variables: age, sex, lung tumor location, histology, pathological staging, type of surgery and its completeness. Statistical analysis: Sigma 2 (Horus Hardware), Kaplan-Meier for survival observation and Logrank test for its comparison.
Results: n=42. Cases: 32 resected. Controls: 10 without resection. Overall Survival: 1 year, 51%, 3 years, 8.5%, 5 years, 3.75%. Age: Average: 56 years. Difference in survival between <60 and >60: p=0.3659. Lung tumor location:17 central, 25 peripheral. Difference of survival: p=0.444 Survival according to whether they received resection: Not resected (Median Survival (MS)=183days): 1year, 14%, 3years, 0%, 5years, 0%. (Maximum 398 days) Resected (MS=352 days): 1year, 45%, 3years, 8.5%, 5years, 3.75%. Difference between resected and not resected: p=0.019. SIGNIFICANT Survival according to type of resection:10 complete and 22 incomplete. Survival difference: p=0.4987. Survival according T descriptor: T1-T2(MS=365days): 1year, 50%, 3years,17%, 5years, 14%. T3-T4 (MS=224days): 1year, 37%, 3years, 14%, 5years, 0%. Difference between T1-T2 and T3-T4: p=0.5032 Survival according N descriptor: N0-N1(MS=420days): 1year, 62%, 3years, 16%, 5years,6%. N2-N3 (MS=183days): 1year, 17%, 3years, 0%, 5years, 0%. Difference between N0-N1 and N2-N3: $p<0.05$: SIGNIFICANT Survival by histology: Total patients: 13 squamous, 25 adenocarcinoma, 4 large cell Epidermoid (MS=120days): 1year, 10%, 3years 0%, 5years,0% (Maximum 426days) Adenocarcinoma (MS=366days): 1year, 50%, 3years, 5%, 5years, 0%. Difference between epidermoid and adenocarcinoma: $p<0.05$: SIGNIFICANT
Conclusions/Uploads: Lung surgery with curative intent in these patients does have meaning, as it provides improved survival. Patients who will benefit most from surgery are those with adenocarcinoma histology and N0-N1 descriptor.
Disclosure: All authors have declared no conflicts of interest.

P-170 SEVENTH STAGING SYSTEM FOR NON-SMALL CELL LUNG CANCER: VALIDATION ANALYSIS AND NEW RECOMMENDATIONS

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Background/Objectives: Staging is of paramount importance in treatment planning, recommendation of best treatment modality and survival predilection.Despite the multinational, multiinstitutional basis of the database which has been used for construction of 7th staging system, data regarding lymph node staging and histopathologic markers remained suboptimal and it prones to selection-bias. We aimed to validate the new staging system using our data and to suggest new staging recommendations which can be investigated for upcoming staging..
Materials & Methods: Seven-hundred seventyfive patients (730 men, 45 women)who had undergone complete surgical resection for non-small cell lung cancer between January 1995 and December 2008 were investigated. Nearly all patients underwent cervical mediastinoscopy before planned surgery. Mean age was 57.0 (ranging from 17 to 84) years. Mean follow-up time was 25 months (ranging from 1 to 175 months). Kaplan Meier analysis along with log-rank test and Cox multivariate analysis were used.
Results: Five year survival of in our series was 55.5%, median survival time was 88±7 months (95% CI:85-111 months). Statistically significantly different stage stratifications according to new T staging were observed (p=0.03). Patients with T1a tumors had better survival than those with T1b tumors (p=0.04). Patients with tumors greater than 7cm had similar survival rate compared to those with T3 tumors. Patients with T4N0 tumors had similar survival compared to survival of stage IIIA patients. In addition, patients with multiple-node N2 involvement, those with single N2 metastasis, cases with multiple-station N1 disease and single station N1 patients had statistically different survival curves (p=0.02). Perineural involvement and ERCC1 expression independently indicated worse survival (p=0.02 and p=0.04 respectively.
Conclusions/Uploads: New staging system seemed to better stratify patients according to new T, N and M definitions. However, multiple station nodal involvement, perineural invasion and ERCC1 expression could be new candidates for forthcoming staging.
Disclosure: All authors have declared no conflicts of interest.

P-171 CLINICAL OUTCOMES OF PULMONARY RESECTION FOR NON-SMALL CELL LUNG CANCER IN PATIENTS WITH CHRONIC KIDNEY DISEASE

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Background/Objectives: The aim of this study is to evaluate the postoperative outcomes in patients with chronic kidney disease (CKD) who underwent pulmonary resection for non-small cell lung cancer (NSCLC)
Materials & Methods: Between 1995 and 2009, 13 patients with CKD who underwent pulmonary resection for NSCLC were included. We retrospectively evaluated the postoperative morbidity and mortality.
Results: Total of 13 patients with various stages of CKD were included: five patients with CKD stage 5, 3 with CKD stage 4, 5 with CKD stage 3. The preoperative mean levels of blood urea nitrogen and serum creatinine were 44.4 mg/dL and 3.95mg/dL. Mean estimated glomerular filtration rate was 24mL/min/1.73m^2. Among them four patients were on hemodialysis preoperatively. Surgery consisted of 11 lobectomy (included 4 VATS lobectomy), and 2 pneumonectomy with mediastinal lymph node dissection. The histologic diagnosis were adenocarcinoma in 8 patients, and squamous cell carcinoma in 5. The pathologic stages were: IA (n=1), IB (n=3), IIA (n=2) IIB (n=1) IIIA (n=5), and IV (n=1). The mean follow up were 16 months (ranging from 20 days to 91 months). There was no mortality associated with CKD. There were two early mortalities. One patient died of brain stem infarction, and one died of pneumonia who had active pulmonary tuberculosis. Both of them had stage 3 CKD. There were two postoperative morbidities. One patient with CKD stage 5 required hemodialysis postoperatively because of progression of CKD. The other patient who were on hemodialysis preoperatively developed pulmonary edema. The morbidity rate in patients with stage 5 CKD was 40%.
Conclusions/Uploads: This study shows that the undelying CKD in patients who underwent pulmonary resection can increase morbidity especillay in stage 5 CKD. But CKD is not a contraindication of pulmonary resetion for NSCLC and careful postoperative management can lead to successful outcomes in selected cases.
Disclosure: All authors have declared no conflicts of interest.

P-172 DE NOVO BRONCHIAL CARCINOMA AFTER RENAL TRANSPLANTATION – RESULTS OF A SINGLE CENTER

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Background/Objectives: Continous immunosuppressive therapy (IS) implicates a higher risk for malignant tumours. In our study we investigated incidence and clinical course of bronchial carcinoma in patients who underwent single kidney transplantation (SK) or combined pancreas-kidney transplantation (SPK).
Materials & Methods: From 1996 to 2008 a retrospective data analysis of all SK and SPK transplant patients was done who subsequently developed bronchial carcinoma.
Results: Out of 1641 patients (m/f 1070/571) 10 patients (0.61%) developed bronchial carcinoma (male 8, female 2). In 2 patients SPK and in 8 patients SK transplantation had been performed. Median age at time of transplantation was 60 years (39-72 y). Underlying disease was diabetic nephropathy in 5 patients, glomerulonephritis in 3 and renal fibrosis in 2 patients. In all immuno-suppression consisted in calcineurin based triple-therapy (tacrolimus and cyclosporin in 5 cases respectively). Chest x-rays before transplantation did not show any tumour-specific radiological findings even after retrospective reevaluation. At anamnesis 9 patients referred a smoking-history. Median time between tansplantation and tumour-diagnosis was 36 (7-149) months, 9 patients were classified as UICC stage IV at diagnosis of bronchial carcinoma. 6 patients were treated with palliative radio-and/or chemotherapy, 3 patients by best supportive care. One patients staged as UICC Ib underwent surgical resection in curative intention. This patient is actually relapse free 14 months after surgery. Another patient is alive after polychemotherapy (carboplatin/taxotere/cetuximab) with stable disease 7 months after diagnosis. All other patients died due to tumour progression, median survival was 7 (1-13) months.
Conclusions/Uploads: In this series cumulative incidence of bronchial carcinoma (0.61%) is almost ten times higher as compared to a non-immunosuppressed population (66.1/100000). Almost all tumours had distant metastases at diagnosis. We propose to evaluate and develop special screening-programs for transplant patients with a history of smoking.
Disclosure: All authors have declared no conflicts of interest.

P-173 PULMONARY CARCINOID TUMORS: THE ROLE OF FDG-PET SCAN

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Background/Objectives: Positron Emission Tomography as additional investigation to computer tomography for lung carcinoid remains controversial. The aim of this study was to investigate the role of PET scan on the diagnosis and staging of the carcinoid tumours.
Materials & Methods: From July 1998 to April 2009, 113 patients, 75 females (66%), with a median age of 60 years (range 15-80), underwent surgery for carcinoid tumors. All patients preoperatively performed an integrated positron emission tomography using fluorodeoxyglucose-PET/computed tomographic [FDG-PET/CT] scan with the maximum standardized uptake values (maxSUVs) reported in 99 patients out of 113. All cases were reviewed and classified as typical (TC) and atypical carcinoid (AC) according to WHO criteria.
Results: There were 70 (62%) patients with TC and 43 (38%) with AC. Overall Sensitivity of PET was 67% (76 positive out of 113) with 37/113 (33%) false negative. PET scan sensitivity for TC was 58.6% while for AC resulted 81.4% (p=0.012). Median size of the tumor in false negatives resulted 15mm versus 32 mm of true-positives (p=0.026). We observed more frequently AC with a max SUV $\geq$ 2.5 than with <2.5 (71% vs 28%; p=0.017). Twenty-three patients resulted pN1/N2, in only three of these patients the CT scan showed nodes > 1 cm confirmed by PET scan positivity. In univariate and multivariate analysis, prognostic factors significantly associated with histology of AC where node involvement, tumor size and a suvmax $\geq$ 2.5. Recurrence was observed in 11/113(10%) patients, none of these performed the PET scan during the follow up. Overall survival and recurrence free survival probability were not modified by PET positivity and/or SUV value.
Conclusions/Uploads: In those carcinoids with lesion or adenopathy > than 1 cm the FDG-PET/CT scan played an important role in the diagnosis as well staging of the tumour. Atypical carcinoid present an higher metabolic activity.
Disclosure: All authors have declared no conflicts of interest.

P-174 SURGICAL APPROACH FOR PULMONARY METASTASECTOMY: DOES IT REALLY MATTER?

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Background/Objectives: The most suitable surgical approach for pulmonary metastasectomy remains unclear in terms of disease-free and overall survival. We analyzed the course, outcome and prognosis impact of surgical approach (VATS vs thoracotomy) for pulmonary metastasectomy from epithelial origin tumors.
Materials & Methods: From January 1997 to December 2008, 170 patients underwent pulmonary metastasectomy with complete resection at our Institution, having performed 240 procedures. According to the first episode of pulmonary metastasectomy, patients with epithelial primary tumor, solitary pulmonary metastases and no lymph-node involvement(N0p) were included in our study. Patients were split up into two groups depending on the surgical approach (Group A:VATS 17 and Group B:Thoracotomy 66 patients). Median follow up was 40 months.
Results: Median age was (A=63,5;B=66 years p=0,4) with a male ratio (A=64,7%;B=71,2% p=0,62). There were not statistical differences regarding rate of patients with colorectal cancer (A:70,6% vs B:71,2% p=1,0),synchronous metastases (A:23,5% y B:12,1% p=0,25), disease-free interval in metachronous metastases (A:33,9 vs B:37,9 months p=0,52) and rate of patients with extrapulmonary metastases before first pulmonary metastasectomy (A:11,8% vs B:12,1% p=1,0). There was significant difference about median size of metastases (A:15,8 mm vs B: 26,4 mm p=0,002), but it did not influence over disease-free survival (Cox HR=0,88/sd=0,15/p=0,5) nor overall survival (Cox HR=0,99/sd=0,01/p=0,6). According to pathological analysis, rate of patients with unnoticed metastases on CT was not different (A:1/17=5,9% vs B:7/66=10,6% p=1,0) and mean of episodes of pulmonary metastasectomy was similar (A:1,24 vs B:1,12 p=0,4). Median disease-free survival was the same (21 months), and 2-year and 5-year disease-survival were (A:29,9%;B:42,1%) and (A:14,9%; B:29,7%) respectively (Cox HR=0,9/sd=0,32/p=0,79). Median overall survival was (A:80 and B:45 months), 2-year survival (A:66,3% B:74,5%) and 5-year survival (A:53% B:40,1%), without any statistical difference (Cox HR=1,52/ sd=0,68/ p=0,34).
Conclusions/Uploads: VATS for pulmonary metastasectomy does not entail any detriment over disease-free and overall survival, so we consider it the treatment of choice.
Disclosure: All authors have declared no conflicts of interest.

P-175 PULSED ULTRASOUNDS ACCELERATE RIB FRACTURES HEALING IN AN EXPERIMENTAL ANIMAL MODEL: A NEW EFFECTIVE THERAPY?

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Background/Objectives: Rib fractures (RF) are a frequent traumatic injury associated with a relatively high morbidity. Currently, the treatment of RF is symptomatic. Since it has been reported that pulsed ultrasounds (PUS) accelerates repair of limb fractures, we hypothesized that the application of PUS will modify the course of healing in an animal model of RF.
Materials & Methods: We studied 136 male, Sprague-Dawley rats. Animals were randomly assigned to different groups of doses (none, 50, 100 and 250 mW/cm^2 of intensity for 3 min per day) and duration (2, 10, 20 and 28 days) of treatment with PUS. In each group, we analyzed radiological and histological changes in the bone callus. In addition, we examined changes in gene expression of relevant genes involved in wound repair in both control and treated animals
Results: Histological and radiological consolidation was significantly increased by PUS treatment when applied for more than 10 days. 50 mW/cm^2 was the most effective dose. Only the 100 and 250 mW/cm^2 doses were able to significantly increase mRNA expression of IGF1, SOCS2, SOCS3 and VEGF, and decrease MCP-1 and COL2a1.
Conclusions/Uploads: Our findings indicate that PUS accelerates the consolidation of RF. This study is the first to show that PUS promotes the healing of RF. This easy and cheap technique could serve as an effective new therapeutic modality in patients with RF.
Disclosure: All authors have declared no conflicts of interest.

P-176 MARIJUANA INDUCED PNEUMOTHORAX. ENIGMA UNVEILED?

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Background/Objectives: Lung emphysaema research lacks proper animal models. Observations on cannabis smokers' agressive pneumothorax induced us to conduct experiments in a predictive animal (mouse) model, investigating marijuana smoke's effect on developing emphysaema and lung inflammation.
Materials & Methods: CD1 mice were exposed to smoke of cigarettes containing chopped dried marijuana (n=30, 15 male, 15 female; 0.4±0.02w/w% THC; 2 cigarettes twice a day throughout 1-3-months). Experiments with research cigarettes were paralelly performed for comparison (n=30, 15 male, 15 female). Airway reactivity to inhaled carbachol (22 mM) was measured with unrestrained whole body plethysmography and the total cannabinoid content of the urine was determined every week. Histological examination (HE staines) was performed, as well as computer tomography scans monthly. For statistical analysis two-sample t-probe was used.
Results: Avarage THC concentration in the mice's urine was 62,800±4,133 ng/ml. At the 11th day, induced airway reactivity was 1062,480±151,319% of the baseline in the cannabis group, significantly larger (p=0,00266) than the cigarette group (298,261±110,049). Hyperreactivity started to elevate at the 8th week in the cigarette group (309,702±188,969%) which was still significantly lower (p=0,00378) than the cannabis group (1190,778±114,171%). The two groups began to approach at the 14th week: cigarette group's induced hyperreactivity was 768,068±184,873% and cannabis group's 1015,664±162,774% (not significant, p=0,35420). The histological pictures showed definitive inflammatory changes, furthermore atelectasia and emphysema particularly in the apical regions in response to 1 month marijuana administration. At 2 and 3 months the number of inflammatory cells and the emphysema markedly increased. In the cigarette smoke-exposed group inflammation and emphysema appeared later and the histopathological changes were less severe. CT scans in the marijuana-exposed group showed approximately 1 mm diameter bullae from the third month.
Conclusions/Uploads: In spite of received wisdom, marijuana smoke destroys lung parenchyma, causing secondary pneumothorax. Cannabis do induces more severe emphysema and hyperresponsiveness, significantly greater inflammation than conventional nicotin/cigarettes.
Disclosure: All authors have declared no conflicts of interest.

P-177 THE PROGNOSTIC FACTORS OF MULTIPLE PRIMARY LUNG CANCERS

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Background/Objectives: The incidence of multiple primary lung cancers(MPLCs) ranges from 1% to 10%. Despite a recently reported increase, there are a few series reporting MPLCs and the prognosis remains undetermined. Therefore, we reviewed our experience to identify clinical characteristics and to determine the prognostic factors of MPLCs.
Materials & Methods: Between 1990 and 2008 a series of 1852 patients with primary lung cancer underwent surgical resection with curative intent in our institution. We reviewed retrospectively the patients who diagnosed and treated for MPLCs.
Results: MPLCs developed in 59(3.2%). Synchronous MPLCs were in 18(1.0%) and metachronous MPLCs were in 41 (2.2%). Median follow up time was 60.8 months (range, 12.2 to 161.1months). Histological concordance was 44.4% in synchronous MPLCs, 68.3% in metachronous MPLCs. The overall 5 year survival for all patients with MPLCs was 49.8% (synchronous, 55.9 %; metachronous , 48.0%; p=0.344). In metachronous MPLC, the incidence rate increased from 2.3% for the first 5 years after surgical resection to 9.3% after the fifth year. The contributing of smoking, adjuvant radiotherapy, adjuvant chemotherapy and pneumonectomy status to the development of metachronous MPLCs was not significant (p=0.823, p=0.06, p=0.319, p=0.083, respectively). The surgical procedures were done in 24 (58.5%) and the operative mortality in 2 (4.9%) with metachronous MPLC patients. The 5-year survival who underwent surgical resection was significantly better compared those with other treatment modalities (78.1% versus 0%; p<0.0001). There was no death during follow up periods in limited resection group. Survival of patients at stage I was significantly better compared with those at all other stages (71.1% vs 7.7%; p<0.0001).
Conclusions/Uploads: Surgical treatment is effective in patients with MPLCs. In metachronous MPLCs, surgical treatment is optimal if it is possible after full assessment and limited resection may be adequate resection. A long term follow-up policy is necessary for early detection of a metachronous lesion.
Disclosure: All authors have declared no conflicts of interest.

P-178 PHOTODYNAMIC THERAPY ENHANCES LIPODOXORUBCIN DISTRIBUTION IN SARCOMA LUNG METASTASIS BY LOWERING TUMOR INTERSTITIAL FLUID PRESSURE IN A RODENT MODEL

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Background/Objectives: The management of sarcoma metastasis by systemic chemotherapy is often unsatisfactory. This has paradoxally been attributed to the leakiness of tumor neovessels which induce high intratumor interstitial fluid pressure (IFP) and limit convection forces that are important for drug distribution. In a rodent model, we have recently shown that photodynamic (PDT) pre treatment of lung metastasis could enhance their uptake of chemotherapy. We hypothesized that PDT transiently decreases tumor IFP which enhances convection and promotes drug distribution.
Materials & Methods: Sarcoma tumors were generated sub-pleurally in the lungs of 12 rats. Animals were randomized at 10 days into i. no pre-treatment (control) and ii. low dose PDT pre-treatment (0.0625 mg/kg Visudyne®, 10J/cm^2 and 35 mW/cm^2) followed by intravenous Liposomal doxorubicin (Liporubicin™) administration. Using the wick-in-needle technique, we determined tumor and normal tissue IFP before, during and after PDT. In parallel, the uptake of Liporubicin™ was determined by high performance liquid chromatography in tumor and lung tissues.
Results: Tumor IFP was significantly higher than normal tissue IFP in all animals. PDT pre-treatment did not affect normal tissue IFP but caused a significant decrease in tumor IFP (mean decrease by 2+/- 1mmHg) which lasted an average of 30 minutes before reaching baseline values. Tumor but not normal lung tissue Liporubicin™ uptake was significantly increased by 67% with PDT pre-treatment when liporubicin was allowed to circulate for one hour.
Conclusions/Uploads: Photodynamic therapy pre-treatment enhances Liporubicin™ uptake in sarcoma lung metastasis by transiently decreasing tumor IFP. These PDT conditions seem to specifically modulate tumor neovessels but not normal lung vessels.
Disclosure: All authors have declared no conflicts of interest.

P-179 IMMUNOTARGETING OF THE PULMONARY ENDOTHELIUM VIA ANGIOTENSIN-CONVERTING-ENZYME IN ISOLATED VENTILATED AND PERFUSED HUMAN LUNG

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Background/Objectives: Vascular immunotargeting of catalase via Angiotensin-Converting-Enzyme (ACE) attenuated lung ischemia reperfusion injury. As this might be a promising modality for extension of the viability of banked transplantation tissue, we tested the hypothesis whether ACE antibodies are suitable for human lung protection within the model of isolated perfused and ventilated human lung resections.
Materials & Methods: Human lung cancer resection specimens were isolated, ventilated and perfused under physiological conditions with ethic and patient consent. Lungs were perfused with 500µg of either IgG as a negative control (n=3) or monoclonal isoantibodies of ACE named 9B9, I2h5, 3G8 (each n=3) over a period of 40min. There after unbound antibodies were washed out over a period of 20 min. Perfusion pressure, pH and lung weight gain were measured before and during perfusion. After perfusion lung and tumor tissue was investigated on immunohistochemistry and binding of antibodies and on ACE activity. Furthermore ACE activity and antibody concentration were measured within the perfusate during perfusion.
Results: ACE activity in normal lung tissue (17±6U/l) was significantly higher compared to tumor tissue (6±3; $p<0.01$)without differences between the groups. Absolute retaining of mAbs was with 1.3±1.1%/g of injected dose in normal lung tissue and 0.7±0.7%/g of injected dose in tumor tissue significantly higher compared to IgG (0.1±0.1%/g; $p<0.01$). ACE antibody concentration dropped significantly from initial 100% to 47±11% ($p<0.001$) at 40min of perfusion to final 7±3% ($p<0.001$) after wash out period. No difference between isoantibodies has been observed. Isoantibody 9B9 showed the most intense immunostaining after each experiment in normal and tumor lung tissue compared to IgG, i2H5 and 3G8 ($p<0.01$).
Conclusions/Uploads: These results validate immunotargeting by anti-ACE of the pulmonary endothelium in the human lung tissue under in vivo conditions. Furthermore the model might be useful to investigate targeted therapies in lung cancer without side effects for the patient.
Disclosure: All authors have declared no conflicts of interest.

P-180 FDG-MICROPET IMAGING TO CONFIRM BRAIN DEATH IN A MOUSE MODEL: A USEFUL TOOL TO STUDY RELATED DONOR LUNG INJURY

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Background/Objectives: Donors after brain death (BD) remain the largest source of organs for lung transplantation. The majority of these lungs, however, are declined because of BD-related lung injury. A reliable BD mouse model is indispensable to further understand the immunological mechanisms leading to lung injury comparing wild-type versus knock-out animals and to find new treatment strategies. Existing tools to validate BD such as electro-encephalogram or brain-stem auditory evoked responses are difficult to perform in small animals. In this study we wanted to validate BD in mice using small-animal positron emission tomography (PET).
Materials & Methods: Ten adult male Balb/c mice (25.7 ± 0.9g) were anesthetized, tracheotomized and mechanically ventilated. Animals were randomly divided into 2 groups (n=5 each): sham [SH] and [BD]. In [BD], a subdural balloon catheter (2F) was rapidly inflated. In [SH], the balloon catheter was inserted but not inflated. Ten minutes after balloon inflation/insertion an intravenous injection of 11MBq [(18)F]-fluoro-2-deoxy-D-glucose (FDG) was given and dynamic imaging was performed on a FOCUS 220 microPET for ten minutes. Quantification was done by a volume-of-interest-based analysis after image alignment with the DigiMouse Atlas.
Results: Transversal (T), sagittal (S), and coronal (C) sections of relative FDG intensities in [SH] versus [BD] are presented in Figure 1. A significant decrease in percentage uptake in brain of injected FDG was found in [BD] (0.27 ± 0.03%) when compared to [SH] (2.60 ± 0.19%); $p<0.0001$. The reduction in FDG-uptake correlated with decrease in blood pressure (r^2:0.57; $p<0.05$) and increase in heart frequency (r^2:0.53; $p<0.05$) observed at twenty minutes in previous identical studies.
Conclusions/Uploads: FDG-microPET imaging is a valuable and applicable tool to demonstrate the absence of brain functionality. FDG-microPET, therefore, is a useful surrogate test to confirm BD in mice. This model will help to further investigate underlying mechanisms as well as new treatment strategies for BD-related donor lung injury.
Disclosure: S. Wauters: This study was supported by a grant (G.0282.07) from FWO-Flanders. D.E. Van Raemdonck: Dirk Van Raemdonck is supported by grant G.3C04.99 from FWO-Flanders. All other authors have declared no conflicts of interest.

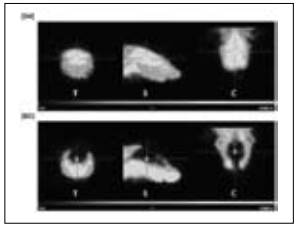

Figure 1.
Transversal (T), sagittal (S), and coronal (C) sections showing relative intensities for fluoro-2-deoxy-D-glucose (FDG) in brain (+) in sham [SH] and brain-dead [BD] mice.

NOTES

NOTES

Tuesday, 01 June 2010
08:30 - 17:00
Poster Session - Tuesday Posters

P-181 LUNG TRANSPLANT IMMUNOSUPPRESSIVE DRUGS INFLUENCE PULMONARY SURFACTANT PROTEIN A (SP-A) EXPRESSION

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Background/Objectives: Pulmonary surfactant protein A (SP-A) contributes to innate host defense serving as an opsonin, regulating phospholipd homestasis, and regulating pulmonary innate and adaptive immune response. SP-A is a polymer encoded by two genes, SP-A1 and SP-A2. We studied the influence of lung transplant immunosuppressive drugs, steroids and calcineurin inhibitors, on SP-A expression.
Materials & Methods: NCI-H441 human cells cultures have been incubated for 24Hrs using ten fold incremental doses of methylprednisolone, or tacrolimus ($10^{-5,-6,-7,-8,-9}$ M). SP-A1 and SP-A2 mRNA and SP-A protein expression were assayed respectively, by real time RT-PCR and Western blot. Results were analyzed using a mixed model for SP-A expression as a function of drug concentration adjusting for GADPH (endo-gene/protein) expression. Dunnett and Bonferroni methods were used to correct for multiple comparisons.
Results: Real time RT-PCR (Fig.1) showed that methylprednisolone at high concentrations (10^{-5}M and 10^{-6}M) decreased SP-A1 and SP-A2 mRNA expression as compared to control as well as to low concentration (10^{-7}M -10^{-9}M) ($p<0.005$). Tacrolimus (Fig.1) provided a significant variation of SP-A mRNA expression by drug concentration. Box plot show median and interquartile range. Western blot revealed that methylprednisolone at high concentrations (10^{-5}M median absorbance 0, interquartile range 0-0.005, and 10^{-6}M median 0.002, interquartile range 0-0.009) had significantly decreased SP-A protein expression levels compared to control (median 0.95, interquartile range 0.65-1.27) while no difference noted with lower concentrations ($10^{-7,-8,-9}$M). No significant difference was noted for tacrolimus.
Conclusions/Uploads: SP-A expression in vitro is influenced by immunosuppressive drugs routinely used in lung transplantation. Methylprednisolone varies in a dose dependent fashion the mRNA expression of both genes SP-A1 and SP-A2 as well as total SP-A protein expression. Tacrolimus seems to influence only the SP-A2 gene mRNA expression. A potential impact on clinical lung allograft innate immunity is speculated.
Disclosure: All authors have declared no conflicts of interest.

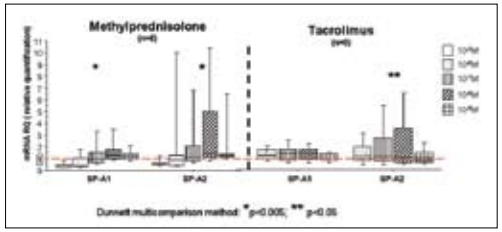

Figure 1

P-182 RESULTS OF VACUUM–ASSISTED CLOSURE SYSTEM USE IN TREATMENT OF MEDIASTINITIS AFTER CARDIAC SURGERY

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Background/Objectives: To compare results referred to mortality, postoperative complications and hospital staying in patients affected by mediastinitis after cardiac surgery according to modality of treatment.
Materials & Methods: Analysis of a retrospective cohort of 52 patients diagnosed of postoperative mediastinitis between January 2000 and December 2009. Antibiotic therapy was associated with Vacuum-Assisted Closure (VAC) System use (Group A) or conventional technique (immediate or delayed closure after sternal debridement and sternal irrigation after sternal debridement) (Group B).
Results: 4809 patients underwent cardiac surgery during this period. Incidence of mediastinitis was 1.08%. 19 patients (36.5%) were treated using VAC System. Patients in Group B patients were older (70.27±8.87 vs. 62.63± 9.77 years) and presented longer preoperative staying (13.7±12.94 vs. 8.47±5.52 days). Preoperative risk factors were comparable in both groups except for a significant increase in preoperative renal failure in Group A (p: 0.040). Pathogens were similar in both groups, though Group A included all patients affected by A. Baumanii multiresistant. In-hospital mortality was 30.8% (Group A:15.78%; Group B:39.39%). Postoperative complications, related with mediastinitis, were identified in 31.1% of patients in Group A and 68.9% in Group B. Postoperative staying was 77.89±38.54 and 71.88±36.85 days, respectively (p:0.58). Preoperative longer staying (p: 0.033) RR:0.86; IC 95% (0.75-0.98) and older age (p: 0.028) RR:0.83; IC 95% (0.71-0.98) were significant risk factors for mortality in multivariate analysis. BMI>25 was identified as incremental risk factor for Gram negative mediastinitis (p: 0.010) RR:6.47; IC 95% (1.53-27.28) and preoperative renal failure was associated with A. Baumanii multiresistant infection (p: 0.013) RR:12.6; IC 95% (1.67-94.52). No independent risk factors for mortality or postoperative complications were identified in multivariate analysis according to group of mediastinitis treatment.
Conclusions/Uploads: We have detected a decrease of in-hospital mortality and postoperative complications related with mediastinitis treated with the use of the VAC system. However, further studies are needed.
Disclosure: All authors have declared no conflicts of interest.

P-183 EXTRAPLEURAL PNEUMONECTOMY FOR MASAOKA STAGE IVA THYMOMA MAY BE JUSTIFIED IN SELECTED CASES

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Background/Objectives: Complete surgical resection remains the treatment of choice for the treatment of non-metastatic thymoma. Extrapleural pneumonectomy (EPP) has been occasionally performed in selected cases for Masoaka stage IVA thymoma in order to obtain complete resection. We reviewed the outcome of patients treated with EPP for stage IVA thymoma in our institution.
Materials & Methods: A single-institution retrospective study of patients with thymoma Masaoka stage IVA undergoing EPP from 2004 to 2009.
Results: Four patients underwent EPP for Masaoka stage IVA thymoma with WHO classification of B1, B2, B2 and B1, respectively. One patient underwent EPP for recurrent thymoma after resection. Two patients had resection and replacement of the vena cava superior and two resection of the innominate vein without replacement. Complete R0 resection was obtained in all patients. Two patients had induction chemotherapy and three had adjuvant hemithoracic irradiation up to 64 Gy. There was no 90 days post-operative mortality but two patients had major post-operative complications. One patient died 6 month postoperatively from pulmonary embolism without recurrent disease and three are alive and disease-free up to 64 months after the operation (follow up 9-64 months).
Conclusions/Uploads: Our series endorse the results from previous small series and represents an additional piece of evidence that EPP may be justified in selected patients with Masaoka stage IV thymoma since it allowed complete resection and disease-free long-term survival. EPP can be performed together with resection of the superior vena cava or the venous confluence. Most patients were treated with combined treatment modalities but the optimal multimodality strategy remains to be determined.
Disclosure: All authors have declared no conflicts of interest.

P-184 SAFETY AND LONG TERM EFFICACY OF LEFT THORACOSCOPIC ROBOT-ENHANCED THYMECTOMY IN PATIENTS WITH MYASTHENIA GRAVIS

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Background/Objectives: Thymectomy is a widely accepted therapeutic option for patients with myasthenia gravis (MG), but controversies still exist about surgical approach, indication and timing for surgery. We report our long-term clinical and surgical results after robot-assisted thoracoscopic thymectomy in MG patients.
Materials & Methods: Between April 2002 and December 2009, 83 patients (60 females and 23 males; median age 37 years) underwent left-sided thoracoscopic thymectomy using the "da Vinci" robotic system. MGFA classification was adopted for pre- and post-operative evaluation. Pre-operative MGFA class was : I in 6 (7.2%), II in 25 (30.1%), III in 36 (43.4%) and IV in 16 (19.3%).
Results: Median operative time was 120 minutes. No deaths or intraoperative complications occurred. Postoperative complications were observed in 3 (3.6%) patients (1 chylothorax and 2 bleeding requiring blood transfusions). Median hospital stay was 3 days (range 2-14 days). Histologic analysis revealed 67 (80.7%) hyperplasia, 6 (7.2%) atrophy, 6 (7.2%) small thymomas and 4 (4.9%) normal thymus; ectopic thymic tissue was found in 26 (31.3%) patients. Clinical follow-up on 76 (91.6%) patients with at least 12 months of observation (median 53 months, range 12-95) showed 13 (17.1%) complete remissions, 9 (11.8%) pharmacologic remissions, 21 (27.6%) minimal manifestations, 28 (36.9%) improvements, 1 (1.3%) unchanged, 3 (3.9%) worsening, 1 (1.3%) exacerbation. Global benefit rate was 93.4% with a progressive improvement over years (5-year probability of remission and improvement: 33.4% and 95.1%, respectively). Remission was significantly associated with pre-operative MGFA class (p=0.04), a trend to better remission rate was seen in patients with less than 1 year onset of symptoms (p=0.07). Ectopic thymus was associated with lower improvement (p=0.03).
Conclusions/Uploads: Robotic thoracoscopic thymectomy is a safe procedure. Clinical results showed a benefit in a high rate of patients; MGFA class, timing of operation and ectopic thymus predicted clinical outcome.
Disclosure: All authors have declared no conflicts of interest.

P-185 PERICARDIAL RECONSTRUCTION AFTER PARTIAL PERICARDIECTOMY FOR TUMORAL INVASION

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[2]Thoracic Surgery, Emergency Universitary Central Military Hospital, Bucharest/RO

Background/Objectives: To present our experience in pericardial reconstruction after partial pericardiectomy for pericardial tumoral involvement.
Materials & Methods: Retrospective analysis of the medical records. Between April 1991 and July 2009, 168 partial associated pericardiectomies were performed; the pericadiectomies were associated with tumoral resection in: lung cancers invading the pericardium (T_3)-107 cases (63, 69%), anterior mediastinal tumors invading the pericardium-54 cases (32,14 %), pleural mesotheliomas-5 cases (2,97%) and one case (0.59%) of granulomatous tumor involving the diaphragm, abdominal wall, thoracic wall and pericardium.
Results: Of the partial pericardiectomies associated to pneumonectomies (n=107), right pericardiectomy was performed in 58 cases (54,2 %) and left pericardiectomy in 49 cases (45,8%). During the pneumonectomies associated with pericardiectomy, partial left atrial resection was performed in 15 patients. The geometric pericardial reconstruction was accomplished in 105 cases (98,13 %), using permeable synthetic meshes (Mersilene, Prolene etc.). Reconstruction was performed in 57 cases on the right side and in 48 cases on the left side. On the remaining 2 cases (1,87 %), pericardioraphy was performed and a pericardio-pleural window was left for the prophylaxis of cardiac tamponade. After anterior partial pericardiectomies associated with resection of mediastinal tumors (n=54), pericardioplasty was performed only in 15 cases. After extrapleural pneumonectomy for diffuse malignant pleural mesotheliomas, pericardial reconstruction was performed in 3 out of 5 cases using Mersilene® or fenestrated Gore-tex®meshes. In the case of the granulomatos tumor, pericardioplasty wasn`t performed. Mortality and morbidity rates weren`t influenced by the pericardial procedures.
Conclusions/Uploads: Partial pericardiectomy performed for tumors invading the pericardium is indicated in order to achieve oncological resection (R_0). After pneumonectomy, pericardial reconstruction for the prophylaxis of cardiac herniation is mandatory after right pericardiectomy, preferred after left pericardiectomy and questionable after anterior pericardiectomy.
Disclosure: All authors have declared no conflicts of interest.

P-186 SURGICAL TREATMENT OF ACUTE MEDIASTINITIS – 10 YEARS EXPERIENCE OF A SINGLE CENTRE

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Background/Objectives: The surgical treatment of acute mediastinitis is controversial with regards to the transthoracic extension via thoracotomy in acute descending necrotizing mediastinitis (DNM), as well as the type of intervention involved in the treatment of esophageal perforation.
Materials & Methods: Twenty-eight cases of acute mediastinitis treated in a 10 year period are evaluated retrospectively. Diagnosis was established utilizing CT and esophagography. Acute DNM was present in 16 cases (57%) and mediastinal abscesses secondary to thoracic esophageal perforation appeared in 12 cases (43%).
Results: The surgical treatment consisted of cervicomediastinal drainage via a wide cervical incision and debridement, with or without thoracic drainage in patients with DNM, and primary repair of esophageal perforation via thoracotomy associated with transthoracic mediastinal drainage in patients with mediastinal abscess. Surgical cervicomediastinal drainage was urgently employed and involved repeated debridation at short intervals (1-3 days) with lavage twice a day. Descending mediastinopleural extension was treated early on by cervicomediastinal and pleural drainage, transthoracic approach being unnecessary in all cases. In all cases of thoracic esophageal perforation delayed primary repair (from 36 hours - 9 days post perforation) of the defect was performed. A single case of cervical esophageal perforation was treated conservatively (by cervicomediastinal drainage). Complications were observed in 24 (86%) cases (ARDS, MSOF, hemorrhage, empyema, extended chest wall cellulitis, esophageal fistulas, cutaneous defects, vasculitis). On average, the hospital stay was 4 weeks for patients with DNM and 3 weeks for patients with esophageal perforation. The general mortality rate was 21% (6 cases).
Conclusions/Uploads: Urgent cervicomediastinal drainage via a wide cervical incision associated with debridement and lavage is an efficient method of surgical treatment of DNM if applied properly and as many times as necessary. Delayed primary repair efficiently treats thoracic esophageal perforation associated with mediastinal abscess, the hospital stay being significantly shorter than in patients with DNM.
Disclosure: All authors have declared no conflicts of interest.

P-187 THORACOSCOPIC RADICAL THYMECTOMY FOR MYASTHENIA GRAVIS BY A ROBOTIC ASSISTED APPROACH

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[2]*Cardiothoracic Surgery, Maastricht University Medical Centre, Maastricht/NL,*
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Background/Objectives: Myasthenia gravis is a chronic autoimmune neuromuscular disease. Thymectomy has been accepted as an standard treatment for myasthenia gravis. Two-dimensional thoracoscopic thymectomy in the management of myasthenia gravis has been established as an alternative to conventional sternotomy approaches. Recently, the use of three-dimensional robotic assisted videothoracoscopy was suggested to improve the accuracy in radical surgical resection and to reduce operating time. Here we report our 5 year experiences with the Davinci Intuitive Robotic system in thymectomies for myasthenia gravis.
Materials & Methods: We retrospectively analyzed the patients who underwent a thymectomy for myasthenia gravis from December 2004 to January 2009 using the Davinci surgical robotic system (by a 3 port, right-sides approach).
Results: 47 patients (37 females, 10 males), mean age 35 years (range 14-80 years) with underwent a thymectomy using the Davinci surgical robotic system. The median time between onset of myastenia gravis and the procedure was15 months (range 3-72 months). No surgical mortality was reported and there were no complications during the procedure. One procedure was performed eventually by sternotomy because of obesity of the patient. Major postoperative complications occurred in 2 patients (4%), they both experienced respiratory insufficience. Median hospitalization was 4 days (range 3-25 days). Histologic analysis of the resected tissue revealed 21 folliculair hyperplasia, 7 atrophic thymic tissue , 6 normal thymus, 2 lipomas and 11 thymomas (4 type AB, 5 type B2, 1 type B1, 1 type A).
Conclusions/Uploads: A three-dimensional robotic assisted videothoracoscopic approach offers an excellent view and surgical control of the thymus gland and its surroundings. It is an easy and safe way to remove the thymus. It has a big advantage in tiny difficult areas, the complication rate is low and, most important, it is less invasive for the patient.
Disclosure: All authors have declared no conflicts of interest.

P-188 INCIDENCE OF OCCULT MEDIASTINAL NODE INVOLVEMENT IN CN0 NON-SMALL CELL LUNG CANCER PATIENTS AFTER NEGATIVE UPTAKE OF POSITRON EMISION TOMOGRAPHY / COMPUTER TOMOGRAPHY SCAN

A. Gomez-Caro[1], S. Garcia[1], N. Reguart[2], P. Arguis[3], M. Sanchez[3], D. Sanchez[1], J. Gimferrer[1], E. Cladellas[1], R. Marrades[4], F. Lomeña[5];
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[5]Nuclear Medicine, Hospital Clinico y provincial, Barcelona/ES

Background/Objectives: We sought to assess the real incidence of pN2 among the patients with NSCLC (cN0) with negative mediastinal uptake of 2-deoxy-2-(18F)-fluoro-o-glucose (FDG).
Materials & Methods: During a period of 30 consecutive months (JAN2007-MAY2009), all the patients with NSCLC scheduled for surgery in our unit had a preoperative FDG-PET/CT in our institution, after a dedicated chest CT (n=259). Only patients with both FDG-PET/CT and negative dedicated Chest CT scan (N1 and N2 nodes < 1cm) were prospectively included (n=125). Patients with cN1/cN2/cN3 and patients who had undergone preoperative chemo-radiotherapy were excluded. No invasive surgical staging was carried out in this group and curative resection plus systematic mediastinal dissection was performed except in the event of unexpected oncological contraindication. All variables were collected prospectively and when pathological information was obtained, all the cases were carefully reviewed.
Results: Mediastinal assessment by FDG-PET/CT, negative predictive value (NPV) was 85.6%; False negatives (FN) for mediastinal lymph nodes involvement was 14,4%(18 cases). The pN2 stations most frequently involved were: 4R(6 cases), 7(6 cases) and 5(5 cases). Multiple level pN2 occurred in 6 (4.8%) cases. Occult (pN2) lymph nodes were more frequent in women (p
Conclusions/Uploads: Mediastinal staging of NSCLC by FDG-PET/CT showed a considerable incidence of FN. NPV is lower than previously reported and the preoperative mediastinal staging by 18FDG-PET/CT may jeopardize the correct treatment for early stages NSCLC patients, leading them to surgery instead of other more adequate therapy.
Disclosure: All authors have declared no conflicts of interest.

P-189 EXTENDED OPERATION FOR INTRATHORACIC MALIGNANCIES INVADING GREAT VESSELS

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Background/Objectives: We analyzed the results of surgical treatment in patients with intrathoracic malignancies invading the great vessels.
Materials & Methods: From March 2000 to January 2009 73 patients (67 male, 6 female) with thoracic malignancies invading the great vessels were operated in our institution. Lung cancer was diagnosed in 68 cases, mediastinal tumours in 5 (6,8 %). In 64 (87,7 %) patients with non-small-cell lung cancer disease was staged as IIIA in 21 and IIIB in 43 cases. 4 (5,5 %) patients had small-cell lung cancer staged as IIIA in 2 and IIIB in 2 cases. Pneumonectomy was performed in 18 patients (including 9 carinal) and lobectomy in 51 patients. The SVC system was totally resected and reconstructed with grafts in 9 patients, and partially resected in 36 cases. For the latter patients, autologous pericardial patches were used in 3 patients, stapling devices in 21 cases and a running direct suture was performed in 9 patients. Truncus pulmonalis was resected and patched with pericardium in 6 cases. Thoracic aorta, aortic arch and subclavian artery were resected and reconstructed with PTFE grafts in 7, 5, and 4 cases, respectively. Adventitia of aorta was resected in 11 patients.
Results: The postoperative morbidity and mortality were 34,6 % and 10,9 %, respectively. The overall 5-year probability of survival was 9,2 %.
Conclusions/Uploads: We conclude that patients with intrathoracic malignancies invading great vessels can achieve long-term survival with adequate surgical treatment.
Disclosure: All authors have declared no conflicts of interest.

P-190 THE NEW APPROACH IN TREATMENT OF PATIENTS WITH INJURED ESOPHAGUS AFTER OSTEOSYNTHESIS OF CERVICAL VERTEBRAE WITH METAL IMPLANTS

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Background/Objectives: Perforation of esophagus at osteosynthesis is the result of using of metal implants. Aim of study is the improvement of surgical treatment at patients with injured esophagus after osteosynthesis of cervical vertebrae with metal implants.
Materials & Methods: The treatment of 14 patients with injured esophagus after osteosynthesis of fractured vertebrae was analyzed. We separate three groups of patients in depending on mechanism of injury to the esophagus. The injury to the esophagus at 7 patients of first group happened during fixing the implants; in the second group injury was as result of migration of fixing metal screws and laminae/5 patients/; in the third group injury happened during extraction of the implants/2 patients/. The surgical tactics of treatment depends on esophageal wall's alteration and sizes of perforation. If there was not esophageal wall's necrosis at 4 patients we sutured the perforation with covering of vascularized muscle. Usually the portion of sternocleidomastoid muscle was used. At 10 patients with esophageal wall's necrosis and large sizes of perforation we performed partial suturing with muscle plasty and drained the defect through the esophageal cavity. So, we orientated on the external esophageal-cutaneous fistula forming. All metal implants have been removed.
Results: There were no lethal outcomes of treatment. We have positive result at all patients with sutured esophagus. At 8 patients, whom we perform draining, mediastinitis has been treated and tubular esophageal-cutaneous fistula was formed through drainage tube. At 2 such patients perforation repeated and we perform analogous operation with good result. The fistula has been obliterated after extraction of the drainage tube.
Conclusions/Uploads: The suturing of perforation is possible if size of defect is not large and there is no necrosis of wall. In other cases external draining the defect through the esophageal cavity is preferable. Covering with portion of muscle helps to esophageal repair.
Disclosure: All authors have declared no conflicts of interest.

External draining the defect through the esophageal cavity
The perforation has been partially sutured, and because of large size of defect the external tube draining through the esophageal cavity was performed.

P-191 USE OF PROTEOLYTIC ENZYMES IN THE TREATMENT OF ESOPHAGEAL FOOD IMPACTION

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Background/Objectives: Esophageal food impaction typically requires intervention in the form of flexible or rigid esophagoscopy. An alternative approach is the use of proteolytic enzymes. Concerns regarding the use of proteolytic enzymes include the risks of esophageal perforation and aspiration pneumonitis. We retrospectively reviewed our series of 69 patients treated with papain.
Materials & Methods: Patients were retrospectively reviewed if treated for an esophageal food impaction from 1999 through 2008.
Results: Median age was 56 (range, 19-91) with 46 male and 23 female patients. In 39% (27) of patients this was their first presentation, in 20% (14) it was the second, and 41% (28) had multiple previous episodes. Meat was the cause in 71% (49), chicken in 9% (6) and fish in 4% (3), unspecified in 16 % (11). The median duration of symptoms prior to presentation was 6 hours (range, 1-36h). All patients presented with dysphagia for solids, 81 % (56) could not tolerate liquids. In the initial evaluation, 7% (5) had a barium swallow, and 65% (45) had a chest radiograph. Papain solution, 1 tsp in 8 oz of water, was given to patients in an unlimited quantity. The median duration of treatment was 3 hours (range, 20 min–48h). Papain was successful in relieving the obstruction in 87% (60) of patients. The remaining 13% (9) of patients, all underwent endoscopy with successful retrieval. No patient suffered a perforation, either with papain ingestion or with subsequent endoscopy. There were no episodes on pneumonitis or pneumonia.
Conclusions/Uploads: For food impaction, we have used proteolytic enzymes with a high success rate and with minimal complication. Further, if proteolytic enzymes fail, endoscopy can be performed safely and effectively. We recommend the use of proteolytic enzymes as the initial management in all patients with proteinaceous food impaction of the esophagus.
Disclosure: All authors have declared no conflicts of interest.

P-192 CHEST WALL MASSES IN CHILDHOOD: ANALYSIS OF 25 PATIENTS

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Background/Objectives: Chest wall tumors (CWT) are rarely seen in childhood. Only 1.8% of solid tumors are located in the chest wall in chilhood. CWT cover a group of malignant and benign tumors. Chest wall cystic and inflammatory masses are also rare and mimicking tumors.
Materials & Methods: This is a retrospective review of all pediatric patients with chest wall mass treated between May 2003 and January 2010. The data base was evaluated for age, sex, classification of tumors, treatment strategy and outcomes. 25 patients were included the study. Male/female ratio was 16/9. Median age was 10.6 (5 month-17 years). Bone and cartilage were origin of 10 masses and soft tissue was origin of 15 masses. All patients had only local mass at the time of surgery. Surgical treatment included 20 resection/removing, 5 reconstruction and 5 drainage.
Results: Seven masses were malignant: small round cell tumors in 6 (Ewing's sarcoma in 4 and primitive neuroectodermal tumor in 2) and one osteosarkoma. 18 masses were benign: inflammatory in 6, hemangioma in 3, cystic in 3, aneurysmal bone cyst in 2 and hamartoma, chondroma, fibrous dysphasia, fibromusculer tissue in 1. Patients with benign masses were free of complaints or complication during follow up. All patients with malignant tumor received postoperative chemotherapy. Local recurrence occured in one patient, two patients developed distant metastasis and one died.
Conclusions/Uploads: Surgical management provides excellent local control of chest wall masses. Prosthetic materials can be used safely. Early complications of the surgery are limitted. The patients should be closely followed up for late complications such as metastasis and scoliosis.
Disclosure: All authors have declared no conflicts of interest.

P-193 THE VALUE OF PET SCAN IN THE CLINICAL N STAGING OF LOCALLY ADVANCED OESOPHAGEAL CANCER

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Background/Objectives: Little information is available on the correlation between node negative PET-scans and EUS/CT-scan and post-resection findings in particular in locally advanced esophageal cancers.
Materials & Methods: Patients with pathological stage IIB or higher whose initial staging and subsequent esophagectomy was performed in our institution between 1/2000 to 12/2006 were included in the analysis. PET node negatives were compared to EUS/CT and post-resectional histopathological findings and related outcome.
Results: 277 Patients were stage IIB or higher. 115 Patients underwent induction therapy and 162 underwent primary surgery. Out of those 162 patients 158 were node positive (pN+) and accurately detected by PET-scan in 44 patients (sensitivity: 27.84%; specificity 75.0%). CT-scan accurately detected N+ in 65 patients (sensitivity: 41.13%; specificity 100%) and for EUS it were 112 patients (sensitivity: 81.15%; specificity 25%). Fourteen patients with only peritumoral N+ were identified by PET in 2, by CT in 6 and by EUS in 8 patients. Combining the 3 modalities sensitivity was 85.44%; specificity 25.0%. Overall 5-years survival was 31.9%. Patients with >6 positive nodes had a significantly worse 5-year survival (22.7%) compared to 35.9% (p=0.0024).
Conclusions/Uploads: In patients with locally advanced oesophageal cancer the low sensitivity of PET-scan could be significantly improved by adding CT and/or EUS. The routine preoperative use of EUS (+/- FNA) including determination of the exact number of N+ should be encouraged to decrease false-positivity and delay in surgical treatment and to improve selection of node positive patients that may benefit from neoadjuvant treatment.
Disclosure: D.E. Van Raemdonck: Dirk Van Raemdonck is supported by grant G.3C04.99 from FWO-Flanders. All other authors have declared no conflicts of interest.

P-194 SURVIVAL FOLLOWING RESECTED OESOPHAGEAL CANCER - THE ROLE OF THE METASTATIC LYMPH NODE RATIO (MLR)

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Background/Objectives: Resected oesophageal cancer has poor outcomes. Recurrent disease is difficult to manage. The current nodal UICC staging of oesophageal cancer is limited by staging as either node positive or negative. Node positive patients could benefit from adjuvant therapies, but the UICC staging does not allow prediction of those who could have longer survival and potentially benefit from adjuvant therapies. We investigated whether the MLR (percentage of positive lymph nodes out of all nodes harvested) could predict survival in resected oesophageal cancer.
Materials & Methods: The setting is a collaborative cardiac-thoracic-upper GI unit. All patients who underwent oesophageal resection for cancer were identified from a prospective database. Inclusions were all resections from June 2006 with histological data. Univariate survival analysis was performed using the Kaplan-Meier method; multivariate analysis was performed using the Cox proportional hazards method.
Results: 145 resections were performed (75% male, median age 65 years, range 34-82). Median nodal harvest was 15 (range 1-61). Overall 30-month survival was 50%. Univariate analysis showed N stage and MLR to be significant ($p<0.001$). 18-month survival was 20% (MLR>20%) versus 70% (MLR<20%). After exclusion of N0 disease, MLR was still significant with an MLR>30% reducing median survival from 22 months to 11 months. Multivariate analysis demonstrated that MLR was predictive of survival ($p=0.02$). However, use of neoadjuvant chemotherapy, gender, lymphovascular invasion and maximal tumour size were not significant
Conclusions/Uploads: MLR can predict survival following oesophageal resection. Patients with MLR<30% can expect longer survival and as such these patients with node positive disease could form a sub-group in which adjuvant therapies may be beneficial. These are short-term results and further work is required to assess long-term survival and response to adjuvant therapies.
Disclosure: All authors have declared no conflicts of interest.

P-195 FALSE POSITIVE PREGNANCY TEST IN A WOMAN WITH A LEFT LOWER LOBE LUNG MASS

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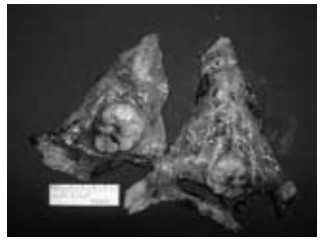
Background/Objectives: Primary choriocarcinoma of the lung is extremely rare and difficult to distinguish from metastatic choriocarcinoma since the lung is a frequent site of metastasis. We present the case of a woman who was felt to have an ectopic pregnancy but instead had a lung tumor producing b-hCG. No other site of malignancy was found.
Materials & Methods: The patient is a 28-year-old woman who experienced a miscarriage at 12 weeks in 2005. In May 2009, she noted amenorrhea and had a positive pregnancy test. Pelvic ultrasound on several occasions did not show an intrauterine or extrauterine pregnancy. She received three doses of methotrexate for treatment of a presumed ectopic pregnancy. b-hCG levels continued to rise and she was referred to gynecologic oncology. Whole body CT scans showed a 4.3 x 3.4 cm left lower lobe mass. Thoracic surgery consultation was obtained. FDG-PET scan showed SUV 12.0 in the lung mass without uptake elsewhere in the mediastinum or pelvis.
Results: The patient underwent an uncomplicated thoracoscopic left lower lobectomy and thoracic lymphadenectomy (video to be shown). Pathology revealed choriocarcinoma with extensive necrosis. No lymph node metastases were seen. b-hCG levels initially declined but then continued to elevate. She was treated with chemotherapy and her serum levels normalized. She is currently being followed up regularly without any radiologic evidence of recurrence or elevation of her b-hCG level.
Conclusions/Uploads: The mechanism of development of pulmonary choriocarcinoma in the absence of a gynecologic primary is poorly understood. The tumor could be a metastasis from a primary gonadal choriocarcinoma that regressed spontaneously. Other possibilities include pulmonary emboli from abnormal products of gestation, development of the tumor from pulmonary stem cells, or differentiation of a lung tumor along trophoblastic lines.
Disclosure: All authors have declared no conflicts of interest.



Gross Pathologic Specimen

P-196 TREATMENT OF INTRATHORACIC ESOPHAGEAL ANASTOMOTIC LEAKS WITH ENDOSCOPIC STENT IMPLANTATION

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Background/Objectives: Intrathoracic anastomotic leakage in patients with esophagectomy is associated with high morbidity and mortality. Until recently surgical reexploration was the preferred way of dealing with this life-threatening complication. But mortality remained significant. So after first successfull reports we adopted endoscopic stent implantation as primary treatment option. Aim of this study is to investigate the feasibility and the results of endoscopic stent implantation.
Materials & Methods: Between January 2004 and December 2009 167 patients underwent an esophageal resection: 125 abdomino-thoracic esophagectomy (74,9%), 4 transmediastinal esophagectomy (2,4%), 15 extended total gastrectomy with transhiatal resection of the distal esophagus (9%), 12 transthoracic esophagectomy with delayed reconstruction (7,2%) and 11 others (6,5%). Main reason for surgery was esophageal cancer: 73 squamous cell carcinoma (43,7%), 66 adenocarcinoma of esophagogastric junction (AEG) Type I (39,5%), 19 AEG Type II (Cancer of the gastric cardia with involvement of the distal esophagus; 11,4%), 4 other malignant tumors (2,4%) and 5 benign lesions (3,0%). An intrathoracic esophageal anastomotic leak was endoscopically verified in 17 patients. 12 patients received endoscopic implantation of a self-expanding stent and insertion of chest tubes as primary treatment. In 5 patients because of necrosis of the pulled up gastric tube or because of advanced pleural empyema a rethoracotomy was mandatory.
Results: Endoscopic stent placement was successfully accomplished in all 12 patients. Radiological examination showed complete closure of the anastomotic leakage in all patients. Stent migration occurred but endoscopic reintervention was feasible. In 9 patients (75%) a definitive closure and healing of the leak was achieved and the stent could subsequently be removed. 3 patients died due to severe sepsis in spite of sufficient stent placement.
Conclusions/Uploads: Endoscopic stent implantation for intrathoracic esophageal anastomotic leaks is feasible and compares favourable with the results of surgical reexploration. It is an easily availabel minimally invasive procedure which may reduce leak-related mortality and morbidity.
Disclosure: All authors have declared no conflicts of interest.

P-197 SHOULD CONSERVATIVE TREATMENT BE ADVISED IN GRADE II CAUSTIC INGESTION BURNS ?

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Background/Objectives: Emergency management of caustic burn ingestion is challenging as demanding intensive care, endoscopic and surgery excellence. Spontaneous evolutions are ulceration and perforation leading to chemical mediastinitis and peritonitis Endoscopic evaluation is the cornerstone in management especially for decision of urgent gastro-esophageal stripping. Zagar's classification of endoscopic injury enables to classify in three grades. Grade I is currently good prognosis with healing without major sequel whereas in case of grade III burn urgent stripping esogastrectomy is inevitably. The optimal management of grade II is not well defined. The aim of this study was to evaluate the management in a single center experience of caustic bur ingestion focussing on the grade II injury.
Materials & Methods: Our department is a referral regional center for caustic burn ingestion. A retrospective review of all consecutive patients referred from 1997 to 2009 was performed. Patients were admitted in our intensive care unit and were managed by the on-duty team composed by senior intensive care physician and surgeon. Upper tract endoscopy (rigid bronchoscopy and esophagoscopy followed by flexible gastroscopy) were performed by the surgeon after admission of the patient and repeated if necessary. Then, decision to operate in emergency was taken by the team.
Results: 68 patients were consecutively referred. The mean age was 41 years (range 6 to 84). Ingestion was accidental in 16 cases and suicidal in 52 cases. Two patients with grade III with devastating deep injuries were best supportive cared. 6 deaths occurred, 3 of which were grade IIb. The most frequently ingested substance was alkaline. According to endoscopic assessment, treatment applied in the acute phase are presented in a table:
Conclusions/Uploads: Grade IIb caustic burn is as serious as grade III endoscopic caustic burn. Emergency eso-gastrectomy might be more frequently applied in grade IIb rather than surveillance as delayed surgical procedure does not restore prognosis. We need tools to assess all the esophageal wall rather than only mucosa. endoscopic n SEG DS ED MT BSC Death grade Grade I 24 0 0 0 24 0 0 Grade IIa 11 0 1 3 7 0 0 Grade IIb 17 0 9 2 6 0 3 Grade III 16 14 2 3
Disclosure: All authors have declared no conflicts of interest.

P-198 MULTIMODAL THERAPY FOR OLIGOMETASTATIC STAGE IV NSCLC: WHY IS SURGICAL TREATMENT WORTHWHILE?

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Background/Objectives: To analyze the role of surgery in the multimodal therapy for selected Stage IV oligometastatic non small cell lung cancer (NSCLC) patients .
Materials & Methods: From January 1999 to May 2009, we have retrospectively analyzed 34 Stage IV oligometastatic NSCLC patients underwent surgical pulmonary resection with a curative purpose. The surgical procedure has been purposed by a Multidisciplinary Team in all patients (ECOG<2) who underwent radical treatment for the metastatic lesion.
Results: Mean age and M/F ratio were 56.9±11.5 yrs and 18/16, respectively. Single metastatic lesion was found in 29 cases (85.3%) whereas two lesions occurred in 5 cases (14.7%). The most common site involved was brain (26 pts), followed by adrenal gland (5 pts), bone (4 pts) and liver (1 patient). A surgical resection for metastatic disease was performed in 25 pts while chemotherapy and/or radiotherapy was done in 9 pts. The patient with single hepatic lesion was treated with laser-therapy. Neoadjuvant therapy was administred in 18 pts (13 radio-chemotherapy and 5 chemotherapy alone). Surgical procedures were 29 lobectomies, 1 bilobectomy, 3 pneumonectomies and 1 atypical resection. Complete resection was achieved in 82.4% of resected cases. Hospital stay, 30-days mortality rate and 30-days morbidity rate were 8.8±5.0 days, 0% and 23.5%, respectively. 21 pts (68.1%) underwent adjuvant therapy. Median follow-up was 28 months. The Overall Survivals at 1, 3 and 5 years were 69.1%, 33.4% and 20.9%, respectively. Complete pulmonary resection, single adrenal metastasis and absence of lymph node involvement at presentation were significantly (p<0,05) associated with a better prognosis, at univariate analysis.
Conclusions/Uploads: Surgical treatment for selected oligometastatic stage IV NSCLC seems to be feasible and safe. Additionally, a rewarding survival could be expected for patients with complete resection, single adrenal metastasis and absence of lymph node involvement at presentation.
Disclosure: All authors have declared no conflicts of interest.

P-199 MIXED GASTRODUODENAL REFLUXATE FAILS TO CAUSE NEOPLASTIC TRANSFORMATION IN A NOVEL DUODENOGASTROESOPHAGEAL REFLUX MODEL

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Background/Objectives: The most important predisposing factor for esophageal adenocarcinoma are the presence of gastroesophageal reflux disease. Several animal models have achieved esophageal neoplasms in almost 50% of the animals with duodenoesophageal reflux. We designed a new esophageal neoplasm model using partial duodenal obstruction, pyloromyotomy and gastroesophageal myotomy.
Materials & Methods: Sprague Dawley rats were used in this study. The study groups included Sham laparotomy (n=10), partial duodenal obstruction (n=9, Group 1), partial duodenal obstruction + gastroesophageal myotomy (n=20, Group 2) and partial duodenal obstruction + pyloromyotomy + gastroesophageal myotomy (n=20, Group 3). Partial duodenal obstruction was performed distal to the bile duct using 18 Fr catheter rings. After 40 weeks, the rats were sacrificed. Esophageal, gastric and duodenal specimens were harvested and examined using standart histopathologic methods. The specimens were analyzed for the presence of esophagitis (basal cell hyperplasia, subepithelial eosinophilia and lengthening of the papilla), erosions and ulcers and esophageal carcinoma. A reflux score was calculated using histologic criteria.
Results: Histologic results are presented in table. In Group 3 animals showed significant dilatation of the duodenum, stomach and esophagus. No esophageal cancers were observed.
Conclusions/Uploads: In this study, a duodenogastroesophageal reflux model was established without disrupting normal gastrointestinal continuity, however acid or mixed (acid and alkali) reflux were not adequate for development of esophageal cancer. Longer periods of exposure and co-carcinogens may be needed.
Disclosure: All authors have declared no conflicts of interest.

Group	% Surviving > 30 weeks	Basal Cell Hyperplasia	Lengthening of Papilla	Subepithelial eosinophilia	Erosion	Ulcer	Median Reflux Score
Control	100	9/10	7/10	10/10	0/10	0/10	1.6 ± 0.5
Group 1	33	6/9	3/9	9/9	1/9	3/9	2 ± 1
Group 2	15	14/20	14/20	14/20	3/20	5/20	2 ± 1
Group 3	35	9/20	9/20	12/20	1/20	3/20	1.4 ± 1.2
p value	<0.001	0.11	0.14	0.11	0.47	0.27	0.15

Table

P-200 THE COMPARISON OF INTERMITTANT INTRAVENOUS AND PARAVERTEBRAL SUBPLEURAL ANALGESIA FOR PAIN RELIEF AFTER THORACOTOMY

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Background/Objectives: This prospective randomized trial was designed to compare the analgesic effects of intravenous analgesia with paravertebral subpleural bupivacaine and morphine for post-thoracotomy pain management.
Materials & Methods: Forty-five patients undergoing an elective posterolateral thoracotomy were randomly divided into 3 groups of 15 each. Control group received intravenously tramadol and metamisol every 4 hours for 3 days. Before chest closure, a catheter was placed under the parietal pleura along the paravertebral sulcus at the level of T5 to T7. At the end of the operation and every 4 hours thereafter, we performed either 0.25% bupivacaine (bupivacaine group) or 0.2 mg/kg morphine sulfate (morphine group) via paravertebral subpleural catheter, for 3 days.
Results: Visual analog pain scores (VAS) were lower in the morphine and bupivacaine groups when compared with control group at 6, 12, 24, 48, and 72h postoperatively. However, the supplementary intravenous analgesia and VAS were lowest in morphin group. The patients receiving bupivacaine and morphine had higher FVC and FEV1 values postoperatively as aganist the control group.
Conclusions/Uploads: In conclusion, for patients undergoing thoracotomy, paravertebral subpleural catheter is an easy and effective method providing adequate thoracic analgesia. Moreover, comparison with intermittant intravenous analgesia results revealed that analgesia with paravertebral subpleural catheter achieved better results in terms of VAS, supplementary intravenous analgesia, and pulmonary function tests.
Disclosure: All authors have declared no conflicts of interest.

P-201 NEEDLESCOPIC VIDEO-ASSISTED THORACIC SURGERY FOR PRIMARY PNEUMOTHORAX: DO PATIENTS BENEFIT?

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Background/Objectives: Needlescopic Video-Assisted Thoracic Surgery (nVATS) uses smaller wounds than conventional VATS (cVATS) to further minimize surgical trauma, but evidence for its role in managing pneumothorax is limited.
Materials & Methods: Ninety-eight consecutive VATS pleurodesis operations were performed by a single surgeon in 95 patients with primary pneumothorax. The nVATS approach using two 3mm ports and the existing chest drain wound was used in 43 operations (44%). Clinical data from hospital records for all patients were supplemented with a telephone survey by an assessor blinded to the surgical approach used.
Results: No mortality or major complications occurred in all patients. Patients in the nVATS and cVATS groups were similar in demographic and clinical parameters. Mean operation times in the nVATS and cVATS groups were similar (51 versus 54 minutes, $p=0.49$), but chest drain durations were shorter in the nVATS group (2.5 versus 3.5 days, $p<0.01$). After a median follow-up of 22.5 months, there was one recurrence (2.3%) in the nVATS group compared to four (7.3%) in the cVATS group ($p=0.27$). On Kaplan-Meier analysis, recurrence rates between the two groups were similar at up to 45 months ($p=0.46$). On a 10-point analog scale, mean immediate post-operative pain scores were significantly lower in the nVATS group (3.8 versus 5.6, $p<0.01$). Of patients responding to the telephone survey, those in the nVATS group had lower incidence of residual paresthesia at a median follow-up time of 14 months (6% vs 38%, $p=0.03$), faster recovery to full pre-operative work capacity (20 versus 39 days, $p=0.04$), and better mean satisfaction scores with wound cosmesis (6.8 versus 4.9, $p=0.02$). There was a trend towards earlier cessation of analgesics in the nVATS group (7 versus 16 days, $p=0.10$).
Conclusions/Uploads: For primary pneumothorax, the nVATS approach is as safe and effective as cVATS, but nVATS may give less pain, faster recovery, and better cosmesis.
Disclosure: All authors have declared no conflicts of interest.

P-202 METEOROLOGICAL CONDITIONS IS A CAUSE OF RISK OF SPONTANEOUS PNEUMOTHORAX IN VALENCIA SPAIN?

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Background/Objectives: Idiopathic spontaneus pneumothotax (ISP) is defined as the rupture of blebs or emphysematous bullae beneath the visceral pleura which is frequently in healthy patients. Rupture could occur when a large transpulmonary pressure gradient exists and equilibrium between surrounding structures and air trapped in bleds cannot be reached. Previous reports relate the atmospheric conditions with the incidence of spontaneous pneumothorax, but the results are largely controversial. The aim of this study was define whether the weather changes in Valencia Spain, influences the incidence of spontaneous pneumothorax.
Materials & Methods: This retrospective study consisted of 266 idiopathic ISP admission in Universitary Hospital "La Fe". We decided to compare the measured meteorological values of the three consecutive days prior to admission as well as the day of admission. The meteorological data were obtained from Spain State Meteorological Services. The temperature, wind speed and atmospheric pressure (AP) were included for each study days. Statistical analysis was performed using SPSS software and the differences between mean were evaluate by Mann Whitney U test.
Results: We identified 266 episodes de ISP in 192 patients between 1 January 2004 and 30 June 2009. The mean age of patients was 31,03 ± 13,05 years, and 80,7% were male. We observed significantly differences in the average of temperature on 3 previously days and the same day of the admission of the patients with ISP (p=0.009). We not found significantly differences in the changes of atmospheric pressure between days with ISP and days without (p=0.141), as well as, wind speed (p=0.072).
Conclusions/Uploads: We report significant difference between the temperature with development ISP, but no found association among atmospheric pressure and wind speed in our locality.
Disclosure: All authors have declared no conflicts of interest.

P-203 THORACOMYOPLASTY IN THE TREATMENT OF POSTOPERATIVE EMPYEMA - ANALYSIS OF 22 CONSECUTIVE CASES

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Background/Objectives: This paper analyses a series of 22 consecutive cases with postoperative empyema treated by a combination of muscle transposition and limited thoracoplasty (thoracomyoplasty).
Materials & Methods: We performed a retrospective analysis of 22 patients operated between 01.01.2003-01.01.2010 in whom a thoracomyoplasty was used to obliterate infected cavities ocurring after major surgery. The primary procedure was decortication in 13 cases (alone in 4 cases, associated with other procedures in 9 cases) and pulmonary resection in 9 cases (lobectomy – 4 cases, non-anatomic – 5 cases). Bronchial fistula was present in 7 cases. Three patients had an attempt to obliterate the space through classic thoracoplasty performed in other units. Surgery consisted in mobilisation of the available extrathoracic muscle flaps (serratus anterior 21cases, latissimus dorsi 14 cases, pectorals – 7 cases and subscapularis – 3 cases, with an average of 2,1 flaps/patient), topographic rib resection (ranges 1-6, average 3,9 resected ribs/patient), closure-reinforcement of bronchial fistula (if present), drainage of the intrathoracic cavity and of the subcutaneous space, primary closure of the wound and compressive bandages. The following parameters were followed: mortality, morbidity, hospitalisation and recurrence.
Results: We encountered 1 postoperative death (5%). We encountered only one minor skin necrosis solved through excision and suture, but no seroma or flap necrosis. There was only one recurrence (5%) treated through an open thoracic window. The following general complications ocurred: heart failure (1 case), pneumonia (2 cases), renal failure (1 case) and digestive bleeding (2 cases). ICU stay ranged between 1-8 days, with a median of 2 days and postoperative hospitalisation ranged between 8-87 days, with a median of 34 days.
Conclusions/Uploads: Thoracomyoplasty appears as a reasonable solution for postoperative empyema. Although limited by the first thoracotomy, the use of muscle flaps allows not only filling the cavity with a healthy tissue, but also avoidance of extended rib resection.
Disclosure: All authors have declared no conflicts of interest.

P-204 PRELIMINARY RESULTS OF A NEW DEVICE FOR THE THORACOSCOPIC TALC POUDRAGE: OUR EXPERIENCE IN 23 CASES

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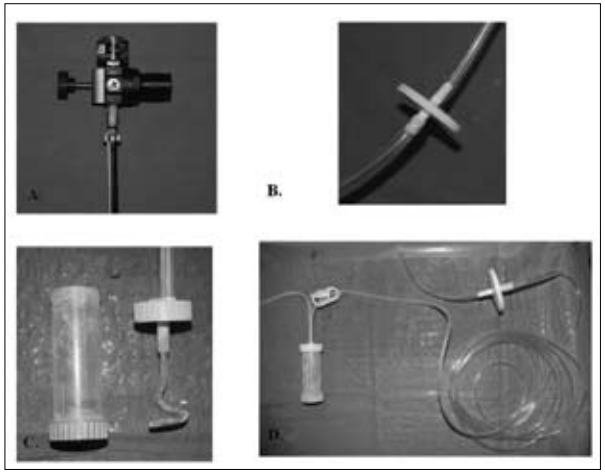
Background/Objectives: Malignant pleural effusion (MPE) is a common condition, that affects the quality of life negatively. The aim of the study was to evaluate the efficacy of a new device (Sprink Sestriere®; Eurosets) for the thoracoscopic pleurodesis which can help avoid recurrence of the effusion.
Materials & Methods: This study prospectively included 23 patients (17 males, 6 females; median age 76.6 years, range 66 – 86.5) undergoing thoracoscopic pleurodesis between September and November 2009. Pleurodesis was performed by using the new device. It consists of a plastic canister containing a small ball and a pig-tail tube through which pressurized sterilized air creates a whirling motion of the air flow, and homogeneous talc distribution. The patients were followed up weekly (median follow up 1.9 months; range 1 - 4.5). Success was defined as the absence of respiratory symptoms and effusion on a chest radiograph.
Results: There was no procedure-related mortality. One patient died within a month from the thoracoscopy without recurrence of pleural effusion, the other 22 (95.6%) patients are still alive. The median length of the chest drain was 3 days (range 2 - 31). 3/23 (13%) patients had a prolonged drainage and were placed on a Heimlich valve; in all patients prolonged drainage resolved. All the patients obtained a complete relief of the symptoms after thoracoscopy. At thoracoscopy 6 patients showed a trapped lung, and 17 a diffuse involvement of the pleural cavity. Despite these macroscopic pleural features, the new device obtained a successful rate of 91.3%. Only 2/23 (8.7%) patients developed a recurrent pleural effusion so a chest tube had to be placed.
Conclusions/Uploads: This new device is safe and suitable for the thoracoscopic talc pleurodesis in the management of MPE. It is efficient in reducing recurrences, because it allows a more homogenous distribution of the talc, and in so doing, avoids talc clumps.
Disclosure: All authors have declared no conflicts of interest.



Sprink Sestriere device
A. system to obtain a pressurized air flow B. sterile filter C. plastic canister with the pig tail tube and the small ball necessary to obtain a whirling motion of the air and a homogeneous distribution of the talc D. A view of the system with the clamp that allows the operator to regulate directly the talc flow rate.

P-205 TO TIE THEM DOWN OR SET THEM FREE: THOPAZ® PORTABLE SUCTION SYSTEMS

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Background/Objectives: Thoracic surgical patients have chest drains to enable re-expansion of lungs,to clear fluid and air from the pleural cavity. Currently this is performed by connecting the chest drains to the low pressure wall suction. Suction impedes mobility, may have variable suction delivery and increases infection. Assessment of air-leak is again not scientific. Thopaz chest drain system is a portable suction unit which allows mobilization of the patient,scientific digital flow recordings with an in built alarm system. It enables decision making in a scientific manner. We evaluated the utility, staff and patient feedback of this device.
Materials & Methods: A pilot evaluation was performed in a regional thoracic unit in a structured format over a period of two months. Staff resonses were graded on a scale of 1-6 [1: Excellent 6: Poor].
Results: 120 patients were evaluated under the trial period between August and October 2008. Thopaz was used on all elective bullectomy/pleurectomy, VATS lung biopsies, VATS metastectomy and elective lung resections. The staff feedback forms, from the trial period was very positive, in spite of the glitches of the learning curve and a completely new system [Table 1]. The staff liked the system as it was more scientific and more accurately recordable. It made the nursing and physiotherapy both easier as it enabled early mobilisation. The patients, prefered it to standard under water seal bottle on continous wall suction as it was compact , light weight and enabled movement.
Conclusions/Uploads: Thopaz digital suction units were found to be user friendly and were liked by the staff and patients. It enabled mobilisation of the patients and scientific early removal of chest drain.
Disclosure: All authors have declared no conflicts of interest.

	1-6 scale
Set up	2
Canister change	2
Instructions	2
Efficacy	2.5
Display	2
Vacuum Adjustment	3
Flow Reading	2
Alarm Systems	2
OVERALL	2

P-206 TRIMODALITY TREATMENT IN EARLY-STAGE MALIGNANT PLEURAL MESOTHELIOMA. PRELIMINARY RESULTS OF A MULTICENTER PHASE II TRIAL

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Background/Objectives: Multimodality treatment is the best treatment for Malignant Pleural Mesothelioma (MPM). However, the ideal combination of surgery, chemotherapy and radiotherapy is still a matter of controversy. We report the initial results of a multicenter phase II trial investigating the feasibility of a trimodality strategy based on induction chemotherapy (CT), pleurectomy/decortication (P/D), postoperative radiotherapy (RT) and postoperative chemotherapy.
Materials & Methods: From July 2008 to June 2009, 12 patients with MPM were enrolled in the prospective study. Inclusion criteria included epithelial or mixed MPM diagnosed by videoassisted thoracoscopy; stage I or II (N1 only) disease. Induction therapy consisted of combination of Cisplatin (75 mg/m^2 on day 1) and Alimta (500 mg/m^2 on day 1), every 21 days for 2 cycles. P/D was performed 4-6 weeks after induction CT, postoperative RT (45 Gy) was given 3 weeks after surgery, while postoperative CT was given 4 weeks after RT, with the same induction-therapy schedule. Patients were restaged by chest and abdomen magnetic resonance scan and whole body PET scan after induction therapy.
Results: Seven patients (58.3%) showed objective response or stable disease at the restaging following the induction CT; 6 (50%) underwent P/D and then completed the treatment, and 1 (8.3%) had an explorative thoracotomy followed by simultaneous combination of chemo- and radiotherapy. There were no postoperative complications. Five patients (41.7%) showed progression disease after induction therapy (4 local and 1 metastatic recurrences) and received palliative chemotherapy. We found no grade 3-4 haematological toxicity after induction chemotherapy. One patient had grade 3 hepatic toxicity during postoperative chemotherapy. RT caused no complications.
Conclusions/Uploads: The preliminary results suggest that the proposed trimodality treatment for MPM is feasible and associated with a low morbidity rate. However, larger series and survival data are needed to confirm the validity of this treatment.
Disclosure: All authors have declared no conflicts of interest.

P-207 IS CYTOLOGICAL EXAMINATION OF PLEURAL FLUID SAMPLED AT VATS FOR SUSPECTED MALIGNANT PLEURAL EFFUSION USEFUL?

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Background/Objectives: To investigate the diagnostic utility of cytological examination of pleural fluid samples obtained during VATS for suspected malignant pleural effusion (MPE).
Materials & Methods: We reviewed 156 consecutive patients [110 male; median age 71 years (range 25 – 87)] undergoing VATS for suspected MPE in two thoracic surgical practices over 36 months. All patients had pleural biopsies submitted for histological examination and pleural fluid for cytological examination.
Results: MPE was diagnosed in 93 of 156 (60%) patients; 61 cases were primary pleural malignancy and 33 metastatic to the pleura. In no case did cytology contradict a benign biopsy result (table). When compared to pleural biopsy ,diagnosis of MPE by cytological examination of pleural fluid was significantly poorer ($p<0.0001$ Fisher's). Pleural fluid cytology in suspected MPE has a sensitivity of 43%, specificity of 100%, positive predictive value of 100%, negative predictive value of 54% and accuracy of 70%. The median volume of pleural fluid submitted was 10ml (range 1 – 40). In those patients with biopsy proven MPE and a fluid volume analysed of <10ml 18 of 45 samples tested were true positives compared with 22 of 48 where >10ml of fluid was analysed ($p=0.6$). 43 of 93 (46%) MPEs were macroscopically blood stained. The proportion of malignant cause for blood stained (43 of 75) and non blood stained (50 of 81) effusions were not significantly different ($p=0.62$). Primary pleural malignancy yielded a lower cytological diagnostic rate (22 of 61) compared to metastatic pleural malignancy (18 of 33)($p= 0.12$).
Conclusions/Uploads: At VATS for suspected MPE, if adequate biopsies can be obtained, cytological examination of pleural fluid adds no useful information. Neither the volume of fluid submitted, the presence of blood staining or metastatic compared to primary pleural malignancy significantly altered yield.
Disclosure: All authors have declared no conflicts of interest.

		Biopsy		
		Malignant	Benign	
Cytology	Malignant	40	0	40
	Benign	53	63	116
		93	63	146

P-208 SURGICAL TREATMENT OF SPONTANEOUS PNEUMOTHORAX SECONDARY TO CHRONIC OBSTRUCTIVE PULMONARY DESEASE: WHAT SHOULD BE THE APPROACH OF CHOICE?

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Background/Objectives: To determine what approach (thoracotomy or VATS) should be of choice for patients suffering from spontaneous pneumothorax secondary to COPD.
Materials & Methods: From January 2000 to November 2009, 59 patients were retrospectively analysed . Mann-Whitney U-test, Pearson's Chi-square test and Fisher's exact test were used to compare both groups. Multiple and binary logistic regression for quantitative and qualitative dependent variables, respectively, were used for the multivariate analysis. Statistical analysis was performed using version 11.5 of the SPSS.
Results: Bullae resection and mechanical pleurodesis was performed in every patient. Both groups had similar features (Figure 1). Bivariate analysis shows significant differences in favour of VATS with regard to less time with drainages, complications and shorter length of post-operative stay (p=0'000, p=0'049 and p= 0'000, respectively) (Figure 1). Multivariate analysis shows that VATS is the only variable that reduces significantly the time with drainages [2'75 days (0'9-4'7), p=0'005] and length of post-operative stay [3'7 days (1'17-6'2), p=0'005]. Left pneumothorax and VATS are associated with less post-operative complications (p=0'039 and p=0'048, respectively). Post-operative air leaks, redo-surgery, mortality and relapse are not significantly influenced by any of the pre-operative variables studied.
Conclusions/Uploads: VATS should be of choice to operate on patients suffering from spontaneous pneumothorax secondary to COPD.
Disclosure: All authors have declared no conflicts of interest.

VARIABLES	THORACOTOMY	VATS	STATISTICAL SIGNIFICANCE
Age (years)	66'66(55-82)	62'94(50-85)	p=0'062
Localization	26R. 15L	15R. 3L	p=0'1
Co-morbidity	24p 58'5%)	9p(50%)	p=0'5
Adhesions	28p(68'3%)	9p(50%)	p=0'1
Pre-op. air leaks	36p (87'8%)	12p (66'7%)	p=0'074
Mean and median time with drainages (days)	5'34(1-17). Median: 4	2'71(1-5). Median: 3	**p=0'000**
Post-op. complications	12p(29'3%)	1p(5'6%)	**p=0'049**
Post-op. air leaks	8p(19'5%)	1p(5'6%)	p=0'24
Mean and median length of post-op. stay (days)	8'47 (4-25). Median: 7	4'8 (2-13). Median: 4'5	**p=0'000**
Redo-surgery	1/40p(2'5%)	1/18p (5'5%)	p=0'5
Post-op. mortality	3/41p(7'3%)	0/18p (0%)	p=0'5
Relapse	0/39p(0%)	1/18p (5'5%)	p=0'3

P-209 POST TRAUMATIC EMPYEMA THORACIS: 10 YEAR EXPERIENCE IN A MAJOR TRAUMA CENTER. ANALYSIS OF IMPORTANT FACTORS AND SURGICAL MANAGEMENT

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Background/Objectives: The purpose of this paper is to present the impact of post traumatic empyema thoracis in a major trauma center, the importance of early surgical intervention, assess type of procedure and factors in dealing with this complication.
Materials & Methods: 4573 patients were managed in our Department, in a Level 1 Trauma Center between 1/2000- 1/2010. We admitted 612 patients for trauma and retrospectively review hospital records. 515 patients had blunt and 97 penetrating trauma, most received a thoracic tube for hemothorax and or pneumothorax. 1st group of 438 patients received only a chest tube. 2nd group of 125 patients had a chest tube, and ICU >48hrs. 3rd group of 49 patients had operation in the thorax and or abdomen. Setting and condition of chest tube insertion, type of personel, late or early referral (within 7 days from initial diagnosis) and management were evaluated.
Results: In group 1 438 patients- one chest tube 12/438 (2.7%) developed empyema. Early referral in 3/12 patients managed with VATS surgery, 9/12 had late referral. 2/9 of late referrals had VATS while 7/9 open thoracotomy, no mortality. In group 2 125 patients stayed in ICU, 15/125(12%) developed empyema. One early referral had VATS, 14 late referrals had open thoracotomy-decortication. 3/15 patients died due to multi-organ failure. In group 3 49 patients were operated, 6/49(12.9%) developed empyema thoracis. Early evacuation with VATS (37/40) and open thoracotomy (3/49). In contrast all empyema cases were late referrals, needed thoracotomy, 2 died from sepsis.
Conclusions/Uploads: Empyema Thoracis has great impact in trauma patients, especially those with severe trauma that stay long in ICU. Vigilance to act promptly to evacuate a clotted hemothorax, can lead to less invasive procedures, less mortality and morbidity. It is preferred that surgeons place chest tubes if required no matter what setting.
Disclosure: All authors have declared no conflicts of interest.

P-210 CLOSURE OF PERSISTING BRONCHOPLEURAL FISTULA IN PATIENTS WITH SEVERE PLEURAL EMPYEMA - USE OF ENDOSCOPIC ONE-WAY ENDOBRONCHIAL VALVE

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Background/Objectives: Parapneumonic pleural empyema is a critical illness with mortality up to 20%. Patients often have severe comorbidity and are not allways suitable for major thoracic surgery. Bronchopleural fistula adds further difficulty. This may result in a situation where recovery is impossible. Therefor we developed a combination of minimally invasive surgical debridement and closure of the bronchopleural fistula with a bronchoscopic one-way endobronchial valve.
Materials & Methods: So far two patients recieved the combined treatment. Both patients were because of severe comorbidity not fit for major thoracic surgery. The first patient was a 63 years old man with a history of alcohol abuse resulting in an dilated cardiomyopathy with heart failure NYHA IV as well as in liver cirrhosis. He presented with a parapneumonic empyema with total atelectasis of the right lung and sepsis. The seconde patient was a 55 years old femal with interstitial lung disease, COPD and drug abuse. She also developed a parapneumonic pleural empyema with atelectasis of the right lower lobe. Both patients first received minimally invasive surgical debridement of the pleural cavity with insertion of chest tubes. In both patients occurred a persisting bronchopleural fistula. Via rigid bronchoscopy the fistula could be localized in both cases in the lower lobe segment 8. After blockade of the segmental bronchus 8 with a Fogarty catheter the air leakage stopped at once. Therefor we implanted in each case an endobronchial one-way valve designed for the treatment of lung emphysema.
Results: After bronchoscopic valve implantation the bronchopleural fistula vanished in both cases and a healing of the pleural empyema was achieved. The valves were subsequently removed via bronchoscopy.
Conclusions/Uploads: Successfull closure of bronchopleural fistula in patients with severe pleural empyema using a endoscopic one-way valve is feasible. The combination with minimal invasive surgery is a option in patients that are not fit for major surgery.
Disclosure: All authors have declared no conflicts of interest.

P-211 RECONSTRUCTION OF A RESECTED SUBCLAVIAN VEIN BY TRANSPOSITION OF THE IPSILATERAL INTERNAL JUGULAR

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Background/Objectives: Resections of tumors situated at the level of the thoracic outlet may involve the subclavian vessels in order to achieve a complete resection. Both, the subclavian artery and the subclavian vein can be replaced by homologous or synthetic grafts. Satisfactory results can be obtained by replacing the subclavian artery by greater saphenous vein segments or synthetic substitutes. Replacements of the subclavian vein by saphenous vein segments or synthetic grafts have a less rewarding long-term patency rate. Usually, occlusion of subclavian vein substitutes are well tolerated due to a rich preexisting venous collateralization but it can be associated with persistent and clinically relevant edema of the involved upper extremity. His holds especially true in young, active patients.
Materials & Methods: We report an alternative repair after subclavian vein resection by transposition of the ipsilateral internal jugular vein and its end-to end anastomosis to the proximal axillary vein.
Results: A 27-year-old woman presented a left-sided, 3cm large sarcomatous tumor situated at the level of the upper anterior chest wall and in contact with the inferior border of the clavicule and the subclavian vein (Figure 1). A complete resection of the lesion was performed with en bloc resection of the first rib, the subclavian vein and the clavicule via a left infraclavicular incision. The preserved internal jugular vein was dissected cranially for a distance of 7 cm, ligated and divided. The proximally divided vein which was in continuity with the innominate vein was then rotated and transposed in the infraclavicular region and sutured to the proximal axillary vein by an end-to end anastomosis with interrupted stitches of 6-0 Prolene® (Figures 2 and 3). Postoperative Duplex controls at regular intervals demonstrated a patent venous reconstruction up to 18 months postoperatively.
Conclusions/Uploads: This technique could be a suitable alternative for subclavian vein repair especially in young patients with poor venous collaterals
Disclosure: All authors have declared no conflicts of interest.

P-212 EMERGENCY REPAIR OF TRACHEOESOPHAGEAL DAMAGE USING "ECMO": AN UNEXPECTED COMPLICATION OF TRACHEAL STENTING

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Background/Objectives: A 48y old female patient with a diagnosis of anaplastic carcinoma of the thyroid and severe dyspnea was referred for an urgent stenting of the trachea. The covered Ultraflex 60x18mm (Boston Scientific, USA) tracheal stent was inserted. She was given three cycles of chemotherapy without any clinical response. She was followed up for six months without any complication however was admitted with increasing dyspnea on the 7th month for which she underwent bronchoscopy revealing severe stenosis of both end of the stent. She underwent dilatation and lasering several times.
Materials & Methods: Because of the disease progression, the pathology slides were sent to two different centers for an expert consultation. The diagnosis was changed from anaplastic thyroid carcinoma to lymphoma that was cured with 8 cyles of chemotherapy. Because of unevitable granulation tissue, surgical removal of the stent was decided. Cervical incision with partial sternotomy was made and the anterior wall of the trachea was opened. Infected, foul smelling material was aspirated from the trachea. The stent was removed excising the granulation tissue at both ends. However, the complete disapperance of the posterior wall of the trachea and anterior wall of the esophagus was encountered. Neither tracheal nor single lung ventilation was possible due to intolerance of the patient. Emergency femo-femoral ECMO was institued and the primary repair of the esophagus was achieved along with the repair of posterior tracheal wall using muscle flap. The T-tube was placed into trachea before closing the trachea.
Results: She was followed up for six months with repeating bronchoscopies and the T-tube was removed 7 months after the surgery. Two months further follow-up was achieved however she died due to massive hemoptysis during control bronchoscopy a year after primary surgery.
Conclusions/Uploads: Although this is an unexpected dilemma, primary repair with T-tube insertion was possible under emergency condition.
Disclosure: All authors have declared no conflicts of interest.

P-213 GIANT FIBROVASCULAR ESOPHAGEAL POLYP ASSOCIATED WITH ACHALASIA – CASE REPORT

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Background/Objectives: A 59 year old woman was admitted in our unit with typical symptomathology of achalasia, misdiagnosed in another department
Materials & Methods: When admitted, the patient was wearing for 3 month a definitive feeding gastrostomy tube. The barium swallow, endoscopy and esophageal manometry established the diagnostic - achalasia. We removed the gastrostomy tube and we performed an open Heller myotomy. The postoperative period was uneventful and the patient was discharged one week later with affirmatively unimpaired deglutition. One month later, the patient was admitted in emergency with a giant fibrous tumor arising from her mouth after an episode of strong coughing and vomiting. The new endoscopy showed a giant esophageal polyp (35 cm) that was missed by the previous investigations, originating from pharingoesophageal junction.
Results: We resected the esophageal polyp by cervical approach with good postoperative outcome.
Conclusions/Uploads: The particular extreme dimensions (35 cm – the biggest in available literature) of the polyp, prevented the acute asphyxia by blockage at the laryngeal level, possibly provoked by smaller tumors. The final question remains - achalasia was real or an erroneous diagnosis was established the first time?
Disclosure: All authors have declared no conflicts of interest.

Giant esophageal polyp

P-214 MULTIPLE TRANSPHRENIC LIVER EVENTRATIONS IN A CASE OF CATAMENIAL PNEUMOTHORAX

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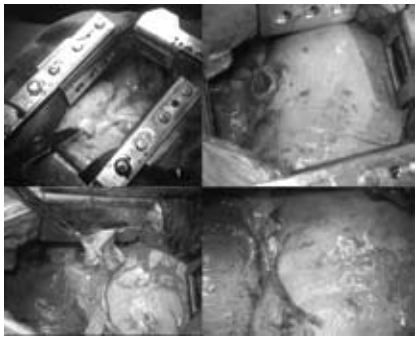
Background/Objectives: A transphrenic passage of liver tissue in the context of a porous diaphragm syndrome has only previously been described once. We present a second case in which both eventrations and hernias with intrathoracic liver buds were present in a woman with catamenial pneumothorax.
Materials & Methods: A 43-year-old woman was admitted after diagnosis of right spontaneous pneumothorax. She had a history of irregular menstrual cycles and episodes of metrorraghia. In the admission radiography two nodular lesions were evident in the right lower lobe, adjacent to the diaphragm. A complete radiological study with CAT-scan and MNR which could not clearly ascertain the nature of the lesions but indicated the possibility of liver tissue in the thorax. Diagnostic/therapeutic surgery was indicated.
Results: A VATS approach showed multiple diaphragmatic defects averaging 2-3cm in diameter. Through most of these defects apparent "buds" of liver could be seen protruding with a transparent diaphragmatic layer (eventrations) or totally uncovered (hernias). Moreover, the patient had extensive apical adhesions with abundant neovascularisation and a couple of punctiform brownish parietal pleural lesions. Conversion to a muscle-preserving 8th-space lateral thoracotomy was made and video-assisted adhesiolysis performed, followed by atypical resection of a dystrophic apex of the lung. The phrenic defects were opened and one of the "buds" was biopsied confirming normal liver tissue. After subphrenic dissection the defects were closed with several charges of surgical staplers. A medial defect, adjacent to the entrance of the right phrenic nerve was manually sutured. Recovery was delayed by a C.difficile-associated diarrhea but otherwise uneventful. Phatology exams could not confirm the presence of endometrial tissue in any of the samples.
Conclusions/Uploads: The association of diaphragmatic defects in women with pneumothorax may be more frequent than previously thought, nevertheless its physiopathological meaning is still uncertain. The coincidence of eventrations and herniations is particularly intriguing in this rare case.
Disclosure: F.J. Moradiellos Díez: Vitrolife (Sweden) provided the evaluation boxes free of charge to our institution.All other authors have declared no conflicts of interest.



Four phases of diaphragmatic defects repair
1. Herniation of liver tissue through a diaphragmatic defect 2. Dissection of the defect and biopsy of the "bud" 3. Mechanical suturing of the diaphragm 4. Final appearance after correction

P-215 INTRAPERICARDIAC HERNIATION OF THE LIVER AFTER CORONARY BYPASS GRAFTING. MINIMALLY INVASIVE REPAIR WITH LONGTERM FOLLOW-UP.

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Background/Objectives: Trans-diaphragmatic intra-pericardial herniation of intra-abdominal organs is a rare complication after coronary artery bypass grafting (CABG) using the right gastro-epiploic artery. We report a case of cardiac compression by a herniated left liver lobe repaired by minimally invasive techniques.
Materials & Methods: Case report
Results: A 50 year-old patient with a history of coronary artery stenting in 2001 underwent in 2002 a single bypass using the pedicled right gastro-epiploic artery to the right coronary via a bi-subcostal laparotomy with partial lower sternotomy. Seven months later, hospitalisation was required for rapidly progressive dyspnea, orthopnea and epigastric pain. This lead to discovery of cardiac compression by an intra-pericardial herniated left liver lobe. Coronarography showed occlusion of the bypass graft. A semi-urgent repair was performed using a 3 port laparoscopic approach for reduction of the liver hernia, takedown of the occluded bypass and peri-cardiac adhesions using ultrasonic dissection, followed by closure of an 8 cm diaphragmatic defect using a PTFE mesh. Relief of cardiac compression immediately restored normal cardiac function. The postoperative course was uneventful. Long-term follow-up showed no further cardiac event for more than 5 years, until when the patient required an additional percutanous coronary stent. After 7 years of follow-up, a CT-scan showed perfect integrity of the diaphragmatic repair.
Conclusions/Uploads: To our knowledge, this is the first reported case of long-term follow-up after minimally invasive repair of an intra-pericardial hernia complicating a CABG.
Disclosure: All authors have declared no conflicts of interest.

P-216 MEDIASTINAL GANGLIONEUROMA WITH DIAPHRAGMATIC INVOLVEMENT

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Background/Objectives: Twenty percent of mediastinal tumors are neurogenic, and 10% of neurogenic tumors are ganglioneuromas. Ganglioneuromas are rare, benign, slowly growing and well-differentiated tumors of neurogenic origin. They usually present in patients under 30 years of age with a slight female predominance. They are most commonly localized in the posterior mediastinum (41.5%). Moreover, ganglioneuroma with multiple tumor masses in several organs is unusual. There is no reported case who had mediastinal ganglioneurome concomitant diapragmatic involvement. We are reporting surgical treatment of a case with posterior ganglioneuroma with concomitant diapragmatic involvement.
Materials & Methods: Case: A-43 year-old man was admitted to our clinic with chest pain and dispnea. Initial chest computed tomography and plain radiography showed posterior mediastinal mass and left diapragmatic eventration (Figure 1 and 2). Left posterolateral thoracotomy was applied and mediastinal tumor was removed (Figure 3), while diapragmatic exploration, multÂ±pl small nodules of the diapragma were seen. Limited diapragmatic excision was done (Figure 4) and frozen section of the nodules were benign. Diapragmatic plication was done with mayo teqnique primary suturation (Figure 5). Pathologic diagnosis of both mediastinal mass and diapragmatic nodules were ganglioneuromas. Patient discharged home at the 7th day after operation. There were no symptom and radiologic recurrence at the 6th month's follow up.
Results: Mediastinal ganglioneuromas are rare, benign, slowly growing tumors. Multiple tumor masses in several organs of ganglioneuroma is unusual. This is the first reported case of mediastinal ganglioneuromas with diapragmatic involvement.
Conclusions/Uploads: Surgical excision treatment seems to be the best management such this condition.
Disclosure: All authors have declared no conflicts of interest.

P-217 VASCULARY TOS CASE AS A RARE COMPLICATION OF MINIMALLY INVASIVE SURGERY FOR PECTUS EXCAVATUM

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Background/Objectives: Ravitch prosedure and minimally invasive surgery (NUSS) are used for correction of PE. Most common complication of MIS is remove of the bar or bar rotation that required reoperation(%9.2),pnomothorax that required tube thoracostomy (4.8%) . Scarce problems are ; complications includes infection (%2), pleural effusion (%2), TOS(%0.8), cardiac injury (%0.4), sternal erosion (%0.4), pericardit (%0.4) and pseudoanevrism of anterior thoracic artery (%0.4).We present a patient who underwent nuss prosedure with two bars and resection of right first rib due to vasculary TOS symptoms.
Materials & Methods: Nuss prosedure performed for PE(HI:4,7) to an 22 year old male patient. Pain and numbness on right arm occured on first mounth of postoperative control . Right upper extremety was pulseness and cold at standing position. At supin position right side pulses were palpably.
Results: In duplex USG , arterial flow of right upper extremty was normal on supin position but there were no flow just under clavicle on standing position . CT angiography performed and artery between clavicle and first rib was compressed . We suggested to patient either removing the bar or resection of first rib and after that first rib was resected by axillary thoracotomy.In postoperative examination his right upper extremty pulses were palpabl and warm. There was no numbness ,pain and cyanosis on follow up.
Conclusions/Uploads: It is recommended that patients should be examined to detect signs of vascular compression due to latent TOS. As seen in our case after surgery, the possibility of this complication should be kept in mind to avoid permanent lesions of the plexus.
Disclosure: All authors have declared no conflicts of interest.

P-218 GASEOUS CEREBRAL EMBOLISM – RARE COMPLICATION IN NON-TRAUMATIC THORACIC SURGERY

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Background/Objectives: Postoperative complications in general thoracic surgery are caused by local and general effects of the disease or surgical procedure.
Materials & Methods: Male patient, presenting with a giant solitary fibrous left pleural tumor, had an open tumorectomy. During surgery, a massive decollation of the visceral pleura has been produced on the diaphragmatic side of the lower lobe. Because of the massive air leek, the visceral pleura had to be sutured back to the parenchyma. Immediate after surgery, the patient presented blindness; the cerebral MRI detected multiple embolic lesions in the occipital lobes.
Results: After 8 days of conservative treatment, the gradual remission occurred, with complete restauration of the sight.
Conclusions/Uploads: Extremly rare, complete transitory loss of sight can occur as a postoperative complication in general thoracic surgery.
Disclosure: All authors have declared no conflicts of interest.

P-219 SURGERY FOR LUNG METASTASIS: ANALYSIS OF A SINGLE CENTRE SERIES

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Background/Objectives: Analysis of a single centre series of patients undergoing lung resection for metastatic disease.
Materials & Methods: Using a prospective surgical database, 246 patients operated for suspected lung metastasis between January 2002 and December 2008, were identified. We analyzed survival probability according to tumour type, syn-/metachronous, uni-/bilateral, solitary vs. multiple lesions, disease free interval (DFI) and presence of positive lymph nodes.
Results: 32 patients were excluded because of primary lung tumour (n=14), benign lesion (n=6), initial metastasectomy elsewhere (n=4), explorative operation (unresectable n=4; no lesion found n=2) and follow-up abroad (n=2). Median age was 62 years (range 5-84), 58% were male. Primary tumour was colorectal (40.2%), other epithelial (17.3%), sarcoma (29,4%), germ cell (6.1%), or other (7%) in origin. Synchronous metastatic lung disease was present in 27% (n=58). A total of 316 interventions were performed: 258 initial (164 unilateral, 88 staged bilateral, 6 simultaneous bilateral), 47 relapse (15 contralateral, 32 ipsilateral redo surgery) and 11 third, fourth or fifth interventions in total. Precision or wedge resection was performed in 119 (56%, range number of lesions 1-78), anatomical segmentectomy in 20 (9%), lobectomy in 73 (34%) and pneumonectomy in 2 (1%). In-hospital-mortality and 90-day-mortality was 0 and 0.5% respectively. Overall 5 year survival (5YS) starting from date of diagnosis of metastatic lung disease (n=214) was 62.7%; grouped by IRLM (Fig1) classification 78.6, 64.2 and 53.9% respectively. 5YS in the epithelial tumour group was 61.7% and 53.1% in the sarcoma group. We found no significant difference in survival between unilateral versus bilateral or synchronous versus metachronous disease. Median survival time in patients undergoing anatomical resection with positive lymph nodes (n=11) was 14 versus 80 months if negative (n=74, $p<0.001$).
Conclusions/Uploads: Overall 5YS after lung metastasectomy is good, 62.7%, with very low surgical mortality. Lymph node involvement is a significant negative predictive factor.
Disclosure: D.E. Van Raemdonck: Dirk Van Raemdonck is supported by grant G.3C04.99 from FWO-Flanders. All other authors have declared no conflicts of interest.

P-220 THE BIRT-HOGG-DUBÉ SYNDROME: TREATING A PNEUMOTHORAX FOLLOWED BY SCREENING A FAMILY FOR RENAL CANCER

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Background/Objectives: A 25 year old female patient presented with a right sided spontaneous pneumothorax, treated successfully by insertion of a chest tube. Taking the family history on admission revealed pneumothoraces in the past medical history of several family members. This detail prompted further investigations.
Materials & Methods: Chest CT scans of the patient and her relatives who had suffered a pneumothorax in the past were initiated. Furthermore blood tests for genetic analyses of the whole family were ordered.
Results: The patient, her son, her mother, three sisters, two brothers, one niece and one nephew agreed to genetic diagnostics; the adults also agreed to CT scans of the chest. 7 out of these 10 patients carried the autosomal dominantly inherited mutated gene of the Birt-Hogg-Dubé Syndrome. The CT scans of the adults who carried the mutations all showed bilateral pulmonary cysts. Screening for renal cancer did not reveal any suspicious lesion in any patient so far.
Conclusions/Uploads: Spontaneous pneumothoraces are seen frequently in thoracic surgery units. The Birt-Hogg-Dubé syndrome is a rare autosomal dominantly inherited defect of the FLCN gene (in this family deletion of three bases in intron 10). First described by Birt, Hogg and Dubé in 1977 the patients usually present with skin lesions (fibrofolliculomas) and/or pneumothoraces. The most serious consequence of the disease however is the increased risk for renal cell carcinomas. Thus obtaining a careful family history can be the only lead pointing towards a disease that requires far more than treatment of the pneumothorax and may concern a whole family.
Disclosure: All authors have declared no conflicts of interest.

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