**451. Special problems in thoracic surgery**

**P4417**

Is small-bore catheter efficient in different type of pleural pathologies?
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In recent years, there is a tendency to use small-bore catheters for pleural pathologies. We aimed to share our experiences about small-bore catheter usage in different pleural diseases.

Between 2006 and 2011, 287 patients with pleural pathologies were treated via 309 small-bore (10F) thoracic catheters. There were 204 male and 83 female patients (mean age: 52). There were 265 unilateral single catheter insertions, 15 bilateral insertions and 7 two-catheters insertions in same hemithorax consecutively. The most frequent indication was pleural effusion (147 catheters), 103 of them were due to malignant pleural diseases. Small-bore catheters were performed in 133 cases with pneumothorax, 21 cases with hemothorax and 8 cases with hemopneu

mothorax. Pleurodesis were performed effectively with povidion iodine in one, talc in 35 cases.

In 7 patients (3 malignant pleural effusion, 1 empyema, 2 spontaneous pneumothorax and 1 traumatic pneumothorax) second catheter insertion in different localization was needed. In 15 patients (7 spontaneous pneumothorax and 5 malignant pleural effusion, 1 barotrauma pneumothorax, 1 pneumothorax as complication, 1 empyema) pleurocan catheters were ineffective and they changed with small-bore trocar catheters. Our results showed 7.2% failure ratio.

Six patients underwent operation because of persisted air leakage. Mean duration time of the catheters were 5.6 days (1-20 days). They showed difference depending upon the pleural pathologies. For pleurodesis, mean duration time of pleurocan catheters was 4.7 days.

We found small bore catheters very effective in not only malignant pleural effusion and pneumothorax but also in hemothorax and parapneumonic effusions.

**P4418**

Thoracoplasty in the treatment of chronic nonspecific empyema
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Background/Objectives: Problems in the treatment of chronic nonspecific empyema of pleura (CNEP) remain relevant.

Material and methods: 207 patients were treated with CNEP in clinics of Lviv Regional Center of Phthisiology and Pulmonology and Lviv Regional Hospital at the past 30 years, aged 15 - 80 years from 1.5 month to 13 years from the date of diagnosed acute suppuration pleura.

Results: Reasons CNEP: purulent inflammation of the lungs with bronchopleural fistula and residual pleural cavity were found in 125 (60.38%) patients; suppuration of hemathorax - in 28 (13.53%), suppuration of pleural effusion - in 22 (10.64%); complications after surgery - in 24 (11.59%), pleural cavity foreign body - in 8 (3.86%). An operations: dekortykation with resection and lung and pleura were performed in 95 cases, including lob -, bilobektomy - in 23; atypical segmentektomy - in 16; pleuropulmonektomy - in 7, taking in bronchial fistulas - in 17. If you have problems with smoothing out the lung, intrapleural thoracoplasty operation was performed (47 cases). In 4 patients with significantly reduced spirometry and hasmetry was performed ekstrapleural thoracoplasty. In the postoperative period died 6 (2.89%) patients. After thoracoplasty all patients survived.

Conclusion: We believe that the most appropriate and economically justified in patients with radical resection is CNEP lungs and pleura. Nonaccordance volume of lung and pleural cavity requires plastic chest wall.

**P4419**

Interleukin 27 (IL27): A new tool for lung cancer gene immunotherapy?
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Introduction: Recent studies reported strong anti-tumor activity of APC-derived
IL27, cytokine driving Th1 immunity and stimulates cytotoxic response. However, IL27 has not been considered yet as a tool in lung cancer gene immunotherapy.

**Aims:** Construction of a plasmid encoding IL27. Evaluation of its transfection efficacy in non-small (A549) and small (NCI-H82) cell lung cancer model lines.

**Methods:** IL27 cDNA was cloned into pSMx-IG plasmid. Lung cancer cells (A549 and NCI-H82) were transfected either with IL27 construct (pSMx-IL27) or empty plasmid as a control. Transfection efficacy was proved by RT-PCR and anti-IL27 immunostaining. Cell cycle and apoptosis (TUNEL assay) was assessed by flow cytometry.

**Results:** pSMx-IL27-transfected cancer cells expressed IL27, as it was revealed by positive RT-PCR and flow cytometry (A549 79%, NCI-H82 56%, median of 5 experiments). Unexpectedly baseline IL27 expression was also found in non-transfected cells, particularly in A549 line (40%). Tumor cells transfected with pSMx-IL27 plasmid showed intense apoptosis, as compared with empty plasmid control.

**Conclusions:** We proposed the model of future lung cancer gene immunotherapy with use of IL27 encoding plasmid. However, low IL27 expression in non-transfected lung cancer cells calls in question its antimurinal activity as a local immune stimulator. On the other hand, increased apoptosis of transfected cancer cells was observed, suggesting direct impact of IL27 on tumor cells.

P4420

Perioperative considerations for patients with asthma undergoing thoracic surgery

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Asthmatic patients are a challenging population for anesthesiologists.

**Aim:** The aim of this study was to determine the perioperative complications in asthmatic patients with symptoms before the surgery.

**Material and methods:** From 2007 to 2011 44 patients with asthma underwent thoracotomy. We classified the patients into two groups: First group (n 19) - patients with asthma who currently have no symptoms and second group in (25) - asthmatic patients with symptoms before surgery. Pulmonary function was optimized preoperatively in all patients and airway obstruction was controlled by using steroids and bronchodilators. We conducted deep anesthesia with Sevoflurane, Fentanyl and Propofol. We monitored several parameters: tidal volume, inspiratory, expiratory volume, Ppeak, Pplat, ETCO2, PaCO2.

**Results:** Patients in the second group had less incidences of perioperative bronchospasm than those in the second (p<0.025). We detected some statistical differences in the parameters: the gradient between ETCO2, PaCO2 is bigger in second group (p<0.025) and we detected an increasing Ppeak and Pplat in asthmatic patients with symptoms before surgery.

**Conclusion:** Symptomatic asthmatic patients had more the incidence rate of the perioperative complications. With deepening anesthesia level and aggressive pharmacological management the anesthesiologist minimize the risk of complications.

P4421

Application of one-lung high frequency jet ventilation (OHFJV) in lung surgery

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**Objectives:** In any cases lung surgery including thoracoscopic procedures requires ventilation of one lung. The aim of the study was to examine physiologic features of OHFJV in lung surgery.

**Materials and methods:** We compared two groups of patients comparable in terms of surgery, comorbidity, age of patients underwent lung resections. In the group I (n=101) we conducted traditional one-lung controlled mechanical ventilation (OCMV). The regimen was CMV (f = 17-19 cycles in minute, Vt – 260-410 ml, E – 1-2). In the group II (n=112) OHFJV was conducted (f – 100 cycles in minute, Vt – 150-170 ml, E – 1-2). In both groups FIO2 = 0.21.

**Result:** OHFJV provided more effective intrapulmonary kinetics and respiratory gases distribution. OHFJV being compared with OCMV showed some advantages which are as follows: I. Increasing of the volume of alveolar ventilation (Vl), reducing of the volume of physiological dead space (Vd), in 2,5 times, reducing proportion (Vd/Vl) in 5 times, reducing physiological blood shunt by 80%, and increasing PaO2 by 16.7% indices PaO2 and pH being normal. II. There were significantly lower indices of transpulmonale pressure, contributing to an increased venous return to heart and cardiac output.

**Conclusion:** Thus, OHFJV provides adequate gas exchange, and creates favorable conditions for the surgeon.

Postoperative pathology for sternal tumors were condrosarcoma, malignant melanoma and liposarcoma, and for chest wall tumors they were osteochondroma, malignant fibrous histiocytoma and lymphoma. There were no paradoxical movement, difficulty in breathing, or prosthesis-related complications during the follow-up period. Only in one patient muscular flap necrosis has occurred. Therefore second operation was performed for removal of necrotic muscular flap. The mean postoperative follow-up period was 15 months (range, 2–36 months).

We consider that, titanium meshplate is an easily applicable and suitable material to use in the reconstruction of large chest wall defect.

P4424

Thoracic paravertebral block for awake videothoracoscopic surgical procedures of high risk patients

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**Objective:** To present our experience and evaluate feasibility of thoracic paravertebral block as adequate anesthesia for some awake video-assisted thoracoscopic surgical procedures in high risk patients.
Methods: Seven (ASA IV) patients had multiple unilateral thoracic paravertebral blocks from Th3 to Th9 levels with 0.5% levobupivacaine as only anesthesia for their VATS procedures. Patients were awake, lightly sedated and spontaneously breathing 100% oxygen via tight mask during the whole procedures. Paravertebral catheters were inserted at Th5-6 interspace for postoperative analgesia. The performed surgical procedures were: inspection, debridement, evacuation of haematoxia, pleural or lung biopsies, pericardial fenestration, partial pleurectomy, talc pleurodesis, packing with wet dressing of povidone-iodine, or combinations of all mentioned above.

Results: Thoracic paravertebral anesthesia provided very good conditions for VATS and postoperative pain relief for presented patients. The mean duration of the procedures was 64 minutes. The procedures were well tolerated, respiratory status was stable, and oxygen saturation was maintained above 95%. Pain and panic attacks were well controlled. Spontaneous breathing and hemodynamics were well maintained during the operations. Recoveries were uncomplicated despite the underlying gross pathology.

Conclusions: Thoracic paravertebral blockage appears to be promising and feasible anesthetic management of some awake VATS procedures, especially when hemodynamic stability, adequate venous return and preservation of spontaneous ventilation are very important anesthetic goals.

P4425 Video-assisted thoracoscopic surgery of mediastinal cysts: Report of 13 cases
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Objectives: To study of possibilities of EBUS-TBNA in differential diagnosis of tuberculosis and sarcoidosis.

Materials and methods: From March till December, 2011 30 ultrasonic video bronchooscopies for the purpose of performance of a transbronchial biopsy of lymph nodes of a mediastinum at 30 patients with a mediastinal lymphadenopathy have been executed. Middle age has made 30±5 years, 14 men and 16 women. The syndrome of a mediastinal lymphadenopathy was established on the basis of the data of a spiral computer tomography. The average size of LN ± 1.6±0.4 cm, radiological signs of a pathology of lungs were absent. At all patients preliminary clinical inspection hasn’t allowed to differentiate character of a lymphadenopathy. Second step in all were VTS biopsy of lung and histological examination (as gold standard).

Results: We didn’t have any complications. After cytological examination we find cells of LN in 30 cases. We compared results of cytological and histological examinations. And the results were equal. We found 5 cases of tuberculosis, in 25 patients sarcoidosis. Diagnosis was confirmed by 6 month. period of follow-up.

Conclusion: We can see equal results of both examinations. May be in such cases we need not to do of VTS biopsy of lung and histological examination. (Time to change Gold standard?)

P4428 Less pain without pain-killers?
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Aim: To study the influence of postoperative pain on the postoperative hospitalization period.

Materials and methods: A prospective study, with 2 groups of patients, 15 cases each. Group A – for this patients, the stiches used to close the thoracotomy were passed between the rib and intercostal nerve in the closure of thoracotomy increase the post-operative pain. To assess if the mode of closing the thoracotomy may have an influence over the post-operative pain.

Results: In group A – 1 patient – score 9, the rest of the group pain was 8 or less. Group B – 13 patients pain was 10. We used a scale from 0-10, 0 = no pain, 10 = pain intensity was the biggest ever felt by the patient. We assess the pain in the first 48 h post-op and after 21 days.

Conclusion: From March till December, 2011 30 ultrasonic video bronchooscopies for the purpose of performance of a transbronchial biopsy of lymph nodes of a mediastinum at 30 patients with a mediastinal lymphadenopathy have been executed. Middle age has made 30±5 years, 14 men and 16 women. The syndrome of a mediastinal lymphadenopathy was established on the basis of the data of a spiral computer tomography. The average size of LN ± 1.6±0.4 cm, radiological signs of a pathology of lungs were absent. At all patients preliminary clinical inspection hasn’t allowed to differentiate character of a lymphadenopathy. Second step in all were VTS biopsy of lung and histological examination (as gold standard?).
**P4430**
The feasibility of medical thoracoscopy in the treatment of multi-loculated pleural effusion
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**Introduction:** Optimal surgical procedure must be selected according to empyema stage in the treatment of multi-loculated empyema. However, it is difficult to select the optimal procedure using conventional staging system. The medical thoracoscopy is an ideal diagnostic tool of pleural disease, we used medical thoracoscopy to evaluate the accurate staging of empyema and to select optimal surgical procedure.

**Methods:** 108 patients were transferred to treat multi loculated pleural effusion. The type of surgical procedure was selected according to the empyema stage of American Thoracic Society. Group I (n=44) was staged according to conventional staging system such as onset time, pleural fluid finding and CT findings, and group II(n=64) according to the finding of medical thoracoscopy.

**Results:** There was no significant difference of morbidity and mortality between two groups (p<0.05). The 20 closed thoracostomy(45.5%), 6 VATS decortication(13.6%), and 18 open decortication (40.9%) were performed in group I. 16 cases of 18 open decortication were undertaken due to the failure of first treatment (12 closed thoracostomy, 4 vats decortication). In group II, 43 locculation bloken up and closed thoracostomy during medical thoracoscopy (67.2%), 15 VATS decortication (23.4%), and 6 open decortication (9.4%). There was no failure primary procedure. The procedure of group II is significantly lesser invasive and the thoracotomy rate is also lower than group I(p<0.05)

**Conclusions:** The medical thoracoscopy is helpful to decide the optimal procedure in the treatment of multiple loculated empyema. We could decrease the incidence of open thoracotomy to use medical thoracoscopy.

**P4431**
May the Nuss operation be minimally invasive procedure in adults
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The repair of pectus excavatum with Nuss procedure (group N) is well established among pediatric surgeons. It named minimally invasive surgery. Studies on adult patients are rare. We compared Nuss procedures and Ravitch procedures (group R) on adult patients, which of them minimally invasive in respect tos cin incisions. We retrospectively analysed 35 adult patients (16 Nuss procedures, 19 Ravitch procedures) from 2007 to 2011. In two groups all patients aged older than 20. Ravitch procedures performed midsternal vertical incision and substernal metal bar. For Nuss procedures three scin incisions was performed, a 10-mm blunt-tip trocar was introduced into the chest. A subcutaneous tunnel was created by blunt dissection to the highest point of the funnel. A long steel introducer was inserted into the chest and pushed behind the sternum anterior to the pericardium. Finally, the bar was rotated 180°, and the sternum was tilted upward. A stabilizer was placed on the left side of the bar.

In group R 12.5 cm (10-17 cm) scin incision was performed. Non-steroidal anti-inflamatuar analgesic used for post-operative pain. We did not observe any relaps and major complication. In group N 8.5 cm (7-12.5cm) scin incision was performed. Opioid derived was used for post-operative pain. We observed early bar dislocation at four patients, two haemothoraces, three pneumothoraces and one severe post-operative pain.

In Nuss procedures should not require chest wall resection and it may do small scin incisions. But Nuss procedure have lots of complications. In Ravitch procedure, much more effective and less invasive and have little complication. We have lots of question marks.

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