254. Video-assisted thorascopic surgery, novel technical devices and tracheal problems

P2756
Analysis of 54 patients who underwent thoracoscopic sympathectomy

Aim: Thoracoscopic sympathectomy is associated with a high compensatory sweating rate. In this study, we aimed to present our experience with Thoracoscopic Sympathectomy in 54 patients who were operated from various level of sympathetic trunk.

Material and Method: Medical records of 54 patients who underwent Thoracoscopic Sympathectomy for primary hyperhidrosis were analyzed, retrospectively. We contacted with all patients except four via telephone.

Results: A total of 54 patients were treated between 2006-2008. There were 44 male patients and 10 female patients. The median age was 24.3 years. Indications, level of resection, type of resection were summarized in Table 1.

Table 1
<table>
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<th>Indications for surgery</th>
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<tr>
<td>Palmar hyperhidrosis</td>
<td>28</td>
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<tr>
<td>Palmar and plantar hyperhidrosis</td>
<td>11</td>
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<tr>
<td>Palmar and axillary hyperhidrosis</td>
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<tr>
<td>Axillary hyperhidrosis</td>
<td>8</td>
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Wideness and Level of the Resection:
- T2 and T3 ganglionectomy: 30
- T2 ganglionectomy: 14
- T3, T4 and T5 ganglionectomy: 6
- T1 ganglionectomy: 2
- T3 and T4 ganglionectomy: 2

Type of sympathectomy:
- En bloc resection: 36
- Ablation with electrocoagulation: 18

Compensatory sweating was reported in 6 (100%) of the T3-4-5 group, 16 (53%) of the T2-3 group, and 3 (21%) of the T2 group. The mean hospitalization time was 2.7 days. Compensatory sweating was significantly higher when we resected the sympathetic trunk longer.

Conclusion: Thoracoscopic Sympathectomy is the cornerstone of treatment of primary hyperhidrosis. However; serial studies are needed which were evaluated the relationship between the compensatory sweating and resection of level of sympathetic trunk.

P2757
Transcervical videomediastinoscopic approach of the left main bronchus - A simple procedure with multiple indications
Cristian Paleru1, Ciprian Bolca1, Olga Danaila1, Radu Matache1, Ioan Cordos1, Adrian Istrate1, Iolanda Ion3, Mihaia Alexe2, Genoveva Cadar3. 1Thoracic Surgery, 2Pneumology/Bronhology, 3Anesthesiology, National Inst. of Pneumology “M. Nasta”, Bucharest, Romania

Objective: The transcervical videomediastinoscopic approach (first described by Azorin) of the left main bronchus has different indications either for bronchial stump left fistula, either for bronchial cutting prior to left pneumonectomy.

Material and method: At a 22 y old boy we resect the main left bronchus prior to a pneumonectomy performed for an destructed lung with multiple fistula and piothorax. After improvement of general status the simplified pneumonectomy was performed. Second case was a left main bronchus long stump fistula post a pneumonectomy performed for an destructed lung with multiple fistula and postthorax. After improvement of general status the simplified pneumonectomy was performed.

Results: In both cases the operative time was around 1 hour with an improved performance (45 mm) for the bronchial resection in prepneumonectomy case. Minimal blood loses and anatomical disturbance permit a very sure bronchial stump healing. Bronchoscopically confirmed 2 and 4 weeks postoperatively. Very good improvement of the cachectic status post bronchial closure with epithelization of the staple line before pneumonectomy and good immediate result of pneumonectomy. Very good resistance of the bronchial stump to pleural consecutive washing procedures.

Conclusion: Minimal invasive transcervical videomediastinoscopic assisted approach of the left main bronchus had already 2 different indications as a safe procedure prior or post pneumonectomy. It is important to keep this possibility in mind for experienced mediastinoscopists in limited and special cases.

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P2764 Application of the endobronchial valve as a method to stop lung hemorrhage

Aim: To evaluate the efficacy of the endobronchial valve in the management of lung hemorrhage.

Materials and Methods: We performed a retrospective analysis of 57 patients (42 men, 15 women; age range, 19-87 years) who underwent endobronchial valve insertion. The main indication for valve insertion was hemoptysis, and the valve was inserted under bronchoscopic guidance. The follow-up period was 6 months.

Results: Among the 57 patients, 23 patients (40%) had follow-up data available. The median follow-up period was 3 months (range, 1-6 months). The endobronchial valve was inserted in 23 patients. The valve was successfully inserted in 22 patients (95.7%). In one patient, the valve insertion failed due to technical reasons. The median duration of hemoptysis before valve insertion was 1.5 months (range, 0.1-6 months). After valve insertion, the median duration of hemoptysis decreased to 0.5 months (range, 0-6 months). The median follow-up duration after valve insertion was 3 months (range, 1-6 months).

Conclusions: The endobronchial valve is an effective method for managing lung hemorrhage. It can be inserted under bronchoscopic guidance and provides a rapid reduction in hemoptysis. Further studies are needed to confirm the long-term efficacy of this method.
Results: The duration of occlusion in the BG was 212.3±91.4 days, the maximum time being 515 days. The duration of the occlusion in the CG was 93.6±6.4 (P=0.005) days and 30 days. After blockage removal the LH recurrence was noted in 2 (2.7%) patient in the BG and 8 (15.1%) in the CG (P=0.005). By urgent indications 3 (4.2%) operations were performed in the BG and 16 (30.2%) in the CG (P<0.001). Different complications after the temporary bronchial occlusion occurred in 8 (10.6%) patients in the BG and 24 (46.8%) patients in the CG (P<0.001). Hemosputating pneumonia occurred in 4 (5.3%) patients in the BG and 17 (32.0%) in the CG (P=0.001). Lethality made up 3 (4.0%) patients in the BG and 16 (30.2%) patients in the CG (P=0.008).

Conclusion: Thus, the application of EV is the effective method to stop lung hemorrhage at lung tuberculosis.

P2765
Application of the endobronchial valve in complex treatment of patients with the bronchopleural fistulas after lung resection
Arnold Levin1, Yevgeny Tseimakh2, Pavel Zimonin1, Alexander Samuilenkov3, Ivan Chukanov3, Olga Nikolaeva1, 1Surgery Department, Altai Regional Antituberculosis Dispensary, Barnaul, Altay Region, Russian Federation; 2Department of Operative Surgery and Topographic Anatomy, Altai State Medical University, Barnaul, Altay Region, Russian Federation.

Topicality: Bronchopleural fistulas and empyema pleurae are still among the most severe and frequent postoperative complications in thoracic surgery.

Aim: Efficiency increase of the complex treatment of patients having pleural empyema with the bronchopleural fistulas by means of the original endobronchial valve application.

Materials and Methods: The endobronchial valve application into the draining pleural empyema was performed to 77 patients (basic group (BG)) to block a bronchopleural fistula, and 58 patients of the contrast group (CG) had the temporary bronchial occlusion by a foam rubber obturator. The groups were comparable.

Results: At hospital stage the elimination of the pleural empyema and bronchopleural fistula were noted in 71 (92.2%) patients in the BG and 40 (69.1%) in the CG one (P<0.001). The duration of the temporary bronchial occlusion in the BG was 31.3±2.1 days, the maximum time being 47 days, and in the CG it was 4.7 days. Oblitative purulent endobronchiolitis of the blocked bronchus was noted in 4 (5.2%) patients in the BG and 55 (94.8%) patients in the CG one (P<0.001). The residual cavity with the bronchial fistula couldn’t be eliminated with the help of this method in 6 (7.8%) patients of the BG and 18 (31.0%) patients of the CG (P<0.05). The average treatment period in the BG was 54.3±3.2 and 136.3±3.2 in the CG (P<0.001).

Conclusion: The endobronchial valve application allows to eliminate the post-sectional bronchopleural fistulas effectively.

P2766
Application of the endobronchial valve in complex treatment of drug-resistant lung tuberculosis
Arnold Levin1, Yevgeny Tseimakh1, Pavel Zimonin3, Alexander Samuilenkov3, Ivan Chukanov3, Olga Nikolaeva1, Svetlana Omelchenko1, 1Surgery Department, Altai Regional Antituberculosis Dispensary, Barnaul, Altay Region, Russian Federation; 2Department of Operative Surgery and Topographic Anatomy, Altai State Medical University, Barnaul, Altay Region, Russian Federation.

Topicality: In modern conditions of growing of medicinal stability of tuberculosis the role of unmedicamentous miniinvasive methods of treatment essentially grows.

Aim: The increase of efficiency of a complex treatment of patients with a destructive drug-resistant tuberculosis of lungs (DRT).

Materials: results of treatment of 116 patients with widespread DRT are analyzed. 99 (85.3%) patients had a multiple DRT. In 71 patients within a complex treatment of destructive forms DRT it is used endobronchial valve application (EVA) (basic group (BG)), and 45 patients – it is applied the artificial pneumothorax (AP) (contrast group (CG)).

Results: In 6 months after the beginning of a complex treatment the termination of allocation of Mycobacterium tuberculosis was obtained in 65 (91.5%) patients in BG, and in CG – 28 (62.2%) (P<0.001). In 6 months after the beginning of a complex treatment closing of cavities of disintegration in BG occurred in 28 (39.4%) patients, in CG 4 (8.9%) (P<0.001). In BG the duration period averaged EVA 226.2±11.8 days, the maximal term of occlusion – 365 days. Duration the AP – 206.3±4.1 days (P<0.05), the maximal term – 301 days. In BG after EVA complications were observed in 4 (5.6%) patients, in CG – 23 (51.1%) (P<0.001).

Conclusion: EVA is an effective non-medicamentous method of DRT treatment.

P2767
Needlescopic video-assisted thoracic surgery for primary spontaneous pneumothorax
Shah-Hwa Chou, Hsien-Pin Liu, Ji-Ying Lee, Yen-Lung Lee, Eing-Long Kao, Meei-Feng Huang, Tsun-En Lin, 1Thoracic Division, National Research Centre of Surgery, Moscow, Russian Federation; 2Pulmonary Division, Institution of Pulmonology, Moscow, Russian Federation

Background: Unique radical treatment for pulmonary embolism (PE) patients is lung transplantation (LT). There is insufficiency of donor organs in Russia. It forces to search additional ways in treatment of this group of patients.

Aims: To compare various methods of surgical and endoscopic management of PE patients.

Materials & Methods: 55 consecutive patients (1 woman), mean age 62±7 yo, with advanced PE were managed. Age 38-77 yo. They had mean FEV1 21±6%, FEF25%-75% 30±7%, dyspnoe 4.5 (MRC scale), TLC 138±18%, RV 294±87%, RV/TLC 70±8%, PaO2 69±13 mm hg and PaCO2 41±7 mm hg. Procedures included LVR in 34 pts, bronchoscopic LVR in 6 pts, artery-venous fistulas in 10 pts, stern cells transplantation in 5 pts.

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P2770
Resection and plastic surgery of bronchial tubes
Vladimir Parshin, Yuriy Biryukov, Svetlana Grigorieva, Ovich Mirzoyan, Dmitry Bazanov. Thoracic Division, National Research Centre of Surgery, Moscow, Russian Federation

Background: Management of malignant and benign diseases of tracheobronchial tree by performance of plastic operations remains a challenge to thoracic surgery. Now similar operations are rare in view of the lack of indications.

Aims: To study results of bronchoplastics operations.

Materials and methods: Within 1963 to 2009 yy 552 operations on tracheobronchial tree were performed. Indications included bronchopulmonary cancer (n=200), benign tumours (n=115), a bronchial fistula after pneumonectomy (n=127), cicatricial stenoses and occlusion of bronchi (n=67), bronchoesophageal fistulas (n=43). We applied ten variants of a resection and plastics of bronchial tubes on right lung and eight on left lung, including complex polybronchial anastomosis. In some patients resection of segmental and subsegmental bronchi without resections of a pulmonary tissue was performed thus both stumps of bronchi took functionally high-grade pulmonary tissue. Such interventions remain operation of a choice in geriatric patients and patients with the limited respiratory reserves in case of lung cancer.

Results: Smooth postoperative period was noted in 83.2%. Postoperative lethality rate was 6.9%. After the resection of the bronchial tube with lobectomy lethality rate was 16.3%. Closure of bronchoesophageal fistula lethality rate was 16.3%. Postoperative lethality rate was 6.9%. After the resection of the bronchial tube with lobectomy lethality rate was 5%. After closure of bronchoesophageal fistula lethality rate was 16.3%. Lethality rate of emergency operation was 25.0%. In 19.5% of cases the resection and plastic of bronchial tubes was repeated. Of the cases, 44 (77.20%) were male and 13 (22.80%) were female. There were 7 (12.28%) children. The mean age was 39.08±16.66 years. Hemothorax etiology in all patients, were head trauma and prolonged intubation. Average time of postoperative period was noted in 83.2%. Postoperative lethality rate of emergency operation was 25.0%. In 19.5% of cases the resection and plastic of bronchial tubes was repeated. Of the cases, 44 (77.20%) were male and 13 (22.80%) were female. There were 7 (12.28%) children. The mean age was 39.08±16.66 years. Hemothorax etiology in all patients, were head trauma and prolonged intubation. Average time of postoperative period was noted in 83.2%. Postoperative lethality rate of emergency operation was 25.0%. In 19.5% of cases the resection and plastic of bronchial tubes was repeated. Of the cases, 44 (77.20%) were male and 13 (22.80%) were female. There were 7 (12.28%) children. The mean age was 39.08±16.66 years. Hemothorax was noted in 27.5% of cases and was diagnosed by chest x-ray, CT scan, or by the results of emergency thoracostomy. The majority of cases can be treated with tube thoracostomy. Emergency thoracostomy is life-saving when indicated. The need for thoracostomy was estimated in isolated hemothorax due to penetrating chest trauma.

Conclusions: Results: Smooth postoperative period was noted in 83.2%. Postoperative lethality rate was 6.9%. After the resection of the bronchial tube with lobectomy lethality rate was 16.3%. Closure of bronchoesophageal fistula lethality rate was 16.3%.

Keywords: long segment tracheal stenosis – prolonged intubation – surgery – releasing technique

P2771
Coordination between the surgeon and anesthesiologist in the treatment of tracheal stenosis
Igor Motus, Michael Kontorovich, Nadezhda Giss. Thoracic Surgery, Urals Research Institute for Phthisiopulmonology, Ekaterinburg, Russian Federation

Keywords: Anesthesia&Intensive Care, Center for Phthisiologia, Ekaterinburg, Russian Federation

Background: Clinical situations and anatomic variants in postintubation and stomal stenosis of the trachea require different surgical and anesthetic approaches.

Aims: To determine optimal combination of surgical techniques and respiratory management in the treatment of tracheal stenosis (TS).

Methods: A review was performed of 80 patients with TS underwent surgical treatment during last 5 years. Circular resections were performed in 21 cases (9, with and 12 without existing tracheostomy), T tube placement in 8, and bougienage in 51. Traditional endotracheal ventilation and high-frequency jet ventilation (HFJV) were used according to surgical situation. Adequacy of ventilation was assessed.

Results: Traditional ventilation created optimal conditions for surgery when the tube could be passed distal to the lesion or inserted via the stoma. After dividing the trachea HFJV was started via catheter and anastomosis was performed. If the tube was placed before the stenosis and its diameter was too small for the catheter HFJV via the tube was of choice. We applied HFJV when T tube was placed. Bougienage required HFJV in every case. There were no any complications during operations. HFJV created excellent conditions for surgical manipulation and provided adequate gas exchange irrespectively of the length of the gap and duration of open airways period.

Conclusions: We found these combinations optimal for any situation in surgical treatment of TS. Findings obtained showed no difference in gas exchange level when both kinds of ventilation were employed in the same patient.

P2772
The result of surgical treatment of proximal long segment post intubation tracheal stenosis and the role of bilateral hysode bone cutting with suprasternal release technique
Reza Bagheri1, Mohammad reza Majidi 2.
1Thoracic Surgery, Mashhad University of Medical Science, Islamic Republic of Iran; 2ENT, Mashhad University of Medical Science, Islamic Republic of Iran

Introduction: Surgical resection is the method of choice in treatment of long segment tracheal stenosis. The aim of this study is the result of surgical treatment of long segment post intubation tracheal stenosis and the role of bilateral hysode bone cutting with supra hyoid release technique.

Material and methods: Between 2004 to 2008, 14 patients with proximal long segment tracheal stenosis with resection of more than 40% length of trachea, in Ghame and Imam Reza hospital in Mashhad analyzed.

Results: 14 patients were analyzed, with MFw 2.3, average age (22.2±4.0 years). Etiology in all patients, were head trauma and prolonged intubation. Average time between surgery and first emission was 4.5±0.5 months. Average length of resected segment 4.3±0.5cm. Average increased length of tracheal was 1.1±0.3cm. Postoperative complications occurred in: one patient (7.1%) with wound infection, and 4 patients 28.4% with stenosis recurrence of that was treated in 3 patient, with multiple dilatation and one patient needed, tracheostomy and T. tube. Quality of life 2 year after surgery in 71% had been in good group. We didn’t have any mortality.

Aim: The aim of this study was to review cases with isolated hemothorax after thoracic trauma, to assess the diagnostic and treatment methods, and to discuss the determining factors of morbidity and mortality. Material and methods: A total of 57 patients, of whom 7 were children, presenting to our hospital with isolated hemothorax between September 2004 and April 2007, were examined retrospectively. All patients underwent tube thoracostomy as the initial treatment approach. Emergency thoracostomy was performed on cases with continuing drainage from the chest tube, expanding hemothorax on the posterioranterior (PA) chest x-ray, and with hemodynamic instability. Results: Of the cases, 44 (77.20%) were male and 13 (22.80%) were female. There were 7 (12.28%) children. The mean age was 39.08±16.66 years. Hemothorax occurred as a result of penetrating trauma in 31 (54.38%) and due to blunt trauma in 26 (45.61%) cases. Of the cases, 49 (85.96%) underwent tube thoracostomy drainage. All the 8 cases (14.03%) that underwent definitive tracheostomy. The survival was 6, 9 and 14 month for the patients with NDTC, one case with WDTC lived for 13 month, the other three patients are alive and with no sign of local or distant disease at 9, 16 and 25 month after surgery. Tracheal resection and reconstruction for thyroid carcinomas with airway invasion might provide long-lasting palliation and might even be curative in a significant number of patients suffering from this disease.

Conclusion: Accurate diagnosis and appropriate surgical intervention in cases with traumatic hemothorax is essential for reducing the morbidity and mortality. The majority of cases can be treated with tube thoracostomy. Emergency thoracostomy is life-saving when indicated. The need for thoracostomy was estimated in isolated hemothorax due to penetrating chest trauma.
P2775
A life saving approach after thoracic trauma: Emergency room thoracotomy
Kutsal Turhan, Alpaslan Cakan, Tevfik Ilker Akcam, Ufuk Cagirici. Department of Thoracic Surgery, Ege University, Faculty of Medicine, Izmir, Turkey

Objective: To determine the outcomes of resuscitative thoracotomy in emergency room in patients with cardiac and/or respiratory arrest after thoracic trauma.

Methods: Between January 2004 and February 2009, eight resuscitative thoracotomies were performed after thoracic trauma in emergency room. The records of the patients were evaluated retrospectively.

Results: The mean age of eight patients (5 male, 3 female) was 36.5 (range 19-53 years). The etiology was penetrating trauma in four patients, traffic accident in two patients, gunshot wound in one patient and falling down in one patient. In addition to thoracic trauma, two patients had cranial, two had abdominal and three had extremity pathology. Anterior thoracotomy in supine position was performed to all patients. The pathology was pulmonary parenchymal laceration in five patients. Intercostal vascular injury, cardiac laceration and descending aorta injury was determined in the other three patients, respectively. All patients with blunt trauma etiology and one patient with penetrating trauma etiology died intraoperatively. Three patients with penetrating trauma were hospitalized for 8 days meanly and discharged by cure. The overall mortality for blunt trauma was 100% and for penetrating trauma 25%.

Conclusion: The indications of resuscitative thoracotomy after thoracic trauma remain a source of controversy. In emergency room resuscitative thoracotomy should be performed to thoracic trauma cases in shock and unresponsive hypotension despite large volume fluid and blood replacement and have no time for transporting to the operating room. The results in patients with penetrating trauma are more successful than in patients with blunt trauma.