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ABSTRACT BOOK

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ORAL PRESENTATIONS

OP-01
Transbronchial peripheral biopsies without guidance - 44 procedures

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PURPOSE: Bronchoscopy is a requirement in the evaluation of lung cancer. In tumors where the diagnosis cannot be established via bronchoscopic biopsy, TBNA, EBUS-TBNA, EUS-FNA or percutaneous biopsy, peripheral transbronchial biopsy can obtain valid results. This method also has value in non-malignant pulmonary diffuse diseases.

Matherial and METHODS: From January 2015 to February 2017 (25 months) we performed peripheral transbrochial biopsy (TTBx) on 44 patients. The pulmonary lesions (most of them tumors) were evaluated with computed tomography. The transbronchial biopsies were performed whithout any guidance, the computed tomography images offering an anatomical orientation (CT-scan orientation).

RESULTS: Transbronchial peripheral biopsy offered adequate tissue samples for pathological diagnosis in 26 patients out of 44.

CONCLUSIONS: The diagnostic rate of success for peripheral transbronchial biopsies was of 59%, an excellent result considering the biopsies were non-guided.

OP-02
Bronchoscopy for lung cancer in Romania

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The purpose of this presentation is to highlight the peculiarities of lung cancer bronchoscopic diagnosis in Romania, where lung cancer incidence and mortality are ranked first in both sexes.

MATERIALS AND METHODS: To conduct this work we used the database of Romanian Society of Pulmonology regarding the number and the availability of bronchoscopy departments in our country, and, also, the diversity of bronchoscopic techniques used in the evaluation of patients suspected of lung cancer.

RESULTS: In our country, more than 2.5 million inhabitants (19% of general population) don't have access to a diagnostic bronchoscopy service, mainly by the lack of such a specialized, interdisciplinary department in many hospitals. Only 149 (18.6%) of 800 Romanian pulmonologists really perform bronchoscopies. In the last year, 28049 bronhoscopies were performed in our country, 35.6% of them being done in one center. The new diagnostic techniques of interventional bronchoscopy (endoscopy and ecoendoscopy with targeted sampling of bronchial tissue), which allows early diagnosis of lung cancer, are available in three centers. Lung cancer suspicion represents 49% of the total number of bronchoscopic indications. 75% of patients are in advanced stages at first diagnosis.

CONCLUSIONS: Bronchoscopy is an invaluable tool in the diagnosis and staging of lung cancer in Romania, available only in specialized centers, few for our country population, where overuse of medical personnel is alarming.

OP-03
Transthoracic fine needle aspiration and core biopsy guided by ultrasound – advantages and drawbacks

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Peripheral pulmonary nodules present a diagnostic challenge to contemporary interventional pulmology. Initialy utilized as a method to by-pass long waiting lists for CT guided diagnostic procedures, nowadays ultrasound(US) has become an essential tool in detection of peripheral lung changes at the Department of Invasive diagnostics at the Pulmology and Allergy Clinic in Skopje. We are presenting our experience in ultrasound guided transthoracic aspiration and core biopsy, evaluating the period from January 2013 to December 2016. A total of 621 patients consulted for diagnosis of peripheral pulmonary nodules, larger than 2cm. Ultrasound detection of the nodules was succeeded in a total of 537 (86.4%) patients and US guided transthoracic needle aspiration (TTNA) or core biopsy (TTNB) was performed for either cytology or histological specimen. In the remaining 84 patients the nodule was not detected either because of superimposing lung tissue or bone, or insufficient visualization because of large BMI, and they were referred for fluoroscopy(FS). Overall diagnostic yield for FS versus US guidance was as follows: TTNA for cytology was diagnostic in 60.6% for FS versus 77.04% with US; With TTNB, positive diagnosis was obtained in 77.08% and 86.8% respectfully. In 0.7 % the mass was not visualized by combination of both methods, and patients were referred to CT guided biopsy. We recommend US is a reliable method for TTNA or TTNB guidance for peripheral lesions, larger than 2 cm, and close to the thoracic wall, as a low radiation, low cost, easily applicable and repeatable method.

OP-04
A novel instrument to treat tracheal stenosis

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Introduction Benign tracheal stenosis can be successfully managed, with interventional bronchoscopy. Disruption of stenotic segment has traditionally been achieved, by combining bronchoplasty techniques, laser or electrocautery resection. We report our experience of bronchoscopic treatment of these situations including a new technique using a specific rigid knife.

MATERIAL AND METHODS: Clinical and radiological files, bronchoscopy database and video reports of 74 bronchoscopy procedures on 30 patients, for treatment of benign tracheal stenosis, between January 2007 and January 2017 in a single institution, were reviewed.

RESULTS: Stenosis etiology included: post intubation in 53%, post tracheostomy in 20% and idiopathic in 20% of the patients. The main symptom was dyspnoea in the majority of the cases followed by tiredness and stridor. The most frequent type of stenosis was circumferential stenosis with an average extension of 19mm and a mean diameter of 6mm. The upper limit of stenosis in relation to the vocal cords was on average 23mm. The resection instrument was rigid knife on 35 occasions and electrocautery knife in 19 cases. Dilatation was achieved by combining balloon and rigid bronchoscope. Restenosis occurred in 58% with a significant longer symptom free period, in the cases treated with the rigid knife (47,5 vs. 35,5 weeks). No bleeding complications were noted.

CONCLUSION: The rigid knife is a cost effective and safe alternative to treat benign tracheal stenosis, with further microsurgical potential. We hypothesize the longer restenosis free period after resection with rigid knife can be related to the heat-free procedure and faster reepithelization.

OP-05
Foreign body removal – 7-year experience of a single centre

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Foreign body aspiration can be a life-threatening emergency. It occurs most often in children younger than 3, with a second peak in elderly. Easy and safe in experienced hands, flexible bronchoscope is the initial and preferred method of choice to diagnose and treat the adults. We analysed the most used techniques of foreign body extraction.

MATERIALS-METHODS: Retrospective analysis of patients during last 7 years was performed using patient records and bronchoscopy charts.

RESULTS: During the 7-year period, 70 interventions out of 849 in total (8.2%) were foreign body extractions. They were done in 66 (11.8%) out of 557 patients, up to three times per patient. Lower than usually reported, patient age was 66.0±13.3, with male predomination (63.6%). Most of interventions were done in local anaesthesia (59, 84.3%), but still predominantly performed in hospitalized patients (41, 57.7%). Due to direct pathway of the right main stem bronchus, right localization, especially bronchus intermedius (12, 18.18%) and right lower lobe (4, 6.06%), was more frequent. Extraction was mostly done just by suction (42.8%), followed by forceps (34.3%). According to the type of foreign bodies, 38 (57.6%) were organic, 5 (7.6%) inorganic and 3 (4.6%) iatrogenic, while for the remaining we could not reconstruct.

CONCLUSION: Foreign body aspiration in adults occurs most often at later age and in patients with laryngeal or neurologic pathology. Using just suction and forceps, most of the foreign bodies can be extracted under local anaesthesia.

OP-06
Transbronchial Needle Aspiration (TBNA) in the diagnosis of pulmonary neoplasia

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OBJECTIVES: Knowing contribution of TBNA to the diagnosis of pulmonary neoplasia.

METHOD: We performed fibrobronchoscopies (FB) with TBNA for a period of 10 years –from October 2006 to September 2016– to patients under clinical and radiological suspicion of pulmonary neoplasia and in whose TAC large mediastinal lymph nodes, bigger than 1 cm, were shown. Blind puncture was performed with a 19-gauge needle in the lymph node stations 2R, 4R, 7, 10R, 11R and 11L. The puncture was done in the presence of a pathologist who analyzed the sample immediately, performing a second evaluation deferred in another extension of the same sample. The puncture was repeated until getting a positive result or until three or four punctures were performed, depending on the patient's tolerance. "Positive samples" were considered those which allowed a therapeutic decision to be made.

RESULTS: A total of 1,295 FB were carried out, including 509 TBNA of lymph nodes; 353 were positive (69.3%), providing the extension and anatomopathological diagnosis. The average of punctures per patient with positive results was 1.7. In 184 cases (52.1%), only one puncture was necessary. It was the only one positive sample of fibrobronchoscopies in 97 patients (19.0%). Complications included minor hemorrhages that were controlled with topical epinephrine and two pneumothorax, which did not require drainage.

CONCLUSIONS: 1. The TBNA was proved to be useful in the diagnosis in 69.3% of the patients and provided the definitive diagnosis in some patients (19.0%). 2. No significant complications were observed.

OP-07
Perceptions of patients undergoing fibreoptic bronchoscopy

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BACKGROUND: Fiberoptic Bronchoscopy(FOB) is a common invasive investigation in respiratory medicine. Patients undergoing FOB report varied experience with regards to anxiety levels, awareness about the investigation and comfort levels during the procedure.

AIM: To determine the lived experience of all patients undergoing FOB.

METHODOLOGY: Using a qualitative research design, after prior ethical approval and informed consent from the patients, 18 adult in-patients, who underwent bronchoscopy recently, were included. In-depth interviews using a semi-structured questionnaire was taken, with audio recording. Data saturation was achieved and triangulation was ensured. Focused group discussions were held after selection of patients by purposive sampling. Cronbach's alpha was used to check for internal validity. From the transcripts, main themes were identified and categorised individually by two researchers. Analysis was done using Husserls phenomenological research method.

Results & DISCUSSION: On the day prior to procedure, major themes was fear/anxiety or apathy, which were allayed by reassurance from the doctor. Spirituality was an important theme derived which was in the form of faith either on the doctor or a supreme power. During the procedure there were mixed feelings of physical discomfort and anticipation, but majority reported complacency towards the doctor and health care professionals. Post procedure patients were hopeful for a positive result and agreed for a second FOB if necessary.

CONCLUSION: This study provides an important perspective for healthcare personnel and researchers to help alleviate some of the anxieties expressed by the participants, and to address needs in subsequent patients.

OP-08
Efficacy of 22G needle in histological biopsies using EBUS-TBNA

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INTRODUCTION: Endobronchial ultrasound-guided transbronchial needle aspiration (EBUS-TBNA) technique is a minimally invasive cost effective technique, unlike open surgery and mediastinoscopy, with high rate of success and accuracy in staging and diagnosing malignant tumors. Nowadays is considered the procedure of choice in evaluation of hilar and mediastinal lymph nodes and is recommended as gold standard examination in staging of NSCLC.

PURPOSE: The purpose of the study was to prove the increased efficacy and sensitivity of EBUS-TBNA in histological biopsies of lymph nodes with the use of 22G needle, performed in 2016

METHODS: EBUS-TBNA was performed (with endobronchial ultrasound Olympus Evis Exera II) in 67 patients with light sedation (Midalozam 1.5mg,Fentanyl 0.05mg & propofol 10-150mg) in all mediastinal lymph nodes stations, except stations RLNS4 και LNS7 ≥ 1.5cm,that was performed classical TBNA. The patients that were examined had enlarged mediastinal lymph nodes> 1cm. We used 22G needle and 4 passes were carried out per station. The histological samples were transferred in vials full of formalin, while cytologic samples were placed in Thin-Prep Cyto-Lite and a smear in a microscope slide

RESULTS: Succesfull histologic samples were obtained in 56 out of 67 patients (83%).
The diagnoses were:
-Sguamous Carcinoma: 10(18%)
-Adenocarcinoma: 13(23%)
-Small cell carcinoma: 9(16%)
-Sarcoidosis: 5(1%)
-Lymphoma: 3(0,5%)
-Negative (Lymphoid tissue without pathology):16(28%)

CONCLUSIONS: EBUS-TBNA with 22G needle give us the opportunity of receiving sufficient histological sample from pathological mediastinal lymph nodes. Obtaining adequate samples is essential in reducing false negative case.

OP-09
A Case Series of Benign Tracheobronchial Stenoses showing different response to Bronchoscopic Balloon Dilatation followed with Topical Mitomycin Application

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INTRODUCTION: Post-endobronchial tuberculosis (TB) tracheobronchial stenosis and post-intubation tracheal stenosis are the 2 commonest types of benign tracheobronchial stenosis.

METHODS: Case 1: 15-year-old boy who had a road traffic accident was intubated and later complicated with nosocomial infection. 2 months post-discharge, he reported symptoms of stridor with cough and reduced effort tolerance. CT scan of the neck and thorax showed a short segment tracheal stenosis. We performed bronchoscopic balloon dilatation followed by topical Mitomycin C application. Serial surveillance bronchoscopy showed no recurrence of the stenosis and spirometry showed absence of intra-thoracic upper airway obstruction.

Case 2: 32-year-old man with post-endobronchial TB stenosis which recurred despite several balloon dilatations. CT scan showed a long segment left main bronchial (LMB) stenosis. Bronchoscopic balloon dilatation followed by topical Mitomycin C application at a lower concentration (0.2mg/ml) was done. Surveillance bronchoscopy 6 weeks later showed that the LMB stenosis had recurred. We performed a second balloon dilatation and noticed a bronchomalacic segment of the LMB and applied topical Mitomycin C at a higher concentration (0.4mg/ml). 3 weeks later, the stenosis recurred and insert silicon stent in the LMB after balloon dilatation.

CONCLUSIONS: Topical Mitomycin C application showed good result in selected cases of post-intubation tracheal stenosis by decreasing granulation tissue formation and modulation of scar formation with sustained improvement in lumen diameter. The same result was not seen in our patient with post-endobronchial TB stenosis with bronchomalacic LMB, indicating destruction of the cartilages in the affected segment warranting for deployment of airway stent.

OP-10
Brachytherapy as Treatment Option for Lung Atelectasis in Endobronchial Carcinoma

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PURPOSE/OBJECTIVE: Evaluation of high dose rate endobronchial brachytherapy (HDR-EBBT), applied alone or in combination with chemo and radiotherapy, including the following parameters: control of the symptoms caused by tumor obstruction in the airways; removal of the obstruction at present atelectasis; improvement in time to progression (TTP); and improvement of the overall survival (OS).

MATERIAL-METHODS: A retrospective review of 101 patients (ranging from 44 - 84 yrs of age) with endobronchial (lung or metastatic) carcinoma, predominantly squamous in type (70%), who were treated in our Institution in 2014 with HDR-EBBT alone (group A), or in combination with other treatment modalities (group B).

RESULTS: Improved rates of re-aeration and loss of atelectasis were registered in both examined groups (47% in vs 11%; P=0.02). The loss of atelectasis was improved only for squamous carcinoma (p=0.001). The improved rates of re-expansion of the collapsed lung resulted in lower levels of dyspnea and temperature (P=0.009), mean dyspnea scores (P=0.01). A significant improvement in TTP according to the loss of atelectasis of 19% (95% CI:3.68 -8.32; P<0.004) was registered in the patients on multimodal therapy (Group B). Generally, there was no statistical improvement in OS according to the loss of atelectasis (p=0.39). The 3-year cumulative survival rate for groups A and B was 2.3% and 9% respectively.

CONCLUSION: HDR-EBBT alone or in combination with other treatment modalities may achieve a significant QoL improvement without prolonged survival in patients with airway obstructing malignancies at present atelectasis.

OP-11

The role of Endobronchial Ultrasound in the assessment of mediastinal adenopathy in patients with a high clinical suspicion of Tuberculosis

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INTRODUCTION: Endobronchial Ultrasound has a well established role in the diagnosis of malignancy – both thoracic and extrathoracic cancers and Sarcoidosis. However patients with possible TB may present with adenopathy without significant parenchymal disease and EBUS may have an important role in this subgroup of patients.

METHODS: We retrospectively interrogated the computerised database from the Central Microbiology Laboratory in Galway University Hospital, Ireland. All Lymph node specimens obtained at EBUS were retrieved and results on mycobacterial culture were documented.

RESULTS: A total of 145 patients had TB culture performed from specimens obtained at EBUS. Of these cases positive mycobacterium results were obtained from 13 patients (8.9%, 95% CI 4.9-14.8%). Patients undergoing EBUS with a high clinical suspicion of TB had a high diagnostic yield. In this paper we will present final results on demographics and clinical features associated with this population.

CONCLUSION: Routine TB culture from EBUS results in a low diagnostic yield for TB. However in the correct clinical setting with a high pretest probability for TB, Specimens obtained at EBUS appear to provide good diagnostic material. A change in practice may result in financial savings for our institution.

OP-12
The use of High Flow Nasal Oxygen in Endobronchial Ultrasound – A Pilot study

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Inroduction: Endobronchial Ultrasound has impacted the assessment of various diseases affecting mediastinal and/or hilar lymph nodes including lung cancer and sarcoidosis. Most centres perform these procedures under conscious sedation as ambulatory cases. However these procedures are often associated with increased patient discomfort and oxygen desaturation - due in part to a more prolonged procedure and increased sedation use compared to flexible bronchoscopy.

METHODS: We undertook a pilot study to assess role of high flow nasal oxygen therapy HFNO (THRIVE protocol, Fisher and Paykel, New Zealand) at induction of conscious sedation and during the procedure. 10 patients were recruited to THRIVE and 16 cases in the standard nasal prongs (NP) group.

RESULTS: There was no difference in baseline oxygen saturation between the 2 groups (THRIVE 97.1±6.87%, NP 96.5±2.48% (p=0.796)). THRIVE performed better in all measures of oxygenation compared to NP. Mean drop in saturation in THRIVE group was 2.50±2.01% compared to 7.7±3.87% in the NP group (p=0.000). Proportion with desaturation below 90% was significantly lower when THRIVE was used (10% compared to 62.5%, p=0.001). Proportion with desaturations > 3% was lower with THRIVE compared to NP (20% and 87.5% respectively, p=0.000). No significant difference was detected in the amount of midazolam (p=0.056) or alfentanil given (p=0.873).

CONCLUSION: Patients in the THRIVE group had less desaturations than the standard group and less patients experienced saturations < 90%. No procedural related adverse events occurred. We have now commenced a randomised controlled trial to further study this novel device for EBUS under conscious sedation.

OP-13
Cost analysis of USG guided vs CT guided biopsy of Lung lesions

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Ultrasound has revolutionized modern medicine and has become an important bedside diagnostic tool. In particular it has proven to be of utmost benefit in diagnosis of various lung conditions with better sensitivity and specificity than chest radiography.

AIM: To study the feasibility and cost analysis of USG guided vs CT guided lung biopsies

MATERIALS-METHODS: Thirty patients each who underwent USG guided biopsies (UBx) and CT guided biopsy (CTBx) were analyzed retrospectively and demographic data along with details of procedure, cost of investigations required pre- procedure were compiled and analyzed. The number of extra personnel hours required for CTBx was also noted. The cost difference between UBx and CTBx was INR 2900. UBx had similar yield compared to CTBx, both being 94%. There were 2 incidences of pneumothorax following CTBx while there was none with UBx. The mean waiting time for CTBx was 28 hours compared to 4 hours for UBx. The average size of lesion in UBx was 6.5cm compared to 4.5cm with CTBx. CTBx had 14-21mSv of radiation exposure with 2 extra healthcare personnel required for the procedure.

CONCLUSIONS: USG is an easily accessible, cheap, real time, radiation- free, portable tool for guided procedures in patients with peripheral lesions. Besides, it has similar outcomes compared with CT guided biopsy with lesser waiting time and lower complication rate.

OP-14
Low dose lidocaine in endobronchial ultrasound is well tolerated

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Background : Topical anaesthesia using 1% lidocaine has recently been shown to be as effective as 2% lidocaine during flexible bronchoscopy. We changed from routine administration of high to low concentration lidocaine during endobronchial ultrasound (EBUS). We sought to assess the impact of this on drug administration, nodal sampling and patient comfort.

Method: Consecutive EBUS from two six month periods when high and low concentration lidocaine were administered were retrospectively identified. All patients underwent a standardized procedure using the "spray as you go" technique. High and low concentration groups received 4% or 2% lidocaine to the vocal cords, and 2% or 1% lidocaine to the trachea and bronchi respectively. Routine collected data on drug administration, nodal sampling and patient comfort during the procedure were assessed. Data was described and analysed using non-parametric tests. A p value of <0.05 was considered significant.

RESULTS: Overall 80 and 105 patients received high and low concentration lidocaine respectively. No difference was observed in the number of nodal stations sampled during the procedure. Patient's in the low lidocaine concentration group received lower total doses of lidocaine (median 280mg (IQR 275-300mg) vs 460mg (IQR 420-500mg), $p<0.0001$), midazolam (median 3mg(IQR 3-4mg) vs 4mg(IQR 3-5mg)), $p=0.048$), and oxygen requirement (median 4L/minO2 (IQR 2-5L/minO2) versus 5L/minO2 (IQR 4-5L/minO2)). Improved patient comfort scores (rated by doctor, nurses and patients) were noted ($p=0.030$).

CONCLUSION: Low concentration lidocaine for topical anaesthesia during EBUS reduces total lidocaine dose and is well tolerated. Further it may improve patient comfort, reduce O2 requirement and midazolam use.

OP-15
Diagnostic Yield of EBUS in Patients with Sarcoidosis

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AIM: Endobronchial ultrasound transbronchial needle aspiration (EBUS-TBNA) is an important diagnostic procedure for the interrogation of mediastinal lymph nodes. We aimed the efficacy of EBUS-TBNA in diagnosis of pulmonary sarcoidosis.

METHODS: We retrospectively analyzed 24 patients who underwent EBUS-TBNA for the evaluation of sarcoidosis during the period of May 2016 to January 2017. Those patients underwent EBUS-TBNA due to suspected sarcoidosis (radiological stage I and II) with enlarged hilar and/or mediastinal lymph nodes on thoracic competed tomography (CT). And all of the patient's EBUS-TBNA tissue referred to mycobacterial culture.

RESULTS: Median age of the patients was 42 (24-66) and 54% (n=13) of them were female. Nineteen (79.15) of 24 patients had a final diagnosis of sarcoidosis. Among them, 17 were (70.8%) diagnosed by EBUS-TBNA. One patient was ultimately diagnosed with tuberculosis (25%) and another one diagnosed with Mycobacterium other than tuberculosis (M. avium complex) infection by EBUS-TBNA.

CONCLUSION: EBUS-TBNA is a safe and effective tolerated procedure in the assessment of patients with suspected isolated hilar/mediastinal lymphadenitis.

OP-16
Indications for performing flexible bronchoscopy in low income countries: Sudan an example

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BACKGROUND: Due to easy performing, patients comfort and documented safety as an outpatient procedure flexible bronchoscopy has had replaced rigid bronchoscopy, here we reported our 10 years experience at Shaab teaching hospital –Khartoum-Sudan as an example of low income country

MATERIAL-METHOD: This was retrospective study of all patients underwent FOB between 2006 and 2016 in tertiary care hospital, demographic data and indications of FOB, and annual trend were studied from medical records

RESULTS: A total of 456 bronchoscopies were performed during this period,majority of patients (42%)are of age group more than 60 years, male to female ratio of 1,2:1,there is increase of number of bronchoscopy performemed from 19 cases in 2006 to 70 cases 1n 2016 an absolute increase of 368%, the most common indication for FOB was suspected carcinoma of bronchus –lung mass on chest Xray and chest CT scan357 (78%) followed by hemoptesis 39(8%), pleural diseases 28(6%),lung collapse26 (5%) and Tuberculosis 5(1%),tracheal stenosis 1(0,2%) no deaths encountered during the study in patients undergoing Bronchocopy.

CONCLUSION: FOB is increasingly being performed in the diagnosis of respiratory disorders and is a safe outpatient procedure. Although bronchogenic carcinoma remains a common indication for performing FOB, benign conditions such as pulmonary infections like tuberculosis constitute important indications in the Sudan.
Key wards: bronchocoscopy, lung cancer, hemoptesis, tuberculosis, pleural effusion

OP-17
Fibroendoscopic approach in verrucous carcinoma of the larynx

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INTRODUCTION: Verrucous carcinoma of the larynx (VCL) is a rare form of larynx cancer (1-3%), that presents difficulties for diagnosis and choice of treatment strategy. Diagnosis is difficult mostly due to massive layer of keratin on the tumor surface, that results in inadequate traditional biopsy and inconclusive histologic response, that usually leads to wrong interpretation of tumor as benign and delay of adequate treatment.

OBJECTIVE: The aim of this study was to assess effectiveness of fibroendoscopic approach in diagnosis and treatment of verrucous carcinoma of the larynx.

METHODS: We present our experience of endoscopic treatment of 16 cases of VCL (glottic region, T1-T2). Traditional forceps biopsy in all cases was inconclusive. In order to obtain an adequate biopsy specimen for histologic confirmation, fibroendoscopic snare diathermoexcision was used. After histological confirmation of tumor nature, fibroendoscopic LASER ablation (FELA) of tumor was performed with Nd:YAG laser and therapeutic fibrobronchoscope. In 13 cases intervention was performed under local anesthesia and premedication with spontaneous respiration. In 3 cases general anesthesia with high frequency jet ventilation (HFJV) was used.

RESULTS: Local control was obtained in 15 cases (93,8%). Average period of observation without recurrence was 63 months (range: 3-193 months). In 13 cases no recurrence was revealed.

CONCLUSIONS: Close cooperation between clinician and pathologist is vital for correct diagnosis of VCL. Obtaining of large biopsy specimen is critical for conclusive histologic response. Provided close endoscopic monitoring, FELA can be proposed as treatment of choice for majority of patients with VCL.

OP-18
Bronchoscopy in Patients with Pulmonary Tuberculosis Sputum Smear Negative

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INTRODUCTION: This study evaluated the diagnostic performance of bronchoscopy in patients suspected to have tuberculosis, which are directly sputum BK smear negative or cannot produce sputum. For this purpose, the diagnostic results are evaluated using bronchial wash, bronchial biopsies, transbronchial and endoscopic data.

Materials &METHODS: A prospective study, bronchoscopy was conducted in 167 patients with direct sputum BK smear negative. The average age of the patients was 44.1 ± 19.4, from age 15 to 87 years old, higher frequency in age from 20-40 years old and 55-64 years old.

RESULTS: From 167 patients in the study, endoscopic presentation resulted: normal in 7 (4.2%) of cases, bronchitis - 60 (35.9%) cases, edematous -hyperemic 62 (37.1%), caseos inflammation 7 (4.2%), ulcerative lesions in 3 (1.8%), tumoral lesions in 21 (12.6%) and fibrous stenotic changes in 7 (4.2%) patients. From 44(26.3%) patients in whom it was obtained biopsy, have resulted in 24 cases (54.5%) in histological examination -with TB granuloma, 14(31.8%) epithelioid granulomas and in 6 (13.6%) non-specific inflammation. The examination of bronchial wash for directly sputum smear concluded the diagnosis in 40.4% of cases, the examination of direct BK sputum smear collected after diagnostic FBS has been decisive in 53.9% of cases. The examination of culture for Bk resulted positive in 70.5% of bronchial wash and in 61.2% of sputum collected after FBS.

CONCLUSIONS: Fiberoptic bronchoscopy play the key role in the diagnosis of suspected tubercular patients which are direct sputum BK smear negative or that have no sputum.

OP-19
Smartprobe based Fibre Endomicroscopy in fibroproliferative lung disease

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AIM: We designed an exploratory, proof of concept study to use a novel optical molecular imaging smartprobe specific to matrix metalloproteinases (MMPs) in patients with fibroproliferative lung disease to assess MMP activity.

Materials and METHODS: Six patients with a confirmed or suspected diagnosis of lung cancer or fibrotic lung disease were recruited. Flexible bronchoscopy was performed under conscious sedation and imaging with fibre endomicroscopy (FE) obtained before and after bronchoscopic delivery of a microdose (<100ug) of our smartprobe. FE was performed using both a Cellvizio (Mauna Kea) endomicroscopy system and our purpose built "Versicolour" system. Mean fluorescence intensity on a frame by frame basis was compared before and following smartprobe delivery.

RESULTS: Six patients (M:F 4:2) with mean age 70 years (54-79) were recruited. Four had radiological lung cancer and underwent diagnostic bronchoscopy or endobronchial ultrasound (EBUS), 2 patients had a radiological diagnosis of IPF. We observed an increase in mean fluorescence after delivery of our smartprobe in both patients with IPF and two patients with NSCLC. There was no increase in two patients with SCLC.

CONCLUSION: We observed an in increase in fluorescence after delivery of a novel smartprobe in patients with confirmed or suspected fibroproliferative disease. Further work is planned to assess if this change can be quantified and related to disease activity and the study is ongoing. These agents were safe with no significant adverse events and it was possible to perform FE during the course of routine clinical bronchoscopy and alongside EBUS.

OP-20
"Correlation between the results of pulmonary function tests and perception of dyspnoe after laryngo-tracheal surgery"

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PURPOSE: to compare the objective and subjective outcome of laryngo-tracheal surgery.

METHODS: the available pre-operative and post-operative pulmonary functions tests of patients (age> 17 years) who underwent (larygo)tracheal surgery for benign or malignant stenosis between October 1997 and September 2015, were compared to the perception of dyspnea, assessed by a visual analog scale (0-10). IBM SPSS statistics 22, pearson correlation was used.

RESULTS: Of the total of 150 patients, mean degree of stenosis of 63%, 57 pre- and post-operative FEV1 were available, for 62 patients tiffneau index, 59 patients FIV1 and in 53 FIV1/VC ratio. Mean FEV1 increased from 2.02 up to 2.32 (P=0.000). Tiffeneau index increased from 58% up to 67% (P=0.000), FIV1 from 2.4 up to 2.9 (P=0.000) and FIV1/VC ratio from 71% up to 87% (P=0.000). 72 of 115 (alive) patients responded to quality of life questionnaire. The mean perception of dyspnea at rest decreased after surgery from 6.0 down to 2.5 (p=0.000) and for dyspnea d'effort from 7.1 down to 3.0 (P=0.000). There was no correlation between the degree of stenosis and pre-operative pulmonary function tests, nor was there for perception of dyspnea and degree of stenosis pre-operatively or pulmonary function tests and perception of dyspnea pre- and post-operatively.

CONCLUSION: There is a significant improvement of pulmonary function tests and perception of dyspnea after tracheal surgery. We found a normalization (FIV1/VC >80% is considered normal) of the FIV1/VC after tracheal surgery. However, there seems a poor correlation between objective and subjective outcome.

OP-21
Relation between the bronchus sign and segmented airways in virtual bronchoscopic navigation. Impact on bronchoscopic diagnostic yield

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AIM: To explore the relationship between bronchus sign and an optimal segmentation of the airways, and their impact on bronchoscopic diagnostic yield.

MATERIALS AND METHODS: VBN was performed with commercial system (LungPoint®, Broncus, USA). Bronchus sign defined as one leading to or contained within a PPL in CT cross-section. Segmentation considered "optimal" when it reached PPL (extrabronchial or intrabronchial) and "suboptimal" when not (figure 1). Forceps biopsy, brush and bronchial washing were performed through UTH (Olympus BF-XP160F) and fluoroscopy (Brivo™, General Electric, USA) used when needed.

RESULTS: We consecutively studied 39 PPLs: 22 mm [9-80 mm] maximum diameter, 15/39 (38%) fluoroscopically visible, 17/39 (44%) located in peripheral third and 17/39 (44%) intermediate third of CT. A final diagnosis of malignancy was made in 23/39 (59%), benign processes in 9/39 (23%) and in 7/39 (18%) a final diagnosis was not achieved. 29% of PPLs had both bronchus sign and optimal segmentation with endobronchial lesion, yielding 26% of diagnoses. 23% of PPLs with bronchus sign were not diagnosed, segmentation revealing were extrabronchial. Negative bronchus sign failed to identify 10% of PPLs. 44% had suboptimal segmentation.

CONCLUSIONS: 1. VBN is useful for identifying extrabronchial lesions, which occurred in at least 27% of those with a positive bronchus sign. Correctly identifying extrabronchial lesions is important for choosing the best bronchoscopic approach (UTH vs transparenchymal nodule access or mini-cryobiopsy). 2. An optimal segmentation is necessary in order to take full advantage of VBN.

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OP-22
Comparison between cryobiopsy and forceps biopsy in detection of EGRF-mutations in non-small cell lung cancer

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BACKGROUND: Flexible bronchoscopy is the most common technique used to obtain specimens for pathologic analysis in endobronchial malignancies. Ordinary forceps samples are often small and have high incidence of artifacts that limit accurate diagnosis. The flexible cryoprobe can be used for getting better biopsies, especially on detection of activating mutations in epidermal growth factor receptor (EGFR) gene. This gene plays major role in pharmacologicaly targeted therapies which improve survival in non-small-cell lung cancer (NSCLC).Objectives This study prospectively aim to compare samples taken by ordinary and cryobiopsy in detection of gene mutations in EGFR in patients of NSCLC.

METHODS: A total of 30 samples taken from endobronchial malignancies pathologically confirmed as NSCLC. Samples taken by cryobiopsy were compared with forceps biopsy as regard sample size, quality and diagnostic yield of EGFR mutation status.RESULTS: Bronchoscopic cryobiopsy detected activating EGFR mutations in (41.2%) patients while forceps biopsy detected mutations in (29.8%) patients respectively ($p<0.001$). Tissue samples obtained by cryoprobe had better quality as regard size(Median size of biopsies with cryoprobe and forceps were 1.6 cm and 0.7 cm respectively ($P < 0.001$) and artifact-free tissue areas were significantly larger with cryobiopsies than with forceps biopsies (1.42 Vs 0.6 cm, $P<0.001$.

CONCLUSIONS: Bronchoscopic cryobiopsy provide higher diagnostic yield in detection of EGFR mutations compared to forceps biopsy. These mutations detection is essential for targeted therapies subsequently improve treatment outcome in NSCLC patients

OP-23
EUS-(B)-FNA for diagnosis of malignant pancreatic lesion: first case report

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A 77 year old male smoker with history of asbestos exposure presented with grade 3 mMRC dyspnea and localized right sided chest pain. Evaluation suggested right pleural effusion and patient underwent a thoracoscopic pleural biopsy with indwelling pleural catheter insertion. Histopathologic examination confirmed pleural mesothelioma of epitheliod cell type with sclerosis (CEA negative and calretinin positive). Staging whole body PET-CT revealed uptake in hilar and mediastinal lymphnodes and a contrast enhancing mass with cysts and necrosis in the head of the pancreas.

At the multi-disciplinary conference a further staging work-up was suggested and the patient underwent EBUS-TB-NA for the evaluation of mediastinal lymphnodes. All PET positive lymphnode stations 11L, 2L, 4R, 7 and 11Ri were punctured. As per protocol to visualize the adrenal gland, a routine EUS-(B)-FNA was done, which showed a large pancreatic mass lesion. Ultrasonically this mass was >5cm in size with irregular borders, heterogeneous with focal areas of necrosis. Three passes with ViziShot 22G Olympus needle was used to obtain sample from this lesion. The material obtained was processed in formalin and a cell block was obtained. Histolopathology excluded malignancy in all punctured mediastinal lymphnodes and revealed adenocarcinoma of the pancreas (CEA positive and calretinin negative), establishing a dual pathology in this case which impacts oncologic management

CONCLUSION: This case demonstrates that in experienced hands pancreas can be examined and punctured via EUS-(B)-FNA to obtain adequate sample for diagnosis.

OP-24
The diagnostic yield of cryobiopsy versus forceps biopsy of malignant endobronchial lesions

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BACKGROUND: In patients with endoscopically visible lesions, flexible bronchoscopy with FB is the most frequently used technique to obtain specimens for pathologic analysis with sensitivity of approximately 74%. The flexible cryoprobe, so far used for cryotherapy and endoluminal tumor debulking, also seemed to be suitable for biopsies from visible lesions.

OBJECTIVE: The aim of this study was to prospectively evaluate the diagnostic yield and safety of cryobiopsy and forceps biopsy. Patients and METHODS: For each patients group with a confirmed intrabronchial lesion, diagnostic yield and safty of forceps biopsy and cryobiopsy were recorded.

RESULTS: The diagnostic yield was significantly higher with cryobiopsy (95%), compared with forceps biopsy (80%) ($p<0.001$).

CONCLUSION: Cryobiopsy is a safe with a high diagnostic yield technique in sampling endobronchial tumor lesions.

OP-25
Can elastography reduce the number of punctures of lymph nodes in cases of mediastinal lymphadenopathy in routine practice? Preliminary report

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INTRODUCTION: EBUS is the most powerful technology for lung cancer staging and diagnosis of lymphadenopathy. Some papers showed the benefits of EBUS to conventional bronchoscopy techniques. But in some cases, EBUS is not diagnostic. The new option for research of lymph nodes – is the elastography. The favourable results of this technology showed in some papers.

AIM: to study the usefulness of an elastography in cases of mediastinal lymphadenopathy. Material: 7 consecutive patients with mediastinal lymphadenopathy were included in this trial.

METHODS: EBUS-scope: EBUS EB-1970UK; Pentax, Tokyo, Japan. Ultrasound machine: Noblus ®; Hitachi Aloka Medical Ltd., Tokyo, Japan. The elastographic picture was analysed by a scheme of Izumo T, 2014. Conclusions by scan image were done. After this, EBUS-TBNA has performed: three punctures from each visualised groups of lymph nodes with cytoblocks, PCR for MBT. Reference METHODS: surgery and 6-month follow-up.

RESULTS: the final diagnosis was sarcoidosis- 3, metastasis of lung cancer - 4. We found only one case of "total blue" sign in lymph nodes of the 7th group, which diagnosed, as metastasis of lung cancer. Other signs were found in sarcoidosis and lung cancer with equal frequency.

CONCLUSION: the sign "Total blue" seems to be a good predictor for malignancy of lymph nodes. But due to a small number of patients, the conclusion couldn't be done. An additional trial is highly necessary. Nowadays, elastography can not be used for reducing a number of punctures.

OP-26
Transbronchial cryobiopsy: do we really need fluoroscopic guidance

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AIM: Transbronchial cryobiopsy (TBCB) is less invasive than surgical lung biopsy (SLB) providing bigger samples from lung periphery with less crush artefacts than transbronchial forceps biopsy (TBFB). Fluoroscopic guidance is recommended due to the risk of complications. Guidance prolongs the procedure, exposes patient and staff to the radiation and increases the cost. We aimed to assess the success and safety of TBCB done without fluoroscopic guidance.

MATERIAL-METHODS: A prospective observational study lasting 19 months included 21 patients with interstitial lung disease (ILD). Procedure was done in general anaesthesia through rigid bronchoscope. A 1.9 mm cryoprobe was used with 5 seconds freezing time. Total of 4 to 5 samples was obtained. No fluoroscopic guidance was used. Bleeding, red blood cell count (RBCC) drop and postprocedural pneumothorax were observed.

RESULTS: Total of 21 patients was included, 13 male and 8 female, aged 36 to 73 years (median 61 years). All had suspected ILD. During the procedure bleeding was not present in 2 patients (9.52%), mild bleeding was seen in 7 (33.33%) and medium bleeding in 12 patients (57.14%). No serious, life threatening bleeding occurred. Also there was no significant drop in oxygen saturation during the procedure. No pneumothorax or RBCC drop was detected afterwards. Lung parenchyma was obtained in samples from all patients and diagnosis was confirmed in 16 patients (76.19%).

CONCLUSION: TBCB is as safe as TBFB and can be performed even without fluoroscopic guidance. This way procedure is done faster, it is less costly and without radiation exposure.

OP-27
The role of endobronchial ultrasound elastography in the diagnosis of mediastinal lymph nodes

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BACKGROUND: Endobronchial ultrasound (EBUS) became a powerful tool for diagnosis of mediastinal and hilar lymph nodes (LN). Elastography has been introduced recently to give more accurate data about lesions seen during EBUS.

AIM: Our aim was to evaluate the role of elastography during EBUS for diagnosis of hilar and mediastinal LN. METHOD: Patients with hilar/mediastinal LNs enlargement on CT examination were included. Convex probe EBUS was done for them using conventional B-mode and elastography with transbronchial needle aspiration (TBNA) from the examined LN.

RESULTS: 147 LNs from 56 patients were examined. Malignancy was found in 111 of them. Strain ratio was found to be more accurate when compared to other findings of B-mode in comparing malignant and benign LNs with a cutoff value of 7.5 giving a sensitivity of 95.5% and a specificity of 91.67%. About 63% of malignant LNs were diagnosed from the first pass with the help of elastography.

CONCLUSION: Elastography is a very helpful tool for diagnosing mediastinal LNs with strain ration above 7.5 having a strong suggestion of malignancy. Elastography can help in directing the needle during EBUS-TBNA to reach the final diagnosis with the least possible number of passes and avoiding unnecessary punctures.

OP-28
EBUS sampled nodal tissue is suitable for multiple molecular testing

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BACKGROUND: Endobronchial ultrasound (EBUS) nodal samples have been validated for molecular testing. However, the array of tests is growing. We reviewed our experience in patients undergoing EBUS nodal tissue sampling.

Method: EBUS sampling was performed using a 22G needle, under light sedation. A dedicated thoracic pathologist reviewed samples, and molecular tests were requested through the lung cancer multidisciplinary meeting or at the oncologist's discretion.

RESULTS: Over a 27 month period, 399 EBUS were performed. Of these 61 patients had a confirmed NSCLC adenocarcinoma in nodal tissue. A further 14 patients had an adenocarcinoma/adeno-squam, for which initial diagnosis was felt to be primary lung in origin. The median [interquartile range] number of nodes sampled was 2[2-3], with positive nodes in 78% of those sampled, while 9(5.8%) nodes were non-diagnostic. Molecular testing was performed in 60(80%) patients. Of these, Epidermal Growth Factor Receptor (EGFR) mutation analysis was requested in 60 patients, extractable in 98% and positive in 3(5%). Anaplastic Lymphoma Kinase (ALK) translocation testing was performed in 39 patients, successful in 35(90%) and negative in all. Programmed Death Ligand 1 (PD-L1) testing was performed in 7 patients, successful in 6(86%), and positive in 4(67%). Greater than one molecular test was performed on 41(68%) patients.

CONCLUSION: EBUS samples provide reliable sampling for multiple molecular testing, and should be encouraged as the first line sampling and re-sampling when clinical need determines that tissue is required either for diagnosis, re-staging or for research purposes.

OP-31
Diagnostic Endobronchial Ultrasound (EBUS); 5 Years Experience

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INTRODUCTION: Diagnostıc endobronchial ultrasound-Transbronchial needle aspiration (EBUS-TBNA) is a method used to diagnose diseases which cause mediastinal or hilar lymphadenopathy, primarily the lung cancer. The aim of this study was to investigate the diagnostic yield of EBUS-TBNA in undiagnosed noduler or mass lesions which are adjacent to trachea or bronchus.

MATERIAL-METHOD: EBUS-TBNA was performed to 256 cases between October-2011 and January-2017 The records of 181(70.7%) cases, in which EBUS-TBNA performed for diagnostic purposes constituted the patient group of this study, were retrospectively analyzed.

RESULTS: 119of the cases (63.7%)were male and 62(34.3%) were female. Right lower paratracheal(4R) lymph nodes were sampled in 30.6% and subcarinal lymph nodes(7) in30.6% of the cases. EBUS-TBNA specimens were benign in 71(39.2%), malign in 68(37,6%), non caseating granulomatous lymphadenitis in 17(9.4%) and in20(11%) reported as material could not be retrieved. 52(68%) of 76 cases which are benign or material could not be retrieved were diagnosed as benign disease,14(18.4%) were as non-small cell lung carcinoma, 3(3.9%) as small cell lung cancer, 3(3.9%) as sarcoidosis, 2(2.6%) were diagnosed as metastasis of breast carcinoma, 1(1.3%) as metastasis of cervix carcinoma and 1(1.3%) as metastasis of gastric carcinoma after the other analysis and follow up. 5(6,5%) of the cases who reported as that material couldn't be retrieved were diagnosed as benign disease by advanced examinations.In our case group, diagnostic yield of EBUS-TBNA was 84,5%

CONCLUSION: In the patients, whose results of EBUS-TBNA reported as benign or that material could not be retrieved, the analyzes should be continued.

OP-32
The demonstration of the possibility of diagnosing peripherally located lung lesions by use of the cryo probe guided by electromagnetic navigation bronchoscopy (ENB)

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AIM: The demonstration of the possibility of diagnosing peripherally located lung lesions by use of the cryo probe guided by electromagnetic navigation bronchoscopy (ENB)

METHODS: The study consisted of two patients with lesions located in the right lung at whom standard diagnostic methods failed. Computed tomography of the chest and the ENB software allowed to establish the path via the bronchial tree to the pathological changes. The procedures were performed under general anesthesia with intubation by a rigid bronchoscope. Ventilation was provided by a jet respirator. The ENB sensor was inserted through the working channel of the flexible bronchofiberoscope and positioned in the vicinity of the lesion. Then, after removing the sensor the cryo probe was introduced in the vicinity of lesions through the working channel and representative tissue samples were collected.

RESULTS: Non small cell lung cancer was confirmed in first case followed by the right upper lobectomy with lymphadenectomy. The benign lesion was confirmed in second case followed by the middle lobectomy. Histopathological evaluation of the resected lesions correlated with tissue material obtained by the cryo probe. The X – ray pictures taken two hours after the cryo biopsy guided by ENB procedures revealed small pneumothorax in the second case. No drainage was required.

CONCLUSIONS: The cryo probe guided by ENB is a valuable option regarding diagnosis of the peripherally located lung lesions.

OP-33
Endobronchial ultrasound guided biopsy in diagnosis of sarcoidosis - single center experience

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Endobronchial ultrasound-guided transbronchial needle aspiration (EBUS-TBNA) is proven method for the diagnosis of sarcoidosis. We present our experience using it in University Hospital of Pulmonology over 8 month period.

METHODS: We performed EBUS TBNA on 30 patients for clinically suspected stage I/II sarcoidosis with mediastinal lymph nodes less than 20mm in shorter diameter in period from January till August 2016. In all patients flexible bronchoscopy was done with endobronchial biopsy prior to EBUS. EBUS TBNA was performed with 21G needles, without rapid on-site evaluation (ROSE). The final diagnosis was established based on clinical presentation and results of all invasive diagnostic procedures.

RESULTS: A total of 150 lymph nodes were sampled. Echosonographic appearance of all sampled nodes was benign: clear delineation, homogeneity, negative influx sign and no central necrosis. The mean number of needle passes per lymph node station was was 4. Non-caseating granulomas (NCG) were detected in EBUS-TBNA samples in 29/30 pts and in 1 pt small-cell lung cancer was diagnosed. The number of lymph node stations sampled and number of needle passes per node location were not associated with diagnostic yield. Endobronchial biopsy revealed NCG in 4 patients in whom bronchoscopic finding was described as normal.

CONCLUSIONS: EBUS TBNA was proven to be valuable tool for accurate diagnosis of sarcoidosis, in properly selected patients (correlation with clinical data).

OP-34
DLCO as Outcome Measurement for Bronchoscopic Lung Volume Reduction (BLVR) by Endobronchial Valves (EBV): A Case Series from Serdang Hospital, Malaysia

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INTRODUCTION: Bronchoscopic Lung Volume Reduction (BLVR) via Endobronchial Valves is a potential treatment option for selected patients with severe emphysema. BLVR has been demonstrated to improve pulmonary function, exercise capacity, and quality of life in patients with both heterogeneous and homogenous emphysema without collateral ventilation. We attempt to demonstrate the usefulness of DLCO as an outcome measure for BLVR in our case series

Method: 5 patients had several EBV deployed at their respective target lobes after fulfilling the placement criteria. Individually, CT thorax showed heterogenous emphysema with well defined lobar fissures. General Respiratory Full Testing (GRFT) before and after EBV placement for outcome measurement was done to demonstrate any normalisation of DLCO values after the procedure GRFT results for each patients before and 3 months after EBV placement:

Patient 1:
Pre-EBV: FEV1: 30%, RV: 778%, DLCO: 69%
After: DLCO: 88%

Patient 2:
Pre-EBV: FEV1: 24%, RV: 289%, DLCO: 62%
After: DLCO: 92%

Patients 3:
Pre-EBV: FEV1: 17%, RV: 218%, DLCO: 57%
After: DLCO: 86%

Patients 4:
Pre-EBV: FEV1: 27%, RV: 259%, DLCO: 67%
After: DLCO: 88%

Patients 5:
Pre-EBV: FEV1: 43%, RV: 300%, DLCO: 58%
After: DLCO: 90%

CONCLUSION: All 5 patients showed normalisation of DLCO, indicating improvement of gas transfer and ventilation-perfusion matching, 3 months post-EBV in tandem with symptomatic improvement in all 5 patients. Therefore from our case series we demonstrated that DLCO is useful as outcome measurement for BLVR in selected patients with emphysema

OP-35
The using of probe-based confocal laser endomicroscopy and fluoroscopic guidance as navigation system for transbronchial lung biopsy in patients with solitary pulmonary nodules

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Actuality: Standard bronchoscopy with transbronchial lung biopsy (TBB) under fluoroscopic guidance in patients with SPN has a low diagnostic yield: about 34% for SPN < 2 cm and 63% for SPN > 2 cm in diameter (Mehta A, 2013). Probe-based confocal laser endomicroscopy (pCLE) is new method of real-time microscopic imaging of bronchial walls and lung tissue. The aim was to estimate the value of using pCLE in conjunction with fluoroscopic guidance as navigation system for TBB on a small group of patients.

MATERIAL-METHODS: In study were randomized 6 patients with SPN of different size and localization. pCLE was used by Cellvizio system and 1,4-mm probe Alveoflex (Mauna Kea Technologies, Paris, France). During the manipulation the position of the probe was controlled by fluoroscopy. Biopsy was made from zones with abnormal structures by the data of pCLE.

RESULTS: The procedure was made by 6 patients. By the data of final diagnosis the 2 of patients had lung cancer, 2 – infiltrative tuberculosis, 1 – acute abscess and 1 – benign pulmonary nodule. Analysis of pCLE image allowed to predict ethiology of diseases in 5 of 6 patients. Histological examination of TBB specimens establish the diagnosis only in 2 of 6 patients, another biopsy specimens were uninformative.

CONCLUSION: The using of pCLE and fluoroscopic guidance as navigation system for TBB in patients with SPN in preliminary study don't increase the diagnostic yield compared to standard TBB. Detailed analysis of confocal endomicroscopy image in most cases can predict the ethiology of SPN.

OP-37
Diagnostic yield and safety of transbronchial cryobiopsy

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BACKGROUND: Transbronchial cryobiopsy is a novel minimally invasive procedure of acquiring samples for evaluation and diagnosis of patients suspected to have interstitial lung disease (ILD) when clinical and radiological data are indeterminate.

OBJECTIVE: To describe our clinical experience of cryobiopsy in the assessment of patients with suspected ILD at a tertiary academic medical centre.

METHODS: This is a retrospective study of patients who underwent transbronchial cryobiopsy between May 2016 and March 2017 for assessment of suspected ILD. Patients were anesthetized with total intravenous anaesthesia then intubated by a rigid bronchoscope and connected to a jet ventilator. Exploratory fiberoptic videobronchoscopy was performed and an Arndt balloon blocker introduced to the segment of interest to control bleeding. A cryoprobe was then utilized through the videobronchoscope working channel to harvest lung parenchymal samples.

RESULTS: A total of 16 patients with a median age of 65 years and an equal gender ratio are included in the study. A histological diagnosis was obtained for 12 patient; 6 cases of chronic hypersensitivity pneumonitis, 4 cases of non-specific interstitial pneumonia, 2 cases of usual interstitial pneumonia. This translated to a diagnostic yield of 75%. The complications that occurred were; 1 case of pneumothorax necessitating a chest drain (6%), 3 cases of moderate bleeding (20%) and 1 case of prolonged bleeding (6%).

CONCLUSION: Transbronchial cryobiopsy has an acceptable diagnostic yield and is a relatively safe procedure in the evaluation of patients with ILD and could possibly be an alternative to open surgical lung biopsy.

OP-38
Silicon stenting of stenotic airway complications in lung transplantation

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AIM: We evaluate the outcome of our treatment strategy to use silicon stent insertion and subsequent removal in a cohort of lung transplant recipients with stenotic airway complications.

MATERIALS-METHODS: In our lung transplant programme 1990 – 2015, 479 patients were transplanted and prospectively included in our registry. Moderate bronchial anastomotic stenosis, and exophytic granulations or necrosis were treated with endoscopic laser and/or balloon dilatation. In severe or refractory stenosis, silicon stents were inserted during rigid bronchoscopy, and removed later, with timing determined by endoscopic assessment of airway healing. Bronchial washings were collected for microbiological analysis before stent insertion, while the stents were in place, and after removal.

RESULTS: In 56 patients, 74 stenotic airway complications were treated. Fourteen patients were treated with laser and dilatation alone. Forty-nine silicon stents were inserted in 42 patients. Thirty-five patients had their stents removed after median 5 months. Thirty patients had no restenosis after stent removal. Five patients developed restenosis requiring insertion of metal stents (n=3) or surgery (n=2). Seven patients died with the stents in place. After stent removal only 2 patients remained colonized with pathogenic microorganisms. There was no difference in long-term survival between patients with airway stenosis and those without, with 79% vs 82% survival after 1 year and 64% in both groups after 5 years (Log Rank test p=0.98).

CONCLUSION: Treatment of stenotic lung transplant airway complications with silicon stents achieves long term airway patency and is associated with non-inferior survival to that of recipients without airway complications.

OP-39
Endobronchial intervention in airways obstruction

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1.INTRODUCTION: For endobronchial tumors, time to treatment is critical to help the patient. Airways that have been completely obstructed by tumor growing into them require use of the rigid bronchoscope to remove the tumor. This helps to reopen the airways and allows the lung to re-expand if the patient can be referred to the Interventional Pulmonologist in time.

2. OBJECTIVE: To introduce our experience in desobstruction of the airways from endobronchial growing tumors and malignant infiltrations from esophagial and lung tumors.

3. MATERIAL AND METHODS: Between the years 2008 and 2012, clinical data from 11 patients (9 males and 2 females) with malignant endobronchial obstruction were reviewed in the pulmonology department.

4. EQUIPMENT: Rigid video bronchoscope Wolf, flexible video bronchoscope Olympus type BF-T-160 Evis-Exera 2, electro snare, electro knife, electro cauter and stents.

5. RESULTS: Nine patients were discharged with improvement of their functional results. In one there was no change. One passed away eight months after the manipulation from difficulties of the main disease. Three patients were operated after the interventional procedure. Three of the patients passed full courses chemiotherapy and two are still put it though. No data from two of the patients.

6. CONCLUSIONS: The usage of electro snares in well-defined tumors is a method of choice for desobstruction. In tumors that lay on a wide base, the method of choice is the mechanical desobstruction, following electrocauterization. We used stents in cases of malignant tracheal infiltrations coming from esophageal and lungs tumors.

OP-40
Transbronchial bullous volume reduction in COPD patients

Ahmed Shawky Mohamed

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INTRODUCTION: COPD patients with advanced disease achieve minimal or no control despite proper medical therapy that necessitates more radical approach. The bullae accentuate the altered elastic properties of the emphysematous lung and contribute to the expiratory flow limitation.

OBJECTIVE: The aim was to evaluate the therapeutic utility and safety of transbronchial volume reduction of emphysematous bullae in COPD patients.

PATIENTS & METHODS: At the site of entry, the air from the bulla was aspirated slowly, and then 10 cm of autologous blood was instilled into the bulla before the needle was withdrawn. Clinical, functional & radiological assessment of bulla volume and the incidence of adverse events were evaluated.

RESULTS: 12 male patients were enrolled in this study with mean age (±SD) 47 ± 5.6 years. The procedure was well tolerated and not associated with any serious complications. Improvements (clinically, functionally and radiologically) three months after the procedure were more obvious in patients with bullous volume <515 ml than in patients with bullous volume >515 ml.

CONCLUSIONS: Intra-bullous blood instillation could be an effective and safe volume reduction technique of emphysematous bullae.

OP-41
Stent Tailoring in Extreme Situations

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In benign situations CT-scan with 3D-printing allows for the creation of personalized airway stents. In malignant complex tracheobronchial obstructions, endoscopic treatment prompts for stent tailoring and adaptation.

Three situations are presented

#1: 71-year old man with an epidermoid carcinoma, haemopthysis and right lung athelectasis. A necrotic and haemorrhagic mass was occluding right main bronchus. After photocoagulation and bronchoscopic debulking right upper lobe complete occlusion and peripheral airway patency were confirmed. Two telescoped silicon Dumon stents were inserted in the right main stem bronchus and bronchus intermedius allowing for ventilation and haemorrhagic control.

#2: 55-year old man with lung adenoid cystic carcinoma involving both main bronchus. A Dumon stent had been placed in left main bronchus and another silicon Y stent placed in right main bronchus. Four months after Radiotherapy left main bronchus stent was removed. Six months later, left main bronchus reobstruction, prompted for a second Y Stent in the left main stem bronchus.

#3: 72-year old man with a Right Upper Lobe epidermoid carcinoma for which he had lobectomy (pT2N1) and adjuvant chemotherapy. Ten years later the CT-scan a mass was noted in the left lower lobe. Bronchoscopy showed tumor concentric obstruction of the left lower bronchus. Biopsies disclosed a second primary Adenocarcinoma. A known sharp angulation of the bronchus intermedius due to surgical distortion was preventing ventilation. A tailored angulated stent was inserted in bronchus intermedius. Bronchoscopic palliation of complex obstructing situations demands precise judgement of anatomy, stent crafting and criterious evaluation of the results.

OP-42
EBUS-TBNA in a Bronchology Unit: A four-year experience

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AIM: Endobronchial ultrasound–transbronchial needle aspiration (EBUS-TBNA) is a minimally invasive tool mainly used for diagnosis and staging of lung cancer (LC), but also to investigate unexplained enlarged mediastinal lymph nodes or masses. Our aim was to characterize all patients submitted to EBUS-TBNA in our Unit in the last 4.5 years.

MATERIALS-METHODS: retrospective review of patients submitted to EBUS-TBNA in our Unit between january 2012 and june 2016. Criteria for performing EBUS-TBNA were enlarged (>10mm) mediastinal lymph nodes on CT scan, positron emission tomography -positive mediastinal lymph nodes or mediastinal masses.

RESULTS: 141 patients were submitted to EBUS-TBNA. Patients were pedominantly male (66.7%). Mean age was 62.6 y. EBUS-TBNA was positive in 70 patients:49non-small cell LC, 7 carcinomas of unknown origin, 4 sarcoidosis, 3 small cell LC, 1 tuberculosis, 1 typical carcinoid tumor, 1 mesothelioma and 4 metastasis of extra-pulmonary origin. Average number of passages was 3.7. Most frequently sampled stations were 7 (42,9%) and 4R (29,2%). 22 patients had lymph nodes <10 mm diameter, 27.2% of those had a positive diagnosis. The diagnostic yield of mediastinal masses was 62,5%. Fifteen patients underwent mediastinoscopy or surgery. Of those, 5 had the same result, 7 were false-positives and 3 were false-negatives.

CONCLUSIONS: EBUS-TBNA remains a safe, valuable diagnostic and staging tool in LC. False-positive results may be explained by neoadjuvant chemotherapy, indicated in most patients with N2 disease before surgery. Lymph nodes <10mm were positive in 27.2% of patients, which suggests that puncturing smaller lymph nodes could be usefull.

OP-43

To demonstrate the usefulness of application of both cryo and argon plasma coagulation probes for management of the critically obstructed tracheobronchial airways by non small cell lung cancer with subsequent implantation fully covered stents

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AIM: To demonstrate the usefulness of simultaneous application of both cryo and argon plasma coagulation (APC) probes for management of the critically obstructed tracheobronchial airways by non small cell lung cancer (NSCLC) with subsequent implantation of fully covered stents- a series of 7 cases.

METHODS: The study group consisted of 7 cases with the severe dyspnea due to the critical obstruction of the tracheobronchial airways.The completely atelectatic lung was revealed in two cases. All procedures were performed under general anesthesia with intubation. A flexible fiberobronchoscope was inserted through the rigid bronchoscope. The cryo and APC probes were inserted through working channel of the fiberobronchoscope and placed in the vicinity of the intratracheal or intrabronchial tumor. The tumor tissue was removed with the cryo probe followed by APC vaporization with restoration of the patency of the tracheobronchial airways. The cryo and APC procedures were followed by implantation of the fully covered stent under fluoroscopy visualization.

RESULTS: Six patients received fully covered Y shape stents. One received a simple stent. In all patients non small cell lung cancer was confirmed (stage III B). Improvement of quality of life by reduction of dyspnea was achieved in all patients. No complications were recorded and all the patients were discharged in a few days after the stent implantation procedure.

CONCLUSIONS: Cryo and APC probes are useful tools in restoring critically obstructed trachea and main bronchi by implantation of the fully covered stents to prevent relapse of the bronchial obstruction by NSCLC.

OP-44
Our transbronchial lung cryobiopsy experience in 29 patient with ILDs

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BACKGROUND: Diffuse parenchymal lung disease (DPLD)can be diagnosed radiologically, and gold standard diagnostic method is open lung biopsy. Alternative methods are being investigated because open lung biopsy is a surgical procedure and affects patient comfort with the duration of hospital stay. Bronchoscopic lung biopsy with cryoprobe (TBLC) with bronchoscopic technique was developed because of the small size of the tissue size obtained with bronchoscopic transbronchial forceps biopsy (TBFB) and the limitation of recognition of crush artefacts. We presented comparative data of TBLC cases we experienced versus TBFB.

METHODS: TBLC and TBFB were performed in 29 patients under general anesthesia with fiberoptic bronchoscopy (FOB) and fluoroscopy guidance.

RESULTS: Pneumothorax developed in 5 cases (17.2%). closed-chest drainage intervened. In 11 cases (37.9%) moderate-severe bleeding occurred and it was controlled by medical intervention. In 7 cases (24.1%), diagnosis and subtyping were performed with TBLB. Twenty cases (69%) were diagnosed with TBLC and 17 were subtyped (56%). The most commonly diagnosed type was UIP (n = 9).

CONCLUSION: Bronchoscopic cryobiopsy is a minimally invasive and safe alternative to open lung biopsy.

OP-45
EBUS TBNA for Clarification of PET Positive FDG Avid Intrathoracic Lymph nodes in a Tuberculosis Endemic Setting

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Rationale - EBUS TBNA is of diagnostic value in hilar and/or mediastinal lymph node staging of cancer and is often performed following PET CT in order to accurately stage the disease. Inflammatory conditions like Tuberculosis often results in FDG avid lymphadenopathy on PET CT which is often considered to be a part of malignant process. EBUS TBNA helps to correctly stage cancer and pick up false positive FDG avid lymph nodes in such situations.

Methods - We assessed retrospectively the utility of EBUS TBNA in 50 patients of FDG avid mediastinal lymphadenopathy detected positive on 18 fluorodeoxygenase positron emission tomography. The diagnostic performance of EBUS TBNA, lymph node site and size, number of needle passes and diagnosis were evaluated. TBNA samples was collected based on initial findings on rapid onsite cytology evaluation (ROSE) followed by detailed cytological evaluation. PET FDG avid Positivity was defined as a maximum standardized uptake value (SUV max 2.5).

Results - EBUS TBNA was performed in 50 patients with PET positive FDG avid intrathoracic lymph nodes and confirmed 32 cases (64%) were true positive as Malignant lesions and 18 cases (36%) were false positive diagnosed as Granulomatous lesions and Reactive lymphoid hyperplasia on PET CT scan findings.

Conclusion - In our Study, EBUS TBNA has high diagnostic values that help to accurately stage the mediastinum in patients with known or suspected malignancy and in tuberculosis endemic setting almost 36% of patients are detected as false positive on PET CT scan when subjected to EBUS TBNA procedure.

OP-46
The bronchoscopy panoramas from Turkey in 2015

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AIM: We aimed to analyze the data of bronchoscopy procedures that had been performed in bronchoscopy units in 2015 which we could access.

MATERIAL & METHOD: The inventory of 72.179 bronchoscopy procedures were made which was performed in 331 institutions, 175 of these were hospitals ministerial, 49 were university hospitals and 107 were private hospitals.

FINDINGS: In 331 institutions totally 72.179 bronchoscopy procedures with 654 bronchoscopes were done by pulmonologists. 111 procedures were performed per device. In 331 hospitals which these procedures performed, totally 6.214.437 chest diseases outpatient were done and 314.742 patients with chest diseases were hospitalized. While per 86 examinations 1, per 4,4 hospitalized patients 1 bronchoscopy procedures were performed, 68 bronchoscopy were per specialist who had performed the procedures. The most bronchoscopy procedures were performed in 4 large chest diseases hospitals with 1 bronchoscopy per 30 patients. In university clinics this number was 1 bronchoscopy per 24 patients. In 4 chest diseases hospitals 116 procedures per specialist, in univeristy hsopitals 118 procedures were performed. As to the data of Ministery of Health, 3.148 endobronchial treatment procedures were performed annually, 1.337 EBUS were done. The average was calculated as 47 interventional procedures and 26 EBUS per pulmonologist who had performed the procedure per year. Cryotherapy performed in 27 institutions, cautery in 20, stent in 19, argon in 15 and laser in 8 institutions.Also endhobronchial coi in 16 institutions and enndobronchial valve in 10 institutions were performed.

CONCLUSION: In the bases of pulmonologists in our country, ıt was concluded that 2/3 of them could perform bronchoscopy procedures, 95% of these procedures were performed with fiberoptic bronchoscope and more than half of the procedures were bronchial lavage. Intention-to-treat bronchoscopy forms 4,4% of all bronchoscopy procedures.

OP-47
Lung ultrasound for monitoring whole lung lavage in pulmonary alveolar proteinosis

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Purpose of the study: Lung ultrasound(LUS) has been proven to yield valuable information for lung and pleural pathology. It is a well validated for assessing extravascular lung water. It can also be used to monitor stages of controlled lung de-aeration in whole lung lavage(WLL).

CASE: A 55 year old lady with biopsy proven pulmonary alveolar proteinosis presented with respiratory failure(SpO2=85% in room air). WLL was planned. 12 areas screened showed alveolar interstitial pattern(Step 1). One lung ventilation(OLV) was done and isolation of lavage lung was confirmed. On LUS, consolidation(Step2) was followed by lung collapse(Step3). Saline infusion resulted in fluid bronchogram(Step4) on LUS(alveolar flooding) in all the areas following which infusion was stopped. Saline removal and reventilation showed alveolar-interstitial syndrome(Step5) on LUS. After PEEP application, normal A profile was seen in most of the areas (Step6). 15 days later patient followed up in OPD with improved oxygen levels(SpO2=94% in room air) and LUS showing normal A profile in all areas of lung.

CONCLUSION: LUS is a reliable, cheap and an effective tool as a marker of the adequacy of WLL which can be easily used in the OT. It can also determine different stages of aeration during the procedure and guide termination of lung flooding. However, prospective studies are needed to validate this tool and set guidelines for its use.

OP-48
Comparison of two different 22-gauge EBUS-needles

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AIM: 22-gauge EBUS-needles are the most common used for EBUS-TBNA. Material composition, sharpness and handling differ among needles. This study aimed to compare two different 22-gauge EBUS-needles (Olympus (group 1), Boston Scientific (group 2)) regarding sample size, diagnostic yield and complications.

Materials and METHODS: 64 samples from 63 patients suspicious for lung cancer with mediastinal lymph node metastases > 10 mm on CT Chest. were prospectively collected (34 group_1, 30 group_2). Group_1 was part of a randomized controlled trial (NCT02813603, ethics approval no. 16-6799-BO), samples in group_2 were separately collected. EBUS-TBNA was performed with rigid bronchoscopy. The lymph node with the highest probability for malignant infiltration was sampled. Samples were weighed immediately after completion of all passes. Sample weight, complications and final diagnoses were recorded.

RESULTS: An average of three needle passes was performed per group. Average sample weight per needle pass was 10.3 g in group_1 and 12.7 g in group_2 (p-value 0.2), respectively. ten patients in group_1 and seven patients in group_2 were lost to follow-up, respectively. All other samples were sufficient for cytology diagnosis. Diagnostic sensitivities and specificities accounted for 100% in both groups. In group_1, two moderate bleedings were documented. Hemostasis was rapidly achieved after xylometazolin application. In group_2 two bronchoscope working-channel damages were documented.

CONCLUSIONS: This study suggests safety and comparably high diagnostic yields of both needles. There was no significant difference in average sample weight per needle pass between the two needles. For definitive comparison of utilities and safety larger sample sizes are required.

OP-49
Benign tracheal stenosis: 5-year experience

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BACKGROUND: Tracheal stenosis is a life threatening condition with an imminent suffocation threat. Dramatic clinical picture presents in 54% of cases with respiratory distress. It can be resolved surgically or endoscopically, yet the body of evidence is still small in order to come forward with clear guidelines.

MATERIALS-METHODS: Retrospective analysis of patients with benign tracheal stenosis in last 5 years was performed using patient records and bronchoscopy charts.

RESULTS: During a 5-year period 849 interventions in 557 patients were performed, of which 151 (1-11 per patient) for non-malignant central airway stenosis, representing 67 patients (82.1% men, mean age 55.1±17.9 years). 100 (66.2%) interventions were done for postintubational stenosis and 22 (14.6%) for tracheal granulations. Other causes include tracheal papillomatosis, posttuberculotic tracheal stenosis and tracheomalatia. Most often used interventions were core dilatation (n=49, 32.5%), electrocautery snooze (n=43, 28.5%) and balloon dilatation (n=35, 23.2%). Stent was placed in 14 patients (9.3%). In 10 (14.9%) patients surgery was the first treatment option, and interventional bronchoscopy was done for postsurgical complications (after median of 41.5 days) with up to 11 interventions. Surgery was required after interventional bronchoscopy in 8 (12%) patients (after median of 31.5 days). After the salvage surgery interventional bronchoscopy was done 2-6 times. Intervention rate of success was 81.5% (balloon dilatation and core dilatation were significantly predictive, p=0.020).

CONCLUSION: Core dilatation was the most successful method for resolving tracheal stenosis. Some patients are prone to restenosis/granulation formation requiring repeated interventions and close colaboration between bronchoscopist and thoracic surgeon.

OP-50
Pleural dye marking using radial endobronchial ultrasound combined with virtual bronchoscopy before minimal invasive sublobar lung resection

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INTRODUCTION: Surgical resection of pulmonary nodules with minimally invasive techniques is challenging as the procedures have decreased the ability to palpate the lung in comparison with open thoracotomy. The objective of this study was to evaluate the feasibility of pleural dye marking using radial-EBUS (r-EBUS) combined with virtual bronchoscopy (VB) to help minimally invasive resection of small peripheral lung nodule (SPLN) or ground glass opacities (GGOs).

METHODS: Both bronchial path to nodule (LungPoint Software®) and sub-pleural methylene blue deposition were performed in the operating room immediately before minimally invasive surgery. A 4 mm fiberscope with 2mm working channel, 1.4 mm r-EBUS probe and guide sheath were used under general anesthesia without fluoroscopy, in a patient on operating position. One ml of methylene blue was inserted into the guide sheath at the end of the procedure.

RESULTS: 15 sublobar nodule resections were performed in 13 patients including 4 GGOs. Median nodule's greatest diameter was 8 mm (4 to 15 mm, 14 nodules < 10mm). Median distance to pleura was 10 mm (2 to 27 mm). No complication due to dye marking was reported. Seven patients (54%) underwent Video Assisted thoracic surgery and 6 patients underwent Robotic Assisted thoracic surgery. No conversion to open thoracotomy was needed. The dye was seen on the pleural surface and allowed easy localisation of the lesion in 14/15 cases. Histological diagnosis and free margin resection were obtained in each case.

CONCLUSION: r-EBUS combined with VB allows dye localization of SPLN before minimally invasive resection.

OP-51
Medical thoracoscopy to attain pleural effusion aetiology (Tanta University Experience)

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BACKGROUND: To diagnose the cause of pleural effusion is a challenging matter. Clinical of this study is to evaluate the role of medical thoracoscopy in diagnosis of pleural effusion aetiology.

METHODOLOGY: 200 cases with pleural effusion were admitted to chest department, Tanta University Hospitals. Patients were clinically examined and fully investigated. The aspirated fluids were investigated chemically, bacteriologically and pathologically. Cases not diagnosed after previous investigations were subjected to medical thoracoscopy. Pleura were examined and biopsied (5-8 biopsies for histopathologic examination) using local anesthesia and conscious sedation then intercostal tube was inserted till fluid drainage was less than 150 cc /day.

RESULTS: After investigations of aspirated effusion; 73/200 cases (36.5%) were not diagnosed and necessitated medical thoracoscopic biopsies. Age was 51.92±7.35, 40 male and 33 female. 34/73(46.58%) were metastatic adenocarcinoma, 21/73(28.77%) were tuberculous pleurisy, 10/73(13.7%) were malignant mesothelioma, 2/73(2.74%) were lymphoma, 5/73(6.85%) were non-specific inflammation and one case(1.37%) was primary pleural thymoma. Complications were few; six had surgical emphysema and two had wound infection. Duration of intercostal tube was 4.7±2.1 days and hospital admission was 6.3±1.7 days. Sensitivity of thoracoscope was 93.2%.

CONCLUSION: Medical thoracoscopy is the gold standard diagnostic tool for pleural diseases particularly effusion with a high diagnostic yield. It permits pleura biopsy under direct visualization. Medical thoracoscope is an easy maneuver performed by well-trained pulmonologist without general anesthesia with minimal complications.

OP-52
New 3D «All in 1» Device for Fiducial Tumor Marking: A Pilot Animal Study

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BACKGROUND: Malignant lung lesions are commonly treated with stereotactic body radiotherapy e.g. Cyberknife®. However, a common problem of existing markers is migration. The purpose of the study was to demonstrate feasibility of a new « All in 1 » shape memory (Novatech[®]) Nitinol (Ni–Ti) device with Tantalum (Ta) markers, with safety and efficacy as key points, in a porcine model.

METHODS: 55 devices with 3 different shapes were used to determine the best design to reduce the migration risk. Animals: A total of 8 Piétrain pigs, 5 animals for safety and 3 animals for efficacy evaluation. Follow-up period: 4 weeks. The markers where launched by flexible bronchoscopy under general anesthesia using a radial EBUS GS (Olympus® K-201) under fluoroscopy control. Evaluation: Procedure time, blinded CT scan analyses, complications and histological analysis

RESULTS: All 55 devices were easily inserted into the peripheral bronchi. All devices could be visualized under fluoroscopy. The average procedure time was 5 min (+/- 2,6). During the 4 weeks clinical follow up and CT evaluation, no immediate or late complication occurred (pneumothorax, pneumonia, severe granulations or bleedings) in the first series. Migration has been seen in some pigs of the first series but not in the second series. No device related complications have been noted.

CONCLUSION: In this pilot animal study the new « all in 1 » device for fiducial tumor marking was easy, quick and safe to use. It could be demonstrated that migration risk can be reduced with the right design.

OP-53
Utility of Immunohistochemical markers on EBUS TBNA samples in specific diagnostic subtyping and multiple gene analyses in Primary and Metastatic Lung Cancer

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Background - Recent advances in targeted therapy of lung cancer necessitate specific subtyping and molecular testing for accurate sub-classification and molecular diagnosis. Here, we have retrospectively evaluated utility of TTF-1, Napsin A, CK7, P63 and CK5/6 Immunohistochemical (IHC) markers in the distinguishing and sub classification of non-small cell lung cancer and small cell lung cancer and were correlated with the histological diagnosis of tumor.

Method - EBUS TBNA was performed on 42 patients for diagnosis of hilar / mediastinal lymphadenopathy or lung mass adjacent to a central airway. Immunohistochemistry and ancillary molecular testing was done on cell block samples whenever needed.

Results - In our study we found adenocarcinoma (31), squamous cell carcinoma (8), and small cell carcinoma (3). Adequate cell blocks could be obtained in all 42 cases, which were used for morphological characterization and IHC studies. The cell block provided a subtype specific pathological diagnosis with relevant immunohistochemistry staining. In 31 Pulmonary Adenocarcinoma cases, TTF – 1 and CK – 7, Napsin A was found in 25 (83.33%) and 21 (67.74%), 23 (74.19%) patients respectively. In 8 Squamous cell carcinoma cases, CK5/6 and p63 was seen in all 8 (100%) and 7 (87.5%) patients respectively. In 3 Small Cell Carcinoma (Neuro Endocrine Tumor) cases, Synaptophysin was seen in all 3 (100%) patients.

Conclusion - These findings indicate that EBUS-TBNA specimens provide sufficient tissue for subtyping lung cancer while performing IHC on cell block samples for better classification of neoplasms and hence reduces further need of conventional biopsy procedures.

OP-54
Ultrasound guided pleural brushing: a new method for obtaining pleural specimen in malignant effusion

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Until now the diagnostic yield of ultrasound guided pleural brushing for malignant pleural effusion is not evaluated. The aim of this study was to assess the diagnostic yield of this procedure and its contributions to obtain pleural specimen for cytological examination in malignant effusion. Patients with suspicious malignant pleural effusion were hospitalized and enrolled in this study. Those with bleedingtendency or coagulation profile abnormalities were excluded from the study.The tools used in our study were ultrasound apparatus, biopsy forceps, bronchoscopic cleaning brush, trocar and cannula of Cope's needle, rubber inlet seal and the semirigid thoracoscope. Thoracentesis, pleural brushing and biopsy forceps of the pleura were performed for all incorporated patients in the ultrasound unit while thoracoscopy was done in the endoscopy unit for only patients in whom the diagnosis could not be achieved by these rocedures. Among 22 patients who were finally documented to have malignancy, the ultrasound guided pleural brushing provided diagnosis in 9 (41%), it was exclusively diagnostic in 3 patients(13.6%). Interestingly, the yield of this procedure had its contributions regarding the final pathological diagnosis of our cases, it could augment the positive yield to be 55% instead of 41% (for pleural fluid cytology alone), 82% instead of 68% (for biopsy forceps alone) and 86% instead of 72% (for both fluid cytology and forceps biopsy). The recorded complications were minimal.

CONCLUSION: Ultrasound-guided pleural brushing is a new method for obtaining pleural specimens. It is a simple and relatively safe procedure.

E-POSTER

EP-01
Bronchoscopic management of endobronchial lipoma: A case report

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Endobronchial lipomas are very rare tumors. Although surgery may be required in some cases, bronchoscopic removal is the preferred treatment modality. In this article, we present a case of endobronchial lipoma incidentally found after excision of a giant esophagus diverticulum. During follow-up of the patient, a tumor, located in the right lower lobe bronchus, was seen at thorax computed tomography. The tumor was excised via rigid bronchoscopy. This case highlights the effectiveness of rigid bronchoscopy in the management of endobronchial tumors.

EP-02
A Case of a Recurrent Rapidly Filling Pleural Effusion – T790M "gatekeeper" mutation in EGFR TKI's

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BACKGROUND: Epidermal growth factor receptor mutation (EGFR) remains one of most important molecular abnormalities in patients with Non-small cell lung cancer. However, despite an initial response to treatment of EGFR TKI in responsive patients, most of them acquire resistance – T790M mutation after a progression free period of about 1 year.

CASE HISTORY: A 59 yrs old Temple Priest, Chronic smoker with known case of right sided Pulmonary Adenocarcinoma, previously started on Erlotinib / Geftinib therapy. He presented with shortness of breath with localized disease progression with pleural effusion. PET CT was done which revealed right upper lobe mass with moderate to large right sided pleural effusion with passive collapse. Therapeutic tapping was done and Cytology of pleural fluid revealed mild atypical cells and reactive mesothelial cells. Medical Thoracoscopy was done in view of recurrent rapidly refilling pleural effusion. Multiple pleural biopsies was taken and sent for histopathology examination. Histopathology revealed pleural infiltration by moderately differentiated Adenocarcinoma. IHC staining was done on pleural biopsy which expressed CK7, TTF – 1, EGFR positive suggestive of Primary Pulmonary Adenocarcinoma. Pleural biopsy sample came positive for T 790 Mutation – 2369 C > T and Exon 20. Final diagnosis was made as Advanced EGFR Mutation Positive NSCLC with T790M deletion.

CONCLUSION: Lung cancer patients harboring baseline EGFR T790M should be studied prospectively to better understand germline prevalence, familial penetrance, and lifetime lung cancer risk in carriers. Patients have secondary mutation in the EGFR gene and amplification of the MET proto-oncogene.

EP-03
Endobronchial pulmonary late metastasis in a patient with breast cancer

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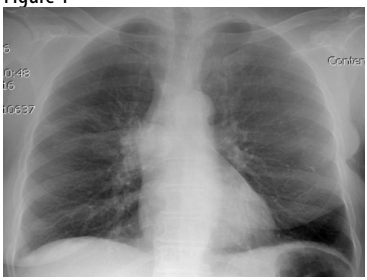
INTRODUCTION: Metastatic disease of breast cancer usually occurs in the 2-3 years or 5 years during the disease course. Lung metastases from extrapulmonary primary malignancies are common however endobronchial metastases from nonpulmonary neoplasms are rare.

CASE REPORT: A 65 years old woman applied to evaluate our Hospital for the evaluation of dry cough. The patient had a history of breast cancer which was treated with modified radical mastectomy and axillary dissection 10 years before, then treated with aromatase inhibitor for 5 years. On Chest X-ray right hilum enlargement (Figure 1). Thorax computed tomography showed mass 35mm diameter localized in right hilum (Figure 2). Fiberoptic bronchoscopy was performed and endobronchial lesion was seen in the right main lobe carina (Figure 3). Biopsies were performed from endobronchial lesion Pathologic evaluation demonstrated that it was the metastasis of invasive ductal carcinoma of breast (Figure 4). Pathology report showed that estrogen receptor was positive (Figure 5). 18F-fluoro-2-deoxy- D'glucose- Positron emission tomography-computed tomography was showed an increased standardized up take value (SUVmax: 5.16) for the primary endobronchial lesion and suspicious metastatic pulmonary nodules and lymph nodes in mediastinum (Figure 6). Weekly paklitaxel chemotherapy was launched due to symptomatic disease.

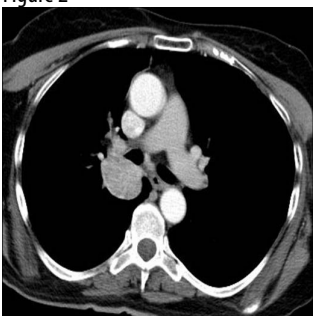
DISCUSSION: We reported a breast cancer patient with a endobronchial metastasis. Her disease free interval was ten years. This case indicates that a long-term follow-up of breast cancer is necessary and biopsies must be performed in order to identify the final diagnosis.

Figure 1



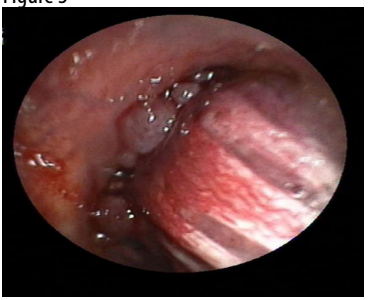
Chest X-Ray showed right hiler enlargement

Figure 2



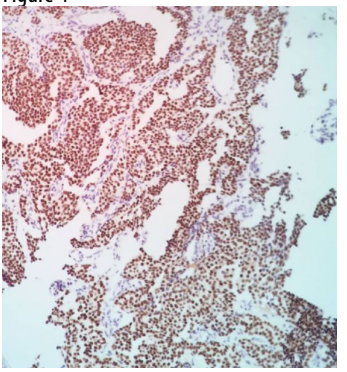
Thorax computerized tomography showed mass 35mm diameter localized in right hilum

Figure 3



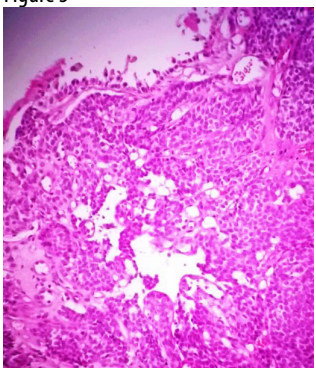
Fiberoptic bronchoscopy showed endobronchial lesion was seen in the right main lobe carina

Figure 4



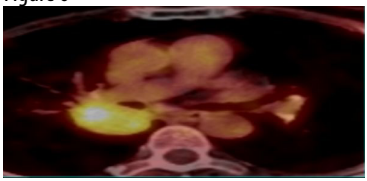
Respiratory epithelium, solid stratum, tumoral tissue forming small ductlike structures. (H & E, X200)

Figure 5



Strong estrogen receptor antibody expression in the tumor. (X100)

Figure 6



Positron Emission Tomography scans showed increased Fluoro-deoxy-glucose uptake (sSUV max:5,16) in the mass 35mm diameter localized in right hilum

EP-04
Mycoplasma pneumonia diagnosis; not difficult any more

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BACKGROUND: Atypical pneumonia is a clinical problem that pulmonogist usually meets. Mycoplasma pneumonia incidence is high. Although its treatment is not difficult, but it needs to be diagnosed early and accurately to avoid complications. Conventional diagnostic methods either have low sensitivity or need prolonged time, which necessitates rapid and accurate new diagnostic methods. The aim of this study is to evaluate the role of PCR using 130bP gene in diagnosis of mycoplasma pneumoniae.

METHODOLOGY: 40 patients were admitted to chest department with clinical suspicion of atypical pneumonia, they had scanty sputum, crepitations, pleural rub, myalgia, irrelevant tachycardia or neurological abnormalities in addition to chest x-ray infiltration. Collected samples (sputum, pleural effusion or bronchial lavage) were submitted to stain, culture and quantitative PCR (mycoplasma pneumoniae specific gene).

RESULTS: 23/40 patients were positive for 130bP (6 sputum, 9 lavage and 8 pleural fluid), and also were positive culture (after 7-12 days). Age was 43.68±11.79 (9 female and 14 male). There were significant relation between PCR and clinical picture; 13/23 of patients had chest crepitations. 18/23 showed significant x-ray infiltration, heart rate was 112.36±8.47 (with 78.3% of patients had arrhythmia). 8/23 of patients had mental confusion.

CONCLUSION: Mycoplasma pneumoniae is a common cause of atypical pneumonia that has significant correlation with x-ray infiltration, crepitations and arrhythmia but without accurate diagnosis until culture gives positive bacterial growth. PCR using 130bP is a rapid and accurate diagnostic method that overcomes the delay of the culture and the low specificity of clinical picture and serological tests.

EP-05
Is the Use of Multi-Organ Ultrasonography Effective for Diagnosing Non-Massive Pulmonary Thromboembolism?

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Health Science University, Süreyyapasa Chest Disease and Thoracic Surgery Education and Research Hospital, Chest Department

AIM: Diagnosis of pulmonary thromboembolism(PE) remains difficult due to its non spesific symptoms and signs. There is virtually no single non invasive diagnotic test which is sufficiently sensitive for the diagnosis.The aim of this study was to determine the sensitivity and spesifity of multiorgan ultrasonography(MUS) for diagnosing non massive PE.

MATERIAL-METHODS: Between November 2015 and July 2016, a total of 92 consecutive patients with moderate or high clinical suspicion of PE evaluated in the emergency setting of our hospital.Patients who meet inclusion criteria were enrolled into the study. On the first assesment Wells clinical scores were calculated and plasma D-dimer levels were measured.Patients included in the study underwent thoracic ultrasonography(TUS), duplex sonography of lower extremity veins, echocardiography and multislice Computerized Tomography Pulmonary Angiography(CTPA) within 24 hours. All statistical analysis were carried out using the SPSS soft-ware. A p value < 0.05 was considered significant.

RESULTS: Of the patients 74 subjects who meet inclusion criteria were included.While PE was diagnosed in 49(66.2%) patients according to the result of the multislice CTPA that was regarded as the reference test, PE was not detected in 25(33.8%) patients. When MUS was consistent with PE and evaluated together with D-dimer, the sensitivity for identifying PE was identified as 89.8%, specificity as 88%, PPV as 93.6% and NPV as 81.5%.

CONCLUSION: Multiorgan ultrasonography is more effective and reliable test than single-organ ultrasonography for diagnosing PE with a high sensitivity and spesifitiy especially at emergency setting.This approach may facilitate immediate treatment decision when CTPA is not available or not feasible.

Table 1 The sensitivity, specificity, PPV and NPV of clinical scoring and ultrasonographic imaging methods in combination for diagnosing PE.

	sensitivity	spesifity	PPV	NPV
Thoracic US(+) subpleural wedge and /or round lesion	65,3	92,0	94,0	57,5
Duplex sonography of leg vein (+)	51,0	88,0	88,5	45,8
Echocardiography(+)	12,3	100	100	36,8
Multi-organ US; Thoracic US Duplex sonography of leg vein Echocardiography	89,8	76,0	88,0	79,2
Multi-organ US D-dimer high	89,8	88,0	93,6	81,5
Multi-organ US D-dimer high Wells clinical score >2	89,8	88,0	93,6	81,5

US: Ultrasonograhy, PPV: positive predictive value, NPV: Negative predictive value

EP-06
Melanoma with tracheobronchial involvement: bronchoscopy contribution to over 10 years survival (case report)

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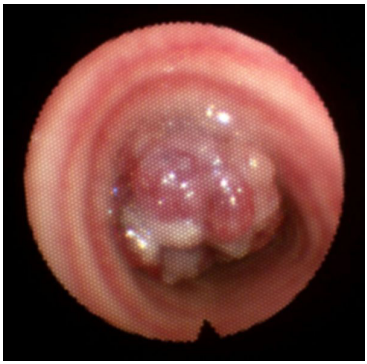
[2]Department of anesthesiology, Republican Clinical Hospital, Chisinau, Moldova

INTRODUCTION: Tracheobronchial metastases of skin melanoma is an extremely rare phenomenon. We present a case of effective endoscopic palliation of tracheobronchial tumor obstruction.

METHODS-RESULTS: Patient (P), male, 37 years old, came to our department with severe inspiratory dyspnea on 31.10.2014. In May 2005 (9 years ago) P underwent surgery for skin melanoma. In November 2011 (3 years ago) lung resection for solitary metastasis in the left lung was performed. Chemo- and immunotherapy were done postoperatively. In August 2013 (1 year ago) P coughed out a tumor fragment. Fibrobronchoscopy (FB) revealed 2 foci of melanoma (in trachea and RMS bronchus). Distant radiotherapy (40Gy) on tracheal region and chemotherapy were done. In September 2014 (1 month ago) increasing inspiratory dyspnea appeared. FB (3.11.14) revealed in mid trachea a large (approx. 4 cm) obstructing sessile exophytic tumor. Another tumor was partially obstructing RMS bronchus. Endoscopic tumor ablation under general anesthesia with high frequency jet ventilation using rigid bronchoscope and Nd:YAG laser was performed with complete lumen recovery. Totally 6 sequences of endoscopic recanalization for relapsing tumors during 25 months period (in 2 to12 month intervals) using rigid bronchoscope, electrosurgical snare and Nd:YAG laser were performed. At the moment P is alive and is scheduled for FB in 3 months time interval after last intervention.

CONCLUSIONS: Endoscopic recanalization, using rigid bronchoscope, electrosurgical snare and Nd:YAG laser, is a powerful tool for palliative treatment of melanoma of tracheobronchial tree, that contributes to increasing of life quality and long term survival.

Tracheal melanoma - endoscopic view

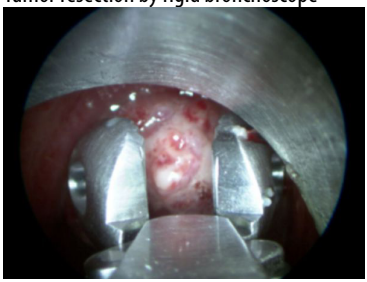


FB revealed in mid trachea a large (approx. 4 cm) obstructing sessile exophytic tumor.

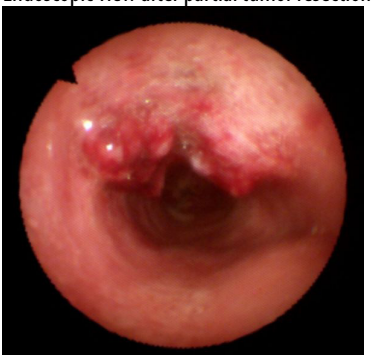
Tracheal melanoma - CT

Large subtotally obstructing tumor in mid trachea, another moderately obstructing tumor on medial wall of RMS bronchus extending to bronchus intermedius.

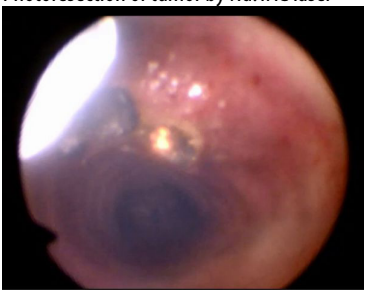
Tumor resection by rigid bronchoscope



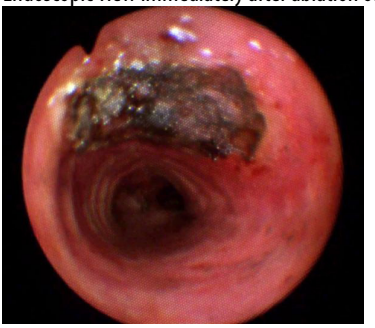
Endoscopic view after partial tumor resection by rigid bronchoscope tube



Photoresection of tumor by Nd:YAG laser



Endoscopic view immediately after ablation of tracheal tumor



Endoscopic tumor ablation resulted in complete lumen recovery

EP-07
Endobronchial Tuberculosis Presenting as a Para-hilar Mass in CT scan with Lymph node involvement and Endobronchial Infiltration during Bronchoscopy A Case Report

Ornela Nuredini, Ilir Peposhi, Vasil Miha

University Hospital "Shefqet Ndroqi" Tirana Albania

INTRODUCTION: Tuberculosis (TB) remains a major health problem in the developing country. Endobronchial tuberculosis (EBTB) is present in 10-40% of patients with active pulmonary tuberculosis.EBTB is defined as tuberculosis infection of the tracheobronchial tree with microbial and histopathological evidence. EBTB develops as a common complication of active tuberculosis, but the exact pathogenesis is not yet completely understood. EBTB has diverse clinical and radiological presentation and overall scenario is confusing.

Case Summary: A 47 year female presenting nonsmoker, nonalcoholic, dry cough since 2 months, and was having chest pain mainly on right side. In CT scan para-hilar mass and having Endobronchial infiltration growth during bronchoscopy. Sputum smear and bronchial lavage was negative for bacilli Koch. We confirm finally as Endobronchial tuberculosis after histopathological evaluation. He is treated with antituberculosis drugs for six months and recovered clinically and radiologically completely.

CONCLUSION: Bronchoscopy is must in all the cases of high index of suspicion for pulmonary tuberculosis and especially EBTB.

EP-08
Endoscopic LASER ablation of large lipoma, originating from lingular bronchus (case report)

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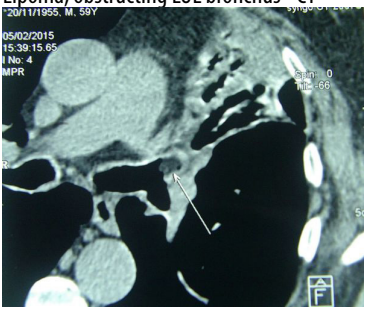
[3]Department of thoracic surgery, Municipal Clinical Emergency Hospital, Chisinau, Moldova

INTRODUCTION: LASER increases the rate of radical tumor ablation and is mostly used in tumors located in trachea and main stem bronchi. LASER resection of endobronchial tumors, located in lobar and segmental bronchi, is technically much more challenging and by using rigid bronchoscopy alone is often not possible, especially if tumor is located in superior lobe. We present a case of successful LASER ablation of lipoma, originated from lingular bronchus.

METHODS-RESULTS: Patient, male, 60 years old, came to our department with dyspnea, cough with expectorations, general fatigue. During last year he repeatedly received treatment for bronchitis. CT revealed endobronchial lipoma, obstructing left upper lobe bronchus (LULB) and atelectasis of left upper lobe. Fibrobronchoscopy (FB) revealed a spheric tumor with smooth yellowish surface, that obstructs completely LULB. Rigid bronchoscopy combined with flexible bronchoscopy was performed under general anesthesia with high frequency jet ventilation. First, tumor was resected partially by electrosurgical snare and after tumor implantation base, originating from lingular bronchus, was exposed, complete LASER ablation was performed with Nd:YAG laser. Histologic examination of removed specimen confirmed lipoma. Control FB in 1 year after tumor ablation revealed no signs of recurrence.

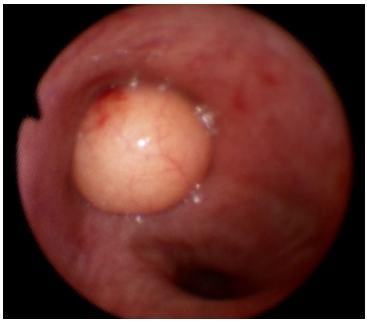
CONCLUSIONS: Radical LASER ablation of tumors located in tertiary (segmental) bronchi can be performed easier by using combined (rigid and flexible) bronchoscopy, that facilitates access of LASER guide to more peripheral bronchi.

Lipoma, obstructing LUL bronchus - CT



CT revealed endobronchial lipoma, obstructing left upper lobe bronchus (LULB) and atelectasis of left upper lobe.

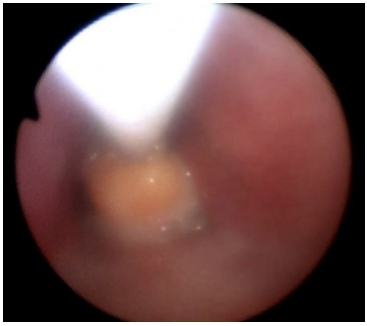
Endoscopic view of lipoma, obstructing LUL bronchus



FB revealed a spheric tumor with smooth yellowish surface, that obstructs completely LULB.

Diathermoexcision by snare

Extraction of resected piece



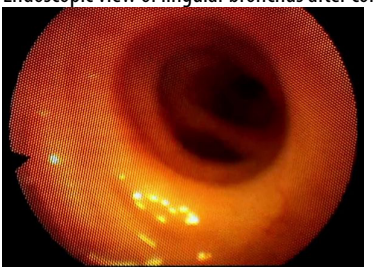
Resected tumor was fixed in snare and extracted. Purulent content is coming from LUL.
LASER vaporization of tumor

After tumor implantation base, originating from lingular bronchus, was exposed, complete LASER ablation was performed with Nd:YAG laser.

Endoscopic view of lingular bronchus immediately after tumor ablation

The wound after LASER ablation is covered by necrotic scab.

Endoscopic view of lingular bronchus after complete epithelization



Control FB in 1 year after tumor ablation revealed no signs of recurrence.

EP-09
The Utility Of Impulse Oscillometry In Asthma: A Comparison Of Spirometry Versus Impulse Oscillometry System

Ragia Samir Sharshar, Ahmed Shawky Mohamed

Department of chest, Faculty Medicine, Tanta University, Egypt

Background; Spirometry and body plethysmography have been routinely used for measuring pulmonary function. Impulse oscillometry (IOS) is a variant of forced oscillation technique based onphysiologic concepts that were first described almost 50 years ago are emerging in research and inclinical practice. Objective;To evaluate IOS usefulness in patients with asthma.

Methodology; This study conducted on 50 patients with a diagnosis of asthma who were classified into two groups, mildmoderate and severe. Spirometry and IOS were performed before and after three months of treatment.

Conculsion; Impulse oscillometry provides an easily, rapid tool to diagnose and classify airway obstructive severity in asthma.

Keywords: Asthma; Spirometry; Impluse oscillometry

Demographic characteristics of participants, and baseline values in group I, II.

Variable	Group I (mean ± SD)	Group II (mean ± SD)
age	48.2 ± 13.3	50.52 ± 12.8
sex(m/f)	11/14	10/15
FEV1/FVC%	68.53 ± 2.43	63.08 ± 1.62
FEV1%	71.34± 4.84	58.11 ± 2.35
R5	0.55 ± 0.04	0.7 ± 0.06
R5%	227.2 ± 27.62	282 ± 21.79
X5	-0.26 ± 0.02	-0.32 ± 0.03
AX	1.81 ± 0.28	2.8 ± 0.26

Spirometric and IOS values at baseline and after follow up in group I (*significant).

Group I (Mean ± S.D)	Before	After	t test	p. value
FEV1 / FVC	68.53 ± 2.43	73.76 ± 1.62	8.970	0.001*
FEV1	71.34 ± 4.84	82.62 ± 1.90	10.854	0.001*
R5	0.55 ± 0.04	0.47 ± 0.05	7.170	0.001*
R5 %	227.20 ± 27.62	190.80 ± 22.72	5.090	0.001*
X5	-0.26 ± 0.02	-0.20 ± 0.02	13.713	0.001*
AX	1.80 ± 0.28	0.91 ± 0.25	11.923	0.001*

Spirometric and IOS values at baseline and after follow up in group II.

Group II (Mean ± S. D)	Before	after	t. test	p. value
FEV1 / FVC	63.08 ± 1.62	63.92 ± 1.78	1.752	0.086
FEV1	58.12 ± 2.36	59.32 ± 2.48	1.766	0.084
R5	0.70 ± 0.06	0.57 ± 0.05	8.793	0.001*
R5 %	282.00 ± 21.79	232.00 ± 16.07	9.232	0.001*
X5	0.32 ± 0.03	0.27 ± 0.03	6.272	0.001*
AX	- 2.80 ± 0.26	- 1.95 ± 0.35	9.893	0.001*

FEV1 correlations with R5, X5, and AX at baseline and after follow up.

At Baseline	FEV1 GROUP I	FEV1 GROUP I	FEV1 GROUP II	FEV1 GROUP II
R5	r= - 0.418	P= 0.037*	r= - 0.711	P= 0.001*
X5	r= 0.631	P= 0.001*	r= 0.504	P= 0.011*
AX	r= 0.620	P= 0.001*	r= 0.652	P= 0.001*
At follow up	FEV1 GROUP I	FEV1 GROUP I	FEV1 GROUP II	FEV1 GROUP II
R5	r= - 0.617	P=0.001*	r= - 0.451	P= 0.024*
X5	r= 0.624	P=0.001*	r= 0.506	P= 0.010*
AX	r= 0.419	P=0.001*	r= 0.525	P= 0.007*

EP-10
The value of post-bronchoscopy sputum acid-fast bacilli analysis for the diagnosis of pulmonary tuberculosis

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Patients, who are not able to expectorate sputum spontaneously or with induction using nebulized hypertonic saline undergo fiberoptic bronchoscopy with bronchoalveolar lavage (BAL) to detect acid-fast bacilli (AFB) for the diagnosis for pulmonary tuberculosis (P-TB). Some institutions prefer to add post-bronchoscopy sputum (PBS) analysis to increase the sensitivity of the procedure.

The aim of this study is to investigate in retrospective manner the value of PBS analysis for AFB in patients who undergo bronchoscopic evaluation for the bacteriological diagnosis of P-TB.

The study was enrolled in 93 patients (median age 54, range: 19-88; 58 (60%) male). The data of patients, who have been evaluated with standard bronchoscopy with a suspicion of P-TB were collected retrospectively. PBS was collected just after the bronchoscopy with spontaneous expectoration and was analyzed for AFB stain, PCR and culture.

The AFB was detected by stain in 4/91 4,4(%) and 3/93 (3,1%) in BAL and PBS, respectively. PCR was positive in 10/69 (14,5%) and 3/41 (7,3%) in BAL and PBS, respectively. The culture positivity was found in 12/90 (13%) and 7/90 (7,7%) in BAL and PBS, respectively.
(p=0,06)

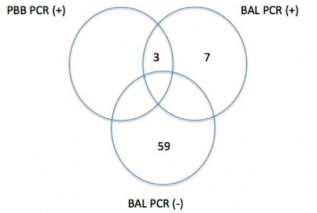
In our study, the diagnostic value of PBS for the bacteriology of P-TB in patients who have undergone bronchoscopy was not found greater than BAL. But, positivity rate was found adequately high and close to BAL when AFB stain and culture was considered.

Demographics

Feature	n
Median Age (min-max)	54 (19-88)
Female Gender (n, %)	35, 38%

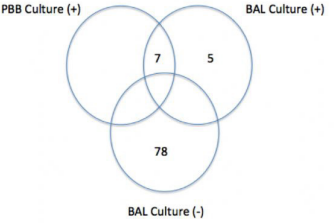
Demographic features of study population

Figure 1



TB PCR positivity venn diagram

Figure 2



TB culture positivity venn diagram

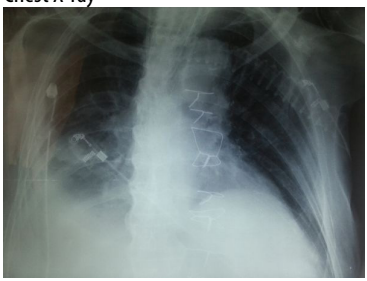
EP-11
Endobronchial metastases of malignant melanoma in an ICU patient

Gerasimos Lekatsas, Dimitrios Georgopoulos, Christina Alexopoulou

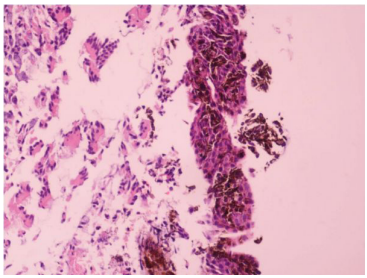
Intensive Care Unit, University Hospital of Heraklion, Crete, Greece

Endobronchial metastases (EBM) of extrapulmonary solid tumors are common. Melanoma is a malignant tumor formed by melanin-producing neural-crest derived cells (melanocytes) located in the bottom layer of epidermis. Primary and secondary localizations are well described, however endobronchial metastases are quite rare (4,5% of all EBM). We report a case of a 78 year old patient with pneumonia, who was admitted intubated in the Intensive Care Unit (ICU) after he had a respiratory arrest. The clinical examination revealed a dark colored skin tumor (6x4cm) of the right shoulder, with satellite pigmented lesions around. The CT-scan revealed consolidation/atelectasis of the right lower lobe in touch with right hilum lymphadenopathy, pleural effusion, pleural nodes, and mediastinal lymphadenopathy. A flexible fiberoptic brochoscopy was performed, revealing a pigmented (nevus-like) lesion of the trachea, 2cm before the main carina, and a similar lesion of RC1. Biopsies were taken. The patient died a few days later due to refractory septic shock. The biopsies revealed a malignant melanoma of the skin with metastatic infiltration of the bronchial mucosa. The rarity of the case consists of the synchronous diagnosis of the primary tumor and the EBM, the rare manifestation of nevus-like lesion of the endobronchial tree and the difficulty of the diagnostic procedure in an ICU patient. Poor prognosis of the EBM (according to literature) is confirmed in our case.

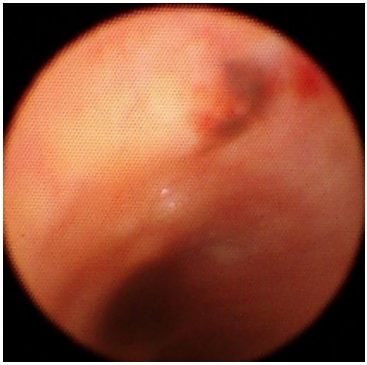
Chest X-ray



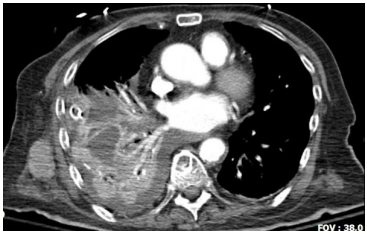
Endobronchial mucosa



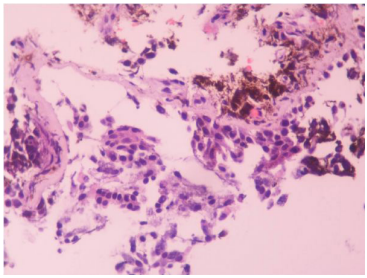
Lesion of the trachea



Chest CT-scan

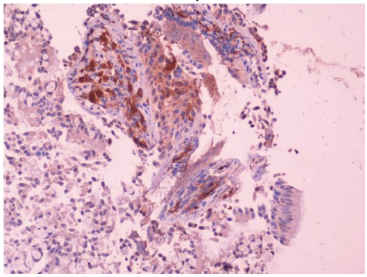


Endobronchial mucosa

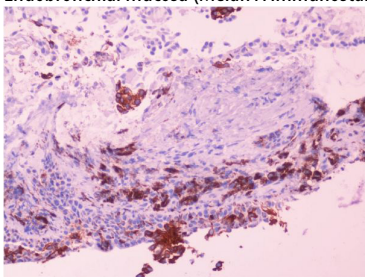


Lesion of RC1

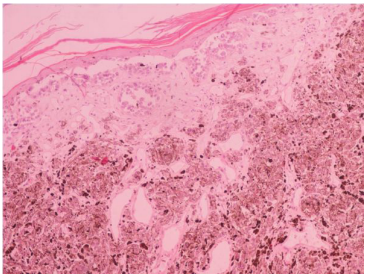
Endobronchial mucosa (Melan A Immunostain)



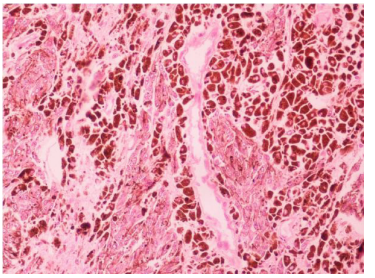
Endobronchial mucosa (Melan A immunostain)



Skin Tumor



Skin tumor



EP-12
Adenoid cystic carcinoma of the trachea: fibroendoscopic approach with long term survival (case report)

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[1]Department of thoracic surgery, Republican Clinical Hospital, Chisinau, Moldova
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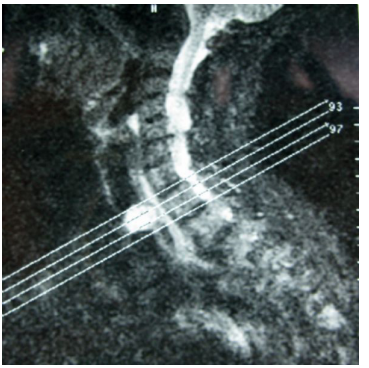
INTRODUCTION: Adenoid cystic carcinoma (ACC) of the trachea is an extremely rare malignancy. We present a case of successful fibroendoscopic management of obstructing tracheal tumor with long term survival.

METHODS-RESULTS: Patient (P), female, 78 years old, came to our department with severe dyspnea at rest and dry cough. MRI showed large polypoid intraluminal mass on the posterior wall of the mid trachea, external wall contour being deformed with slight esophagus compression. No signs of mediastinal lymphadenopathy were observed. Fibrobronchoscopy (FB) revealed large (2,5x1,3 cm) exophytic sessile tumor on the posterior wall of the mid trachea, with smooth glossy surface and intensified vascular pattern, floating at respiration and obstructing tracheal lumen up to 75%. Taking into consideration patient`s age and concomitant cardiovascular pathology, tracheal resection was considered a major risk. Endoscopic recanalization was proposed. First, partial electrosurgical snare excision using therapeutic fibrobronchoscope was performed under local anesthesia with premedication. Histologic examination revealed adenoid cystic carcinoma. Two sequences of Nd:YAG laser photoresection with 7-10 days interval were performed under local anesthesia with premediation, resulting in complete vaporization of visible tumor and lumen recovery. Control FB 4 and 13 months after intervention showed no recurrence. P died 12 years after intervention from heart failure at the age of 90. During observation period there were no complaints related to respiration.

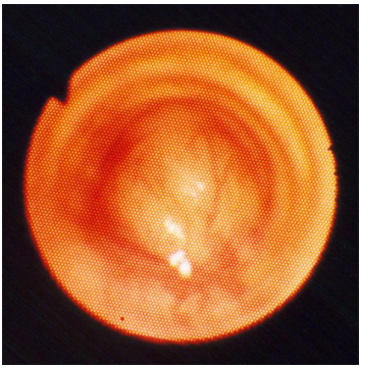
CONCLUSIONS: Fibroendoscopic LASER resection under local anesthesia with premedication can be considered as an acceptable alternative to traditional surgery for patients with poor health condition and major risk for general anesthesia and surgery.

Adenoid cystic carcinoma (ACC) of the trachea - MRI.



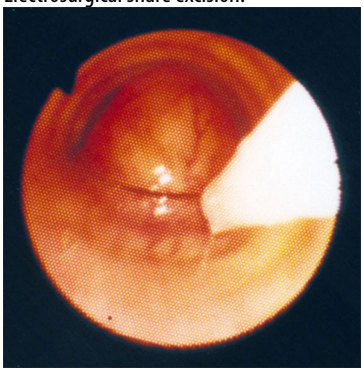
MRI showed large polypoid intraluminal mass on the posterior wall of the mid trachea, external wall contour being deformed with slight esophagus compression.

Adenoid cystic carcinoma of the trachea - endoscopic view.



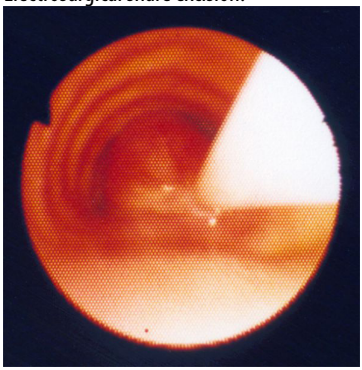
FB revealed large exophytic sessile tumor on the posterior wall of the mid trachea, with smooth glossy surface and intensified vascular pattern, obstructing tracheal lumen up to 75%.

Electrosurgical snare excision.



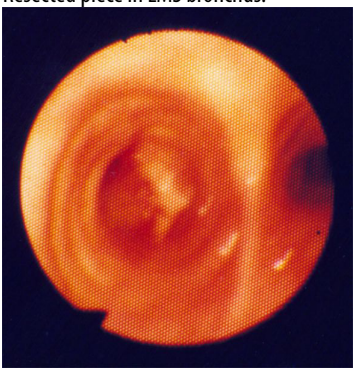
Tumor is entrapped in snare.

Electrosurgical snare excision.



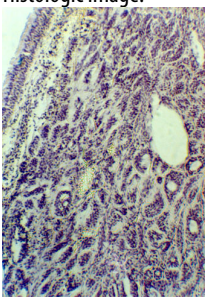
Moment of excision.

Resected piece in LMS bronchus.



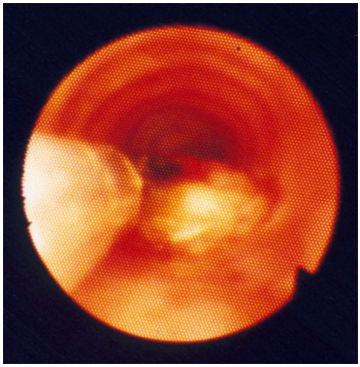
Resected piece with large implantation base.

Histologic image.



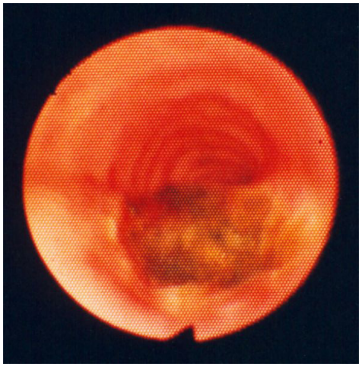
Histologic examination revealed adenoid cystic carcinoma.

LASER vaporization of residual tumor.



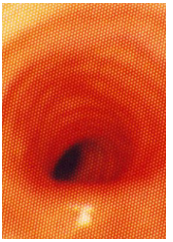
Two sequences of Nd:YAG laser photoresection with 7-10 days interval were performed under local anesthesia with premedication, resulting in complete vaporization of visible tumor and lumen recovery.

Endoscopic view immediately after tumor ablation.



Wound after photoablation is covered by necrotic scab.

Endoscopic view of the trachea 13 months after tumor ablation.



Control FB showed complete epithelization and no tumor recurrence.

EP-13
Synchronous Multiple Primary Carcinoma In A Patient Presented with Lung Carcinoma: Lung and Laryngeal Carcinoma

Gülistan Karadeniz, Gülru Polat, Fatma Uçsular, Enver Yalnız, Onur Fevzi Erer, Ceyda Anar, Melih Büyükşirin

Dr. Suat Seren Göğüs Hastalıkları Ve Göğüs Cerrahisi Eğitim Ve Araştırma Hastanesi, Göğüs Hastalıkları, İzmir

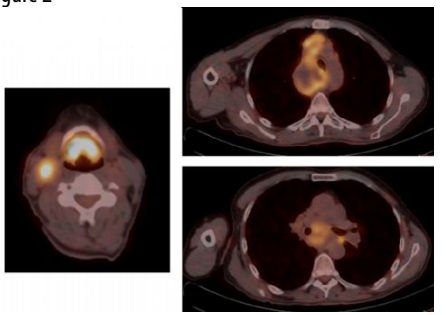
PURPOSE: Multiple cancer is defined as occurring two or more primary cancer in a person and is very rare. Because metastatic disease should be excluded, diagnosis is difficult in multiple cancers.

CASE: 59 years old male with dysnea applied. Chest-graphy revealed wide upper mediastinum. In thoracal computerized-tomography(CT), there was a mass surrounding the right main bronchus and compresses the trachea(Picture 1-2). The patient has no additional medical-history, he is an active smoker with 120pack/year story.

Vital signs and laboratory values were normal. Epiglottis was edema and there was anterior vegetating mass and external compression of the trachea and mukazal inflammation on the right main bronchi and carina seen with fiberoptic bronchoscopy. Biopsy revealed the diagnosis of small cell carcinoma. PET-CT performed for staging showed 3 cm opacity narrowing the air column in the glottic level at hypopharynx (SUV-max: 15.3), there were hilar and mediastinal necrotic conglomerate lymph nodes (SUVmax: 20.5). Because the patient has dyspnea due to external pressure, primarily palliative thoracic RT applied. After the patient was referred to the ENT, aryepiglottic biopsy revealed 'squamous cell carcinoma'. Chemotherapy treatment has been found to be appropriate in the oncology council. First cyclus of cisplatin + etoposide applied. Follow-up and treatment continues.

CONCLUSION: Bronchoscopic view is important in the detection of multiple primary carcinoma of the respiratory tract. Biopsy is essential for the exclusion of metastatic lesions and the diagnosis of multiple cancer condition. Appropriate treatment given to the patient with accurate diagnosis obtained by biopsy.

Figure 2



PET/CT

Figure 1

wided upper mediastinum

EP-14
A case of bronchocentric granulomatosis

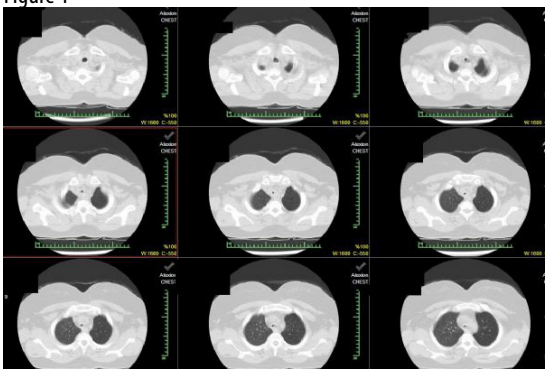
Sinem Nedime Sökücü, Cengiz Özdemir

Yedikule Chest Disease And Thoracic Surgery Training And Research Hospital, Istanbul, Turkey

Bronchocentric granulomatosis is a destructive, granulomatous lesion of the bronchi and bronchioles. Here, we report a case of Aspergillus tracheobronchitis in an immunocompetent patient, who was successfully treated with prednisolone

54 years old female admitted to our hospital with allergic symptoms like sneezing, red eye, rhinitis and also unproductive cough, chest discomfort and dyspnea for 6 months. To find out the underlying pathology, thorax computer tomography was taken and plaques in the trachea and main bronches were observed. Mucoid impaction along the trachea and both right and left main bronchus were observed all through the trachea, and right and left main bronchus. Pathological evaluation of the biopsy material taken from the main bronches and trachea reveals chronic inflammation and fungal hive. Although no growth in fungal culture was optained and diagnosis was not confirmed, we made a presumptive diagnosis of bronchocentric granulomatosis and Aspergillus tracheobronchitis on the basis of her symptoms, discriminative bronchoscopic findings, and unresponsiveness to antibiotics. Due to respiratory symptoms accompanying tracheal lesions we started oral prednisole. After 7 days we start to taper prednisolone while the cough and dyspnea resolved significantly by the treatment. Galactomannan was negative twice and no fungal growth was optained in any of the specimens optained. By the 1 st month of the treatment, surveillence bronchoscopic examination revealed significant improvement in the numerous gelatinous whitish plaques in the main bronchus. After steroid treatment respiratory function test was significantly improved.
Patient is in our follow up without any complaints.

Figure 1

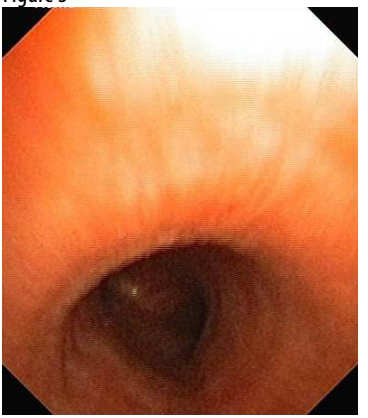


thorax CT shows plaques in the trachea

Figure 2

Rigid appearence of plagues

Figure 3



Control Fob

EP-15
Tracheobronchial Amyloidosis Mimicking Malignancy

Ozge Aydin Guçlu, Ezgi Demirdogen Cetinoglu, Ahmet Ursavas, Mehmet Karadag

Department of Pulmonary Diseases, Uludag University Faculty Of Medicine, Bursa, Turkey

INTRODUCTION: Tracheobronchial amyloidosis(TBA) is a rare disease with nonspecific pulmonary symptoms and characterized by amyloid deposition in various segments of the tracheobronchial tree. We report a patient admitted to our institution with persistent dyspnea for further evaluation and management.

CASE-REPORT: A 44-year-old man with a three-year history of shortness of breath and cough. He is an ex-smoker with a 35-pack year smoking history and quit smoking six months ago. On initial examination, he appeared to be in good health and his vital signs were normal. Chest auscultation revealed normal breath sounds. The physical examination of other organ systems was not remarkable. Routine laboratory test results were within normal limits. Diffuse nodular thickening of submucosal tracheal and right upper lobe bronchial wall was shown on thoracic computed tomography. Completely irreguler surface of tracheal and right upper lobe bronchial mucosa was found on bronchoscopic evaluation. The tracheal biopsy specimens showed amorphous deposits which was identified as amyloid by apple-green birefringence in sections strained with congo red and polorized light. We planned immunohistochemical staining for classify amyloid type and a broad workup to rule out associated disease.

CONCLUSION: TBA is an uncommon localized form of amyloidosis. The diagnosis of the disease is delayed due to presence of nonspecific symptoms. Bronchoscopy has important value in the diagnosis and severity assessment of the disease. TBA should be kept in mind in cases with unexplained chronic cough and persistent dyspnea. This will remind us to further confirm the diagnosis by bronchoscopic biopsy.

Figure 1

Thoracic computed tomography showed that diffuse nodular thickening of submucosal tracheal and right upper lobe bronchial wall

Figure 2

Completely irreguler surface of tracheal and right upper lobe bronchial mucosa was found on bronchoscopic evaluation

Figure 3

Histopathological section stained with Congo red and viewed under polarized light showing the apple green birefringence

Table 1

Laboratory findings	
Leukocyte count, x 109 cells/L	7,30
Hemoglobin, g/dL	17,2
Platelet count, x 109 cells/L	120
INR	1.47
Total bilirubin, mg/dL	2,10
Direct bilirubin, mg/dL	0,53
AST, IU/L	67
ALT, IU/L	104
Lactate dehydrogenase, IU/L	303
BUN, mg/dL	10
Creatinine level, mg/dL	0,77
C-reactive protein, mg/L	0,41
Erythrocyte Sedimentation Rate, mm/saat	12

EP-16
Evaluation of RAPID Score In a Population With Complicated Parapneumonic Effusion

Vera Santos Martins, Margarida Aguiar, Susana Clemente, Maria Alvarenga, Sofia Tello Furtado

Hospital Beatriz Ângelo, Loures, Portugal

AIM: To analyse the RAPID (1) (renal, age, purulence, infection source and dietary factors-albumin) scoring system in a population with complicated parapneumonic effusion (PPE) or empyema and identify other clinical predictors of chest tube(CT) duration, length of stay(LOS) and 6-month survival.

METHODS: Retrospective study of patients with complicated PPE or empyema with criteria for CT drainage that were evaluated in our unit between 2013 and 2016. We collected data regarding demographic characteristics, serum and pleural fluid analysis, radiologic presentation and correlated this data with CT duration, LOS and 6-month survival. SPSS statistics 22 was used.

RESULTS: 71patients (age 62±17.8 years) evaluated. Most prevalent comorbidities: neoplasm(27%), neurologic (21%) and respiratory disease(20%), alcoholism(18%), active smokers (28%). Source of infection: community-acquired(78%); nosocomial(22%). Median CT duration 9±8.2 days. 14% patients underwent surgery. Median LOS 26±18.4 days. At 6-months 26% died. Urea (p=0.002), age(p=0.029), infection source (p=0.001) and albumin (p=0.001) influenced 6-months survival. Except for infection source and LOS (p=0,012), no relation was found between RAPID variables and CT duration or LOS. Other variables analysed (comorbities, pleural measurements, microbiological identification and surgical therapy) didn´t correlate with the outcomes.

CONCLUSIONS: In our population RAPID variables predicted 6-month survival, except for purulence of pleural fluid. However it didn´t influence the most immediate outcomes (CT duration and LOS).The retrospective nature of the study may be responsible for some lack of statistical significance.

(1)Rahman et al. A clinical score (RAPID) to identify those at risk for poor outcome at presentation in patients with pleural infection. CHEST 2014; 145(4):848–855)

Table 1 - Characteristics of the analysed population

Characteristics of the studied subjects (71 patients)	
Gender (male/female)	71 (51/20)
Age (y, mean ± SD)	62 ± 17,8
Comorbidities (n, %)	
Respiratory disease	14 (19%)
Active neoplasm	19 (27%)
Neurologic disease	15 (21%)
Chronic renal disease	7 (10%)
Hepatic cirrhosis	1 (1%)
Gastroesophageal reflux	3 (4%)
Diabetes Mellitus	10 (14%)
Immunosuppression	2 (3%)
Alcoholism	13 (18%)
Active smokers	20 (28%)
Body Mass Index (Kg/m²)	
< 18,5	4 (6%)
18,5 - 25	31 (44%)
25 - 30	24 (34%)
> 30	12 (17%)
Aetiology (n,%)	
Community acquired	55 (77%)
Hospital acquired [1]	16 (23%)
Recent hospitalization (previous 3 months)	13 (18%)
Emergency department visit in the previous two weeks with respiratory symptoms	19 (27%)
Under treatment with antibiotics after emergency department visit	18 (25%)
PE at presentation on chest radiograph (n, %)	
Small to moderate free-flowing effusion (< ½ hemithorax)	21 (30%)
Large, free-flowing effusion (=½ hemithorax)	20 (28%)
Loculated effusion	30 (42%)

PE at presentation on chest tomography (n, %)	
Free-flowing effusion	15 (21%)
Loculated effusion	44 (62%)
Not performed	12 (17%)
PE at presentation in thoracic ecography (n, %)	
Free-flowing effusion	10 (14%)
Loculated effusion	60 (85%)
Not performed	1 (1%)
Time to drainage, days (mean ± SD) (mode)	7,0 ± 7,8 (1)
Time to drainage in community-acquired PPE	4 ± 3 (1)
Pleural Fluid analysis	
pH median (value ± SD)	7,3 ± 0,2 [2]
Glucose median mg/dl (value ± SD)	61 ± 54
LDH median UI/l (value ± SD)	1862 ± 3204
Purulent/Non purulent pleural fluid	16/ 55 (77%)
Microbiology	21 (30%)
Klebsiella spp	5
Staphylococcus aureus methicilin sensible	5
Streptococcus pneumoniae	2
Streptococcus spp	6
Pseudomonas aeruginosa	1
Staphylococcus aureus methicilin resistent	1
Enterococcus	1
Microbiology negative	49 (69%)
Positive blood cultures	8 (11%)
Serum measurements	
Ureia, mmol/L (value ± SD)	8,2 ± 7,0
Albumin, g/L (value ± SD)	3,0 ± 0,5
Total hospital stay, days (mean ± SD)	26 ± 18
Chest duration, days (mean ± SD)	9 ± 8,2
Submitted to surgery (VATS or thoracoscopy)	10 (14%)
In-hospital mortality	7 (10%)
6-month mortality (65 patients analysed) [3]	6 (26%)

(1) 7 patients (10%) with nosocomial PPE were surgery-related.
(2) We believe that the value of pleural pH is not real. This is a retrospective study with limitations regarding data collected. Probably most of the chest drains were placed in response to the presence of loculated effusion and hence pleural fluid was sent to central laboratory and pH was not immediately measure.
(3) Only in 65 patients was possible to analyse 6-month mortality due to insufficient follow-up time in 6 patients.

Table 1. Descriptive analysis of demographic characteristics, comorbidities, radiologic presentation, pleural fluid analysis, serum measurements, as well as data related with mean chest tube duration, mean length of stay, in-mortality and 6-month survival.

Table 2 - RAPID Scoring System

RAPID SCORING SYSTEM (1)			
PARAMETER	**VALUE**	**SCORE**	**Population analysed in this study (n)**
RENAL	< 5	0	27
BUN (mMol)	5 - 8	1	19
	> 8	2	19
AGE (years)	< 50	0	15
	50 - 70	1	26
	> 70	2	24
PURULENCE OF PLEURAL FLUID			
Purulent	--	0	14
Non purulent	--	1	51
INFECTION SOURCE			
Community acquired	--	0	49
Hospital ccquired	--	1	16
DIETARY FACTORS			
Albumin (g/L)	= 27	0	31
	< 27	1	15 (*)

Score- Low risk, 0-2; Medium risk, 3-4; high risk, 5-7
(1) Rahman *et al.* A clinical score (RAPID) to identify those at risk for poor outcome at presentation in patients with pleural infection. CHEST 2014; 145(4):848–855)
(*)In 19 patients serum albumin data was not found.

Table 2 shows the RAPID scoring system proposed by Rahman et al. and the distribution of the population analysed in the different risk categories.

Fig. 1 - RAPID score results in the population analysed

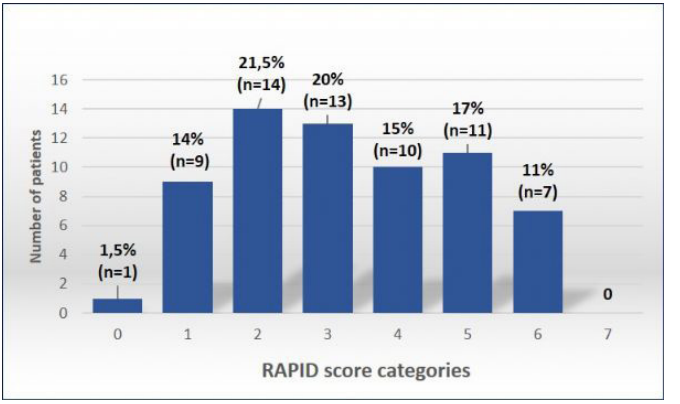


Fig. 1 - shows the distributing of the population in the different risk categories of RAPID score.

Table 3 - Predictive factors of 6-month survival

6 - MONTHS SURVIVAL			
ANALYSED VARIABLES		STATISTICAL TEST	SIGNIFICANCE (p)
Comorbidities	Age (1)	Log Rank (Mantel-Cox) Breslow (Generalized Wilcoxon) Tarone-Ware	0,029 0,032 0,030
	Respiratory diseases	Log Rank (Mantel-Cox) Breslow (Generalized Wilcoxon) Tarone-Ware	0,121 0,123 0,121
	Neurologic diseases	Log Rank (Mantel-Cox) Breslow (Generalized Wilcoxon) Tarone-Ware	0,319 0,304 0,310
	Active neoplasy	Log Rank (Mantel-Cox) Breslow (Generalized Wilcoxon) Tarone-Ware	0,411 0,376 0,393
	Active smokers	Log Rank (Mantel-Cox) Breslow (Generalized Wilcoxon) Tarone-Ware	0,669 0,678 0,673
	Alcoholism	Log Rank (Mantel-Cox) Breslow (Generalized Wilcoxon) Tarone-Ware	0,169 0,135 0,145
Source of infection	Community vs nosocomial	Log Rank (Mantel-Cox) Breslow (Generalized Wilcoxon) Tarone-Ware	0,001 0,001 0,001
Pleural measurements	pH (2)	Log Rank (Mantel-Cox) Breslow (Generalized Wilcoxon) Tarone-Ware	0,291 0,318 0,304
	LDH (3)	Log Rank (Mantel-Cox) Breslow (Generalized Wilcoxon) Tarone-Ware	0,214 0,236 0,225
	Glucose (4)	Log Rank (Mantel-Cox) Breslow (Generalized Wilcoxon) Tarone-Ware	0,396 0,411 0,403
	Purulence of pleural fluid	Log Rank (Mantel-Cox) Breslow (Generalized Wilcoxon) Tarone-Ware	0,442 0,438 0,440
	Bacteriologic identification	Log Rank (Mantel-Cox) Breslow (Generalized Wilcoxon) Tarone-Ware	0,656 0,649 0,653
Serum measurements	BUN (5)	Log Rank (Mantel-Cox) Breslow (Generalized Wilcoxon) Tarone-Ware	0,002 0,002 0,002
	Albumin (6)	Log Rank (Mantel-Cox) Breslow (Generalized Wilcoxon) Tarone-Ware	0,001 0,001 0,001
Treatment modality	Surgical vs medical therapy	Log Rank (Mantel-Cox) Breslow (Generalized Wilcoxon) Tarone-Ware	0,330 0,339 0,347

N= 65 patients; Continuous variables analyses were divided in groups according to RAPID score; the variable was not included in RAPID score (LDH and glucose), the p-values was made according to prognostic categories traditionally used to categorize PPE based on the three phases of empyema formation (exudative, fibropurulent and organizing stages).
(1) age: <50a; 50-70a; >70.
(2) pH <7.2; pH ≥7.2.
(3) LDH<500; LDH 500-1000; LDH>1000.
(4) glucose<60; glucose>60.
(5) BUN <5; BUN 5-8; BUN >8
(6) only 56 patients had albumin sericmeasurements (n=56), to analyse the influence of albumin in 6-months survival, we used the RAPID categories of albumin (2 and 1)

Table 3 - Urea, age, infection source and albumin influenced 6-months survival. Other variables analysed (comorbities, pleural measurements, microbiological identification and surgical therapy) didn´t correlate with 6-month survival.

Table 4 - Predictive Factors of chest tube duration

CHEST TUBE DURATION			
ANALYSED VARIABLES		STATISTICAL TEST	SIGNIFICANCE (p)
Comorbidities	Age	Independent-sample median test	0,119
	Active neoplasy	Independent-sample median test	0,651
	Active smokers	Independent-sample median test	0,848
	Alcoholism	Independent-sample median test	0,304
Source of infection	Community vs nosocomial	Independent-sample median test	0,386
Pleural measurements	pH	Spearman´s rho	-0,98
	LDH	Spearman´s rho	-0,127
	Glucose	Spearman´s rho	0,027
	Purulence of pleural fluid	Independent-sample median test	0,86
	Bacteriologic identification	Independent-sample median test	0,587
Serum measurements	BUN	Spearman´s rho	0,153
	Albumin	Spearman´s rho	0,174
Treatment modality	Medical treatment vs surgery	Independent-sample median test	0,503

Table 4 - No relation was found between RAPID variables and CT duration. Other variables analysed (comorbidities, pleural measurements, microbiological identification and surgical therapy) also didn´t correlated with CT duration.

Table 5 - Predictive Factors of length of stay

LENGHT OF STAY			
ANALYSED VARIABLES		STATISTICAL TEST	SIGNIFICANCE (p)
Comorbidities	Age	Spearman´s rho	0,035
	Active neoplasy	Independent-sample median test	0,605
	Active smokers	Independent-sample median test	0,912
	Alcoholism	Independent-sample median test	0,488
Source of infection	Community vs nosocomial	Independent-sample median test	0,012
Pleural measurements	pH	Spearman´s rho	-0,118
	LDH	Spearman´s rho	-0,091
	Glucose	Spearman´s rho	-0,057
	Purulence of pleural fluid	Independent-sample median test	0,781
	Bacteriologic identification	Independent-sample median test	0,567
Serum measurements	BUN	Spearman´s rho	0,092
	Albumin	Spearman´s rho	0,0,63
Treatment modality	Medical treatment vs surgery	Independent-sample median test	0,142

Table 5-There was a statistically significant relation between infection source and length of stay. Nosocomial pleural infection was associated with increased LOS when compared with community acquired infection (36 ± 21,7 days vs 23,2 ± 16,3 days, p=0,012). Age seems to be related with total LOS although no statistical significance was observed

(spearman rho 0,35).No other relation was found between RAPID variables or other variables analysed and LOS.

Table 6 - Relation between RAPID score groups and the outcomes analysed

SCORE RAPID		
OUTCOMES ANALYSED	**STATISTICAL TEST**	**SIGNIFICANCE (p)***
Chest drain duration	Independent-sample median test	0,143
Lenght of Stay	Independent-sample median test	0,544
6-months survival	Log Rank (Mantel-Cox) Breslow (Generalized Wilcoxon) Tarone-Ware	0,170 0,179 0,174

*For Independent-sample median test the level of confidence is 0,05.

Table 6 - A correlation was identified between the different score levels of RAPID scoring system (0 to 7) and 6-month survival (p=0,170), although not statistically significant. The small population studied might be responsible for some lack of statistical significance. No relation was found between the different score levels of RAPID scoring system and CT duration or LOS.

Fig. 2 - Kaplan-Meier: age and 6-month survival

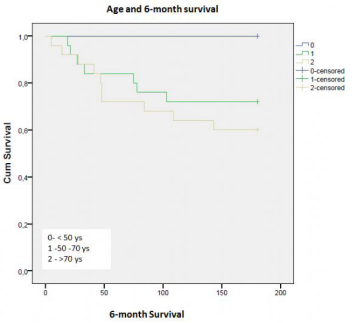


Fig. 3 - Kaplan-Meier: BUN and 6-month survival

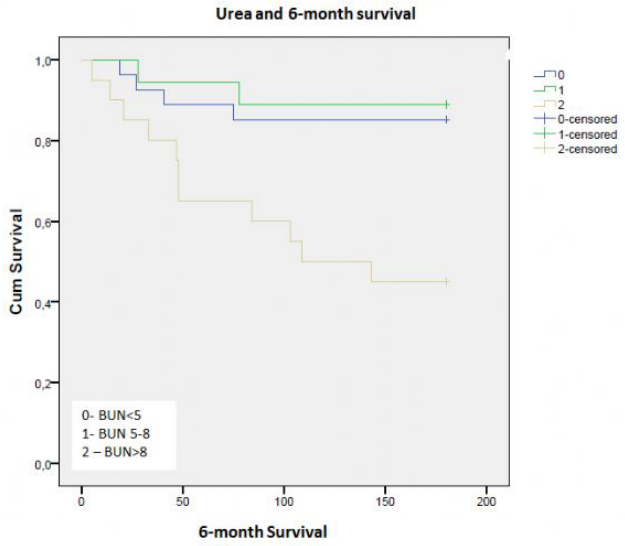


Fig. 4 - Kaplan-Meier: Infection source and 6-month survival

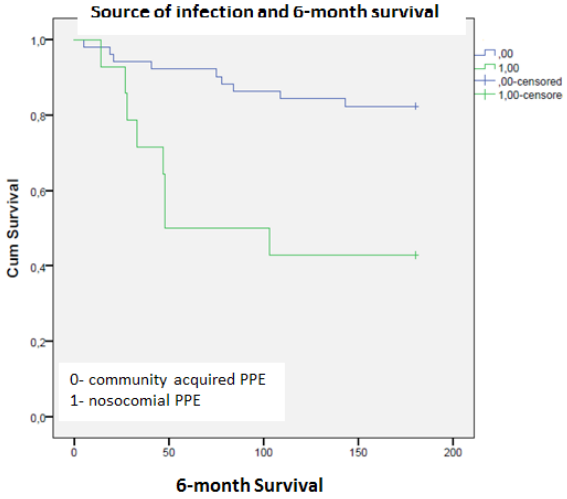


Fig. 5 - Kaplan-Meier: Albumin and 6-month survival

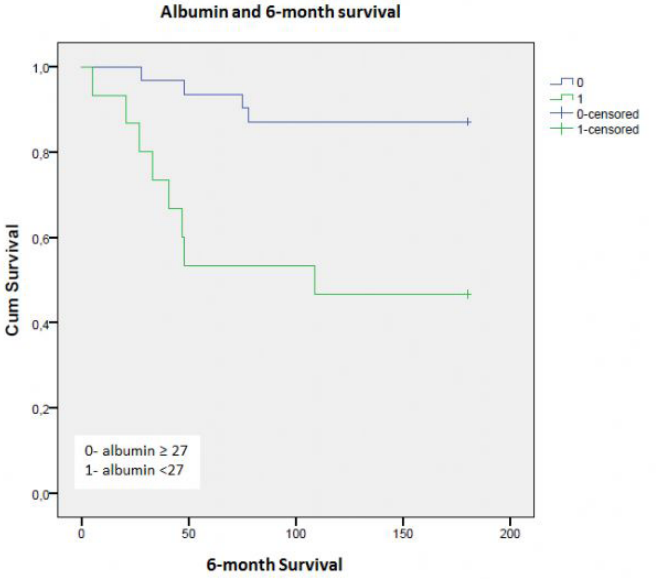


Fig. 6 - Kaplan-Meier: Score RAPID and 6-month survival

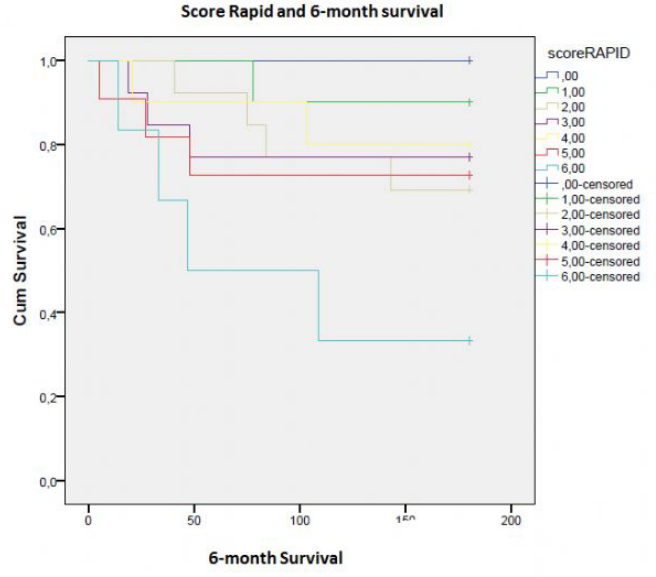
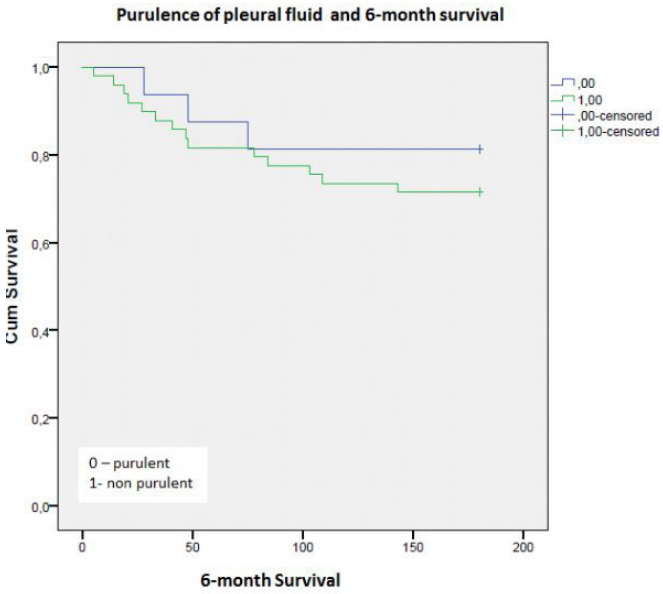


Fig. 7 - Kaplan-Meier: Purulence of pleural fluid and 6-month survival



EP-17
Videothoracoscopic bullectomy and extended pleurectomy for secondary spontaneous pneumothorax

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Department of General Surgery, Santo Stefano Hospital, Prato, Italy

A 54-year-old female admitted at the ER with right chest pain and shortness of breath. Her medical history was characterized by former smoking (about 35 pack/years) and suspected Pulmonary Langerhans Cell Histiocytosis (PLCH), no professional exposure. During physical examination the emergency physician did not find any abnormality except for a minimal reduction of breath sounds on the right side. Vital signs, EKG and ABG was normal. A chest X-ray was carried out showing a right massive pneumothorax without signs of mediastinal shift. A thoracic surgeon was called for an advice and upon his arrival a 10-Fr pigtail catheter was positioned in the second right intercostal space at the mid-clavicular line and connected to a three-chambers system for pleural drainage. The patient was then transferred to surgical unit and in the three days that followed a new chest X-ray and a chest CT were performed, showing the re-expansion of the right lung plus the presence of bilateral air-density cysts and emphisematous alterations (parenchymal bullae and subpleural blebs).

In the light of that the thoracic surgery unit opted for a videothoracoscopic bullectomy and extended pleurectomy in order to prevent other secondary spontaneous pneumothoraxes.

In cases like these thoracoscopic approach might have dual significance, both diagnostic and therapeutic; moreover pleurectomy shows better outcomes than use of talc from the point of view of pleurodesis.

EP-18
Clinical value of cancer ratio (serum LDH / pleural ADA) in differentiating malignant from tuberculous pleural effusion

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Süreyyapaşa Chest Disease and Thoracic Surgery Education and Research Hospital, Chest Department

BACKGROUND: Tuberculous pleural effusion(TPE), malignant pleural effusion(MPE), and parapneumonic pleural effusion are the most common etiologies of an exudative pleural effusion in clinical practice.It is often challenging to distinguish TPE from MPE. The aim of our study was to explore the differential diagnostic value of the cancer ratio previously reported as a predictive of malignant effusions.

MATERIALS-METHODS: This study was designed as a retrospective cohort study.The patients who were diagnosed as malignant pleural effusion and tuberculous pleuritis after the differential diagnosis were enrolled into the study. The cancer ratio was calculated by dividing serum LDH by pleural ADA.The patient groups were compared according to this ratio and the cut-off values were determined to predict malignant pleural effusion.

RESULTS: A total of 256 patients who met the inclusion criteria were analysed;165(%64.5) had MPE and 91(%35.5) had TPE.The mean cancer ratio value was significantly higher in MPE(53.3±42.1) compared to TPE (9.7±7.3) (p=0.001). The ROC-derived cut-off value of 15 for cancer ratio yielded sensitivity and specificity of 0.92 and 0.48,respectively. On the other hand,higher cut-off values had lower sensitivity but higher specificity for MPE.

CONCLUSION: Lower cut off values had higher sensitivity but lower specificity while higher cut off values had lower sensitivity but higher spesificity for identifying malignant pleural effusion..In countries with a moderate or high TB prevelance,patients who refuse or unfit for invasive diagnostic tests, "Cancer ratio"which is the cheap and easily calculated marker may be kept in our mind for keeping us away from malignant pleural effusion diagnosis.

Table 1: Comparison of serum LDH, pleural ADA and cancer ratio(serum LDH: pleural ADA ratio)between malignant and tuberculous pleural effusion

	Malignant pleural effusion N:165	Tuberculous pleural effusion N: 91
Cancer ratio * (mean ± SD)	53.3 ± 42.1	9.7 ± 7.3
Serum LDH	323.6 ± 179.8	224.1 ± 115.6
Pleural ADA*	12.4 ± 10.3	30.6 ±23.4

*p=0.001

Table 2: Serum LDH: pleural ADA ratio(cancer ratio) – sensitivity and specificity at different cut-off value for differentiating MPE

Cut Off value of cancer raito	Sensitivity(%)	Spesifity (%)
15	92	48
20	84	54
30	71	67
50	36	80

EP-19
Impact of endobronchial injuries on the effectiveness of the pulmonary tuberculosis treatment

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[1]Institute of Phthisiopneumology "Chiril Draganiuc", Chisinau, R. of Moldova
[2]Republican Clinical Hospital

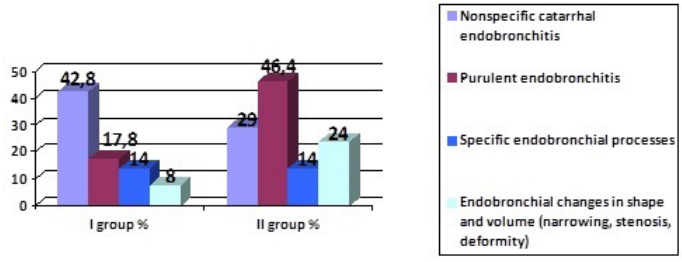
AIM: The study of the endobronchial lesions impact on the effectiveness of pulmonary tuberculosis treatment.

MATERIALS-METHODS: The study included patients with pulmonary tuberculosis examined before and after two months of TB treatment, intensive phase in 2014-2016. The tracheobronchial tree was examined with the Olympus fibrobronchoscop with the external diameter of 5 mm and 3 mm. Depending on the clinical-radiological evolving, after 2 months of anti-tuberculosis treatment, 28 patients with positive clinical and radiological evolving were included in the study (I group) and 26 without clinical and radiological evolving (group II), in total 54 patients (35 men and 19 women, aged 20-62 years).

RESULTS: Before the treatment in the I group prevailed the nonspecific catarrhal endobronchitis 42.8% in the II group in 29% cases. Purulent endobronchitis prevailed in II group in 46.4% and 17.8% in I group. Specific endobronchial processes were about 14% in both groups. After 2 months of antituberculosis treatment, the endobronchial inflammatory lesions in the bronchi remain in both groups (68% and 71% respectively). In II group prevailed endobronchial changes in shape and volume (narrowing, stenosis, deformity) in 24% versus 8% in I group, patients with favorable clinical-radiological evolution of tuberculosis. Thus, the bronchial lesions in the small bronchi, especially, the changes in shape and volume have an essential contribution on the effectiveness of TB treatment.

CONCLUSIONS: The injuries at the small bronchi level influence the prognosis of the disease evolution. The presence of these lesions emphasizes the correlation between the bronchial and parenchymal process.

Endobronchial aspects in pulmonary tuberculosis



EP-20
Bronchial Tuberculosis: a surprising diagnosis in respiratory pathology

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"Marius Nasta" Institute of Pneumology, Bucharest, Romania

INTRODUCTION: The bronchial tree is an unusual location of tuberculosis, often with misleading manifestations, that leads to varied differential diagnosis and delayed positive diagnosis. The most common symptom is persistent cough with a quasi-normal radiological image. Positive diagnosis is made by bronchial biopsy and bacteriological examination of sputum.

AIM: To analyse the characteristics of a series of patients with endobronchial tuberculosis.

METHODS: We retrospectively analyzed five cases of bronchial tuberculosis diagnosed in our hospital and confirmed histopathologicay by bronchial biopsy.

RESULTS: Five female patients: two from rural and three urban. Symptoms mimic asthma in 3 cases and pneumonia in 2 cases. The absence of answer to classical treatments (antibiotics, bronchodilators / inhaled corticosteroids) led to the completion of investigations with fibrobronchoscopy. Chest X-ray was abnormal in 3 cases (consolidation). Bronchial fibrobronhoscopy was essential for positive diagnosis. Endoscopic lesions were necrotic ulcerative type in 3 cases and stenosis in 2 cases. M.tuberculosis sputum smear was positive in microscopy and culture in 4 cases. Histopathological examination was pathognomonic in all 5 cases (caseous epithelioid granuloma). All patients received anti-tuberculosis treatment and in 4 of cases corticotherapy was associated. 2 patients evolved with cicatriceal stenosis requiring surgical resection with reconstruction of the bronchi, with favorable outcome in a case and with a need of successive interventions in the other case.

CONCLUSIONS: In the presence of respiratory symptoms rebel to specific medical treatments, do not forget to practice bronchoscopy that can provide a surprise diagnosis of bronchial tuberculosis.

Figure 1

Figure 2

RLL

Figure 3

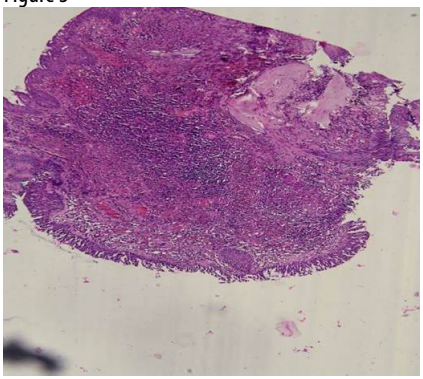
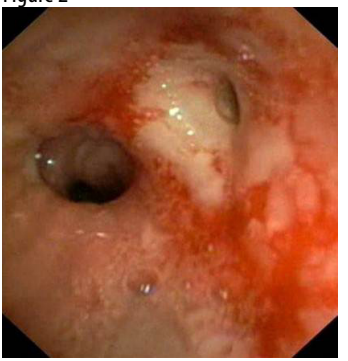


Figure 1

Figure 2



LLL

Figure 2a

Figure 3

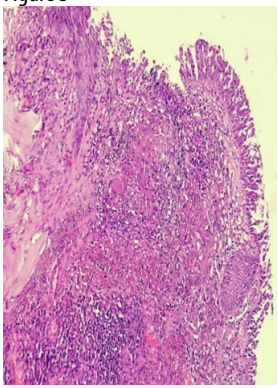


Figure 1

Figure 2b

Figure 2c

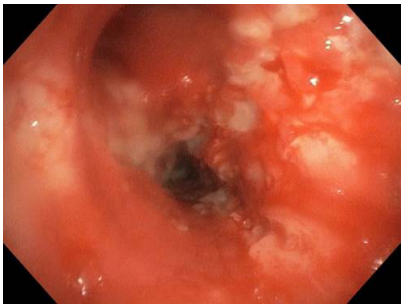


Figure 3

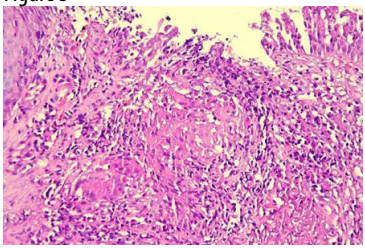


Figure 1

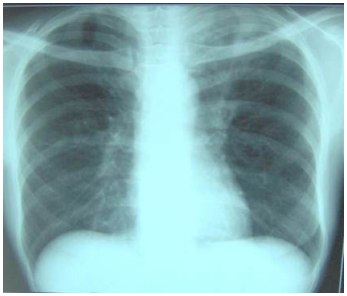


Figure 2a

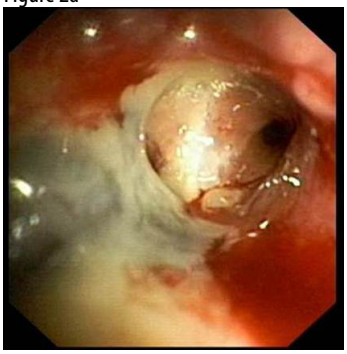


Figure 2b

Figure 3

After 1 month

Figure 4

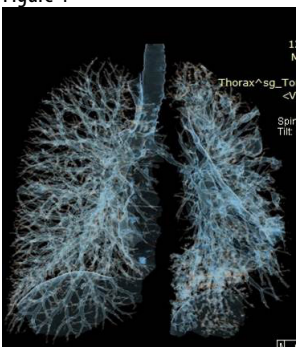


Figure 2a

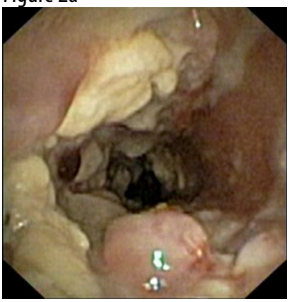


Figure 2b

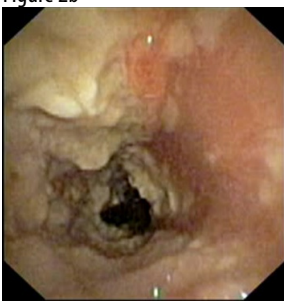
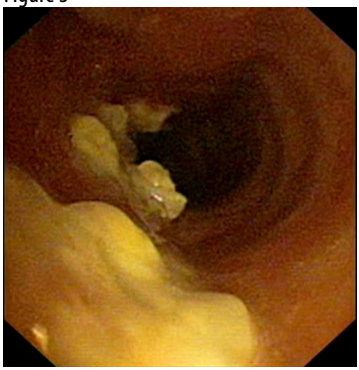


Figure 3



After 2 months

Figure 4

After 7 monthd tracheal stenosis

Figure1

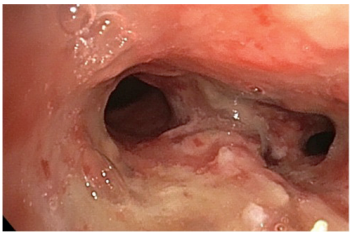
EP-21
Biodegradable Y-Stent: an innovative treatment in a difficult-to-treat condition

Faustina Funke, Jane Winantea, Stephan Eisenmann, Rüdiger Karpf Wissel, Kaid Darwiche

Department of Interventional Pneumology, Ruhrlandklinik Essen, University Hospital Essen, University of Duisburg - Essen

A 43 year old woman with granulomatosis with polyangiitis (Morbus Wegener) developed many years ago a benign stenosis of the left main bronchus and the distal trachea. Repeated interventions with dilatation every four weeks were necessary due to increasing dyspnea and stridor. To prolong the time period between the interventions we decided to implant a stent. Due to the benign character of the disease and the anatomical conditions decision was made to place a Y-shaped biodegradable stent (BDS by ELLA-CS). Such a stent was customized and inserted without complications. Follow-up bronchoscopy after 36 days revealed patent airways but some granulation tissue. An interventional removal of the granulation tissue was needed 106 days after implantation without further dilatation. The patient described a significant improvement of quality of life in particular due to the significant prolongation of the interval to the next intervention. Further follow up will show the long-term effect of this individual off label therapy of a benign stenosis.

Figure 1

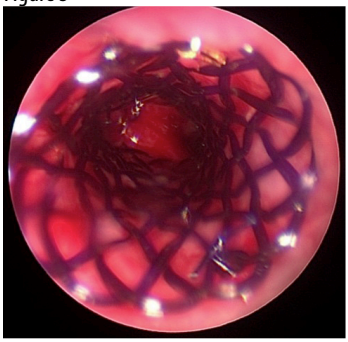


Endoscopic view of the main carina of our GPA patient. Right main bronchus on the left side, left main bronchus on the right side of the picture.

Figure 2

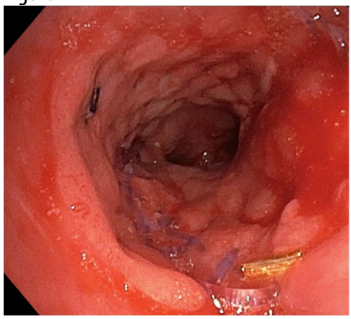
First Y-shaped BDS

Figure 3



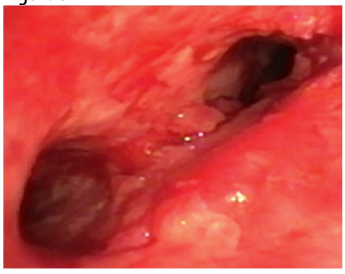
Endoscopic view via the rigid bronchoscope. Implanted BDS - tracheal part.

Figure 4



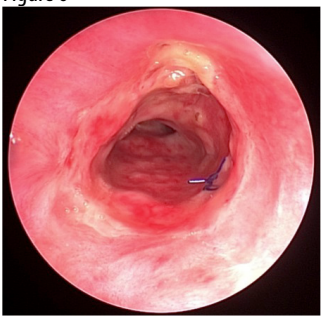
Endoscopic view of the trachea, main carina in the distance. Granulation tissue 36 days after BDS implantation.

Figure 5



Endoscopic view of the main carina after removal of the granulation tissue 119 days after BDS implantation. Right main bronchus on the left side, left main bronchus on the right side of the picture.

Figure 6



Endoscopic view of the trachea, main carina in the distance after removal of the granulation tissue 119 days after implantation of the BDS.

EP-22
Nuclear image analysis of lung non-small cell carcinomas

Dragan Slavoljub Mihailovic, Zaklina Zarko Mijovic

Centre of Pathology, Clinical Center of Nis

BACKGROUND: Histopathologic differences between lung adenocarcinoma and squamous cell carcinoma can be very subtle. There are many therapeutical options in lung adenocarcinoma management, after accurate diagnosis and staging. Aim. The aim of this study was to identify which karyometric variables are of diagnostic value in distinguishing lung adenocarcinoma and squamous cell carcinoma.

MATERIAL-METHODS: At Institute of Pathology, University of Nis, formalin-fixed, paraffin-embedded bronchoscopic mucosal samples from 15 patients with squamous cell carcinoma, and 16 patients with adenocarcinoma of the lung were retrieved. Specimens were routinely stained with hematoxylin and eosin (HE), and immunohistochemistry for TTF-1, CD5/6, CD15, p63. Nuclear area, mean optical density, mode optical density, Feret diameter, circularity, perimeter and integrated optical density (IOD) were estimated by ImageJ software. All adenocarcinoma cases were positive on TTF-1 and CD15, and all squamous cell carcinoma cases were positive on CK5/6 and p63.

RESULTS: Nuclear area was larger in adenocarcinoma than in squamous cell carcinoma but this difference was not statistically significant. Mean optical density was significantly higher in adenocarcinoma (0.62 ± 0.08) than in squamous cell carcinoma (0.39 ± 0.13, $p<0.01$). Similarly, mode optical density was significantly higher in adenocarcinoma (0.67) than in squamous cell carcinoma (0.4, $p<0.01$). Differences in perimeter, Feret diameter and circularity were not statistically significant.

CONCLUSIONS: According to our results, nuclear image analysis and optical densities can be valuable tool in establishing adequate diagnosis of lung cancer.

EP-23
The neutrophil-lymphocyte count ratio in patients with community-acquired pneumonia- could it be a new prognostic marker of severity disease?

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[1]Univeristy Clinical Hospital Center Zemun, University of Belgrade School of Medicine, Belgrade, Serbia
[2]Institute of rheumatology, University of Belgrade School of Medicine, Belgrade, Serbia
[3]Clinical Center of Serbia, University of Belgrade School of Medicine, Belgrade, Serbia

BACKGROUND: The neutrophil-lymphocyte count ratio (NLCR) has recently been discovered as a marker of the disease severity in patients with appendicitis, cardiovascular disease, systemic inflammation, oncology patients, etc. Data about NLCR utilization in pneumonia patients is scarce.

AIM: the first aim of the current study is to compare NLCR with the CURB-65 score and CRP in patients with the community acquired pneumonia (CAP). The second aim is to predict the mortality of patients with CAP by the linear regression prediction model usage.

METHODS: 111 consecutive patients diagnosed with CAP were included in the study. The neutrophil count, lymphocyte count, white blood cells count and CRP were assessed by laboratory. NLCR and CURB-65 scores were calculated and used in mutual correlation and in order to predict the CAP mortality rate..

RESULTS: Mean (SD) of patients age was 62,14 (13,15) years, with the positive smoking status in 48,6% and being female in 51,4%. Mean NLCR was 6,26 (3,19) and CURB-65 1,00 (0,917). NLCR has positively correlated with CRP (r=0,570 p=0,000); CURB-65 has positively correlated with CRP (r=0,192 p=0,047), although there was lack of correlation between CURB-65 and NLCR (r=0,183 p=0,115). With regard to mortality, both the CURB-65 and NLCR have shown poor ability to predict mortality, mostly because of the few number of deaths in our study in general, with r^2 0,034 (standard error-SE 0,163) and 0,032 (SE 0,68), respectively.

CONCLUSION: Both the CURB-65 and the NLCR have shown good correlation with CRP.

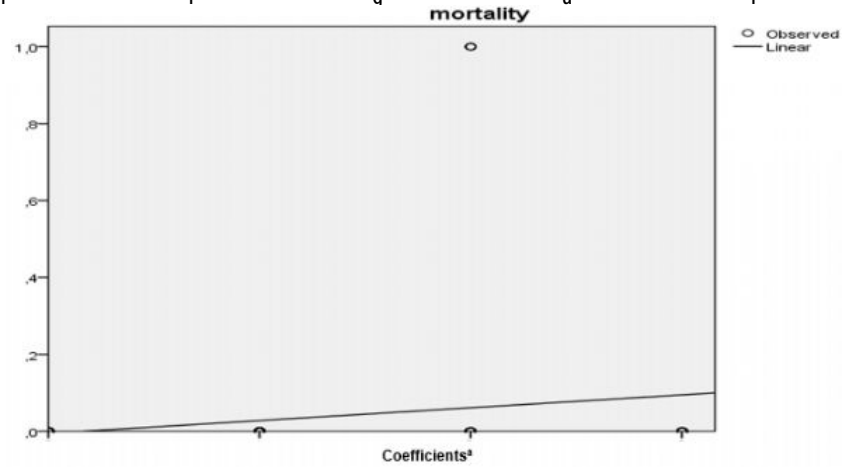
Table 1. Laboratory values for 111 patients with community acquired pneumonia

	Min	Max	Mean	SD
C-reactive protein (CRP)	6.8	442.0	152.0	123.4
White blood cells count	3.3	28.1	13.4	5.8
Neutrophil count	47.8	92.3	76.2	13.1
Lymphocyte count	7.0	33.0	15.3	6.4
Neutrophil/lymphocyte ratio (NLCR)	2.5	13.0	6.3	3.2
CURB-65 score	0	3	1.0	0.9

Table 2. Linear regression model used for the CURB 65 score ability to predict

CURB 65 score	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
	-0.006	0.023		-0.239	0.812
	0.033	0.017	0.185	1.940	0.055

Figure



Table

NLCR	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
	-0.148	0.098		-1.500	0.137
	0.002	0.001	0.180	1.825	0.071

Table

		CURB 65 score	NLCR
CURB 65 score	r	/	0.183
	p	/	0.115
NLCR	r	0.183	/
	p	0.115	/
CRP	r	0.192	0.570
	p	0.047*	0.000**

EP-24
An Unusual use for EBUS – TBNA

Jorge Dionisio, Ambrus Szánthó, José Duro Da Costa

Instituto Português de Oncologia de Lisboa Francisco Gentil

INTRODUCTION: Endobronchial ultrasound with transbronchial needle aspiration (EBUS-TBNA) plays an important role in the minimally invasive staging of non–small cell lung cancer, evaluation peribronchial lesions, pulmonary nodules, diagnosis of other disease entities such as lymphoma, tuberculosis and sarcoidosis, pericardial effusions, pulmonary embolism and other less common mediastinal abnormalities. The authors describe a clinical case where EBUS-TBNA was used to drain a post-surgical collected pleural effusion in a right inter-lobar fissure. A 29 year-old-male, had the diagnosis of Lung Carcinoid Tumor for which he had a Middle Lobe lobectomy on February 29th, 2016. Pathologic staging was pT1N0M0.

Due to dull thoracic pain and progressive fatigue a CT scan was done on August 2016, which revealed a pleural effusion in the right inter-lobar fissure with mediastinal contact, not accessible to thoracentesis. EBUS identified a free right inter-lobar fissure effusion, reaching the area below right pulmonary artery.

TBNA allowed a 50cc drainage of yellowish pleural effusion fluid, with no immediate or late complications. The analysis of pleural effusion was negative for neoplastic cells and bacteria.

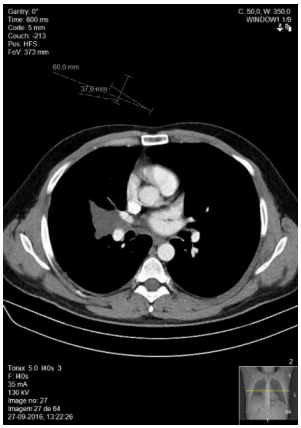
The patient had an immediate clinical improvement and a CT scan control, perform in November 14th 2016, documented a regression of pleural effusion.

In conclusion, this case exemplifies the growing number of unconventional and difficult to solve situations, in which EBUS-TBNA can be useful and safely used.

Endobronchial lesion

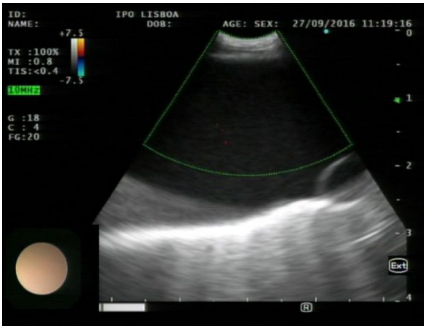
Initial endobronchial lesion

Pleural Effusion CT scan 1



Pleural Effusion. Initial CT scan image

Pleural Effusion EBUS 1



Pleural effusion. Initial EBUS image

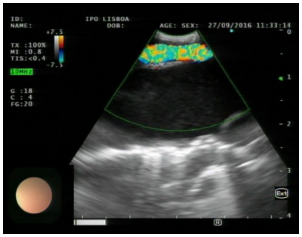
Pleural Effusion EBUS 2

Pleural effusion drainage with EBUS needle

Pleural effusion drainage

Drainage of pleural effusion with EBUS syringe

Pleural Effusion EBUS 3



Pleural effusion after drainage with vascular interposition

Pleural Effusion CT scan 2

Pleural Effusion. CT scan after drainage

EP-25
A Case Series of Bronchoscopic Interventions on 3 Patients with Post-Endobronchial Tuberculosis Airway Stenoses by Malaysian Pulmonologists

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[3]Respiratory Medicine Department, Sultanah Aminah Hospital, Johor Bahru, Johor, Malaysia

Incidence of Endobronchial Tuberculosis (EBTB) in Pulmonary TB varies from 6% to 50%

METHOD: First patient is a young lady with CT scan showing short segment tracheal stenosis and Left Main bronchus (LMB) stenosis with left lung collapse. Spirometry showed severe airflow limitation. Balloon dilatation of tracheal stenosis was done followed by topical mitomycin application. 3 months later LMB stenosis was dilated with no bronchomalacia segment observed. Topical mitomycin application was also done. Subsequent bronchoscopy showed no recurrence with clinical and spirometric improvements

Second patient, a young lady with CT scan showing left lung collapse with 4 cm long LMB stenosis. Spirometry showed moderate airflow limitation. Balloon dilatation with topical mitomycin was done. LMB Bronchomalacic segment was observed. Expectedly, stenosis recurred after 3 weeks.Second Intervention was airway stent deployment after dilatation. Subsequent monthly bronchoscopy showed patent stent with clinical and spirometry improvement. Third patient, also a lady, with CT scan showed 3cm LMB stenosis without lung collapse. Spirometry showed moderate airflow limitation. During dilatation, bronchomalacic segment with distorted LMB was observed. Stenosis recurred after 4 weeks. Silicon stent was deployed at LMB after dilatation. Monthly bronchoscopy showed formation of granulation tissue at both ends of the stent with worsening of spirometry and symptoms. Granulation tissue was removed by cryoprobe with topical mitomycin application to prevent reformation of granulation tissue.

CONCLUSION: Bronchoscopic interventions with topical anti-fibroblast application and silicone stenting are an alternative management for post-EBTB tracheobronchial stenosis to the more invasive surgical resection and airway reconstruction by Thoracic surgeons.

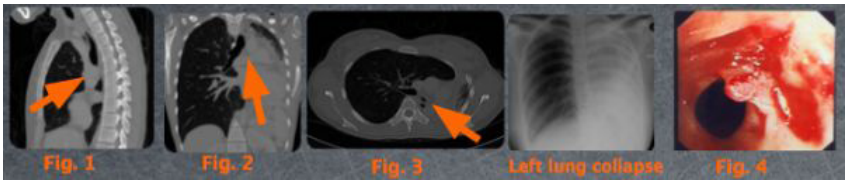
Characteristics of EBTB based on Bronchoscopic Findings

Table 2 Characteristics of EBTB according to bronchoscopic features

Bronchoscopic features	n (%)
Type of EBTB	
Actively caseating	114 (48.9)
Oedema or hyperaemia	87 (37.3)
Other types*	32 (12.8)
Length of involvement (mm) (±SD)	24.31 (±21.8)
Site involved	
Central airways	199 (85.4)
Trachea	38 (16.3)
Main bronchi	58 (24.9)
Lobar bronchi	103 (44.2)
Segmental bronchi	34 (14.6)
Levels involved	
Single	152 (65.2)
Multiple	81 (34.8)
Stenosis grade (central EBTB; n = 199)	
Grade 1	140 (70.4)
Grade 2 or 3	59 (29.6)
Grade 2	30 (15.1)
Grade 3	29 (14.5)

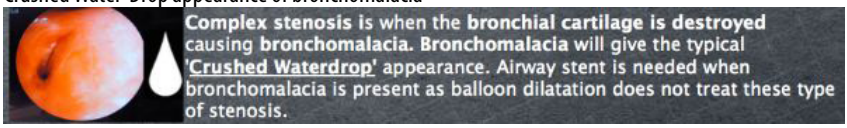
* Including 11 patients with fibrostenotic, 2 tumorous, 3 ulcerative, 4 granular, and 12 non-specific bronchitic type.
EBTB, endobronchial tuberculosis; SD, standard deviation.

First Patient



CT scan and Bronchoscopic Findings of Tracheal Stenosis

Crushed Water-Drop appearance of bronchomalacia

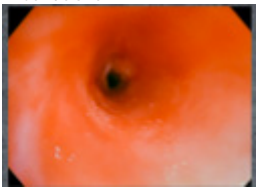


First Patient

Bronchoscopic surveillance after the Intervention at 3 weeks (Fig. 5), 8 weeks (Fig. 6) and 16 weeks (Fig. 7) showed no tracheal stenosis recurrence with sustained tracheal diameter of 10mm in tandem with clinical and spirometric improvements

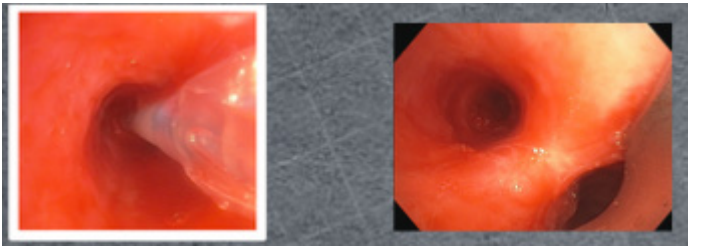
Ct scan findings to aid the right timing for removal of Stent

First Patient



Pre-Dilatation LMB is stenotic with pin-point opening

First Patient

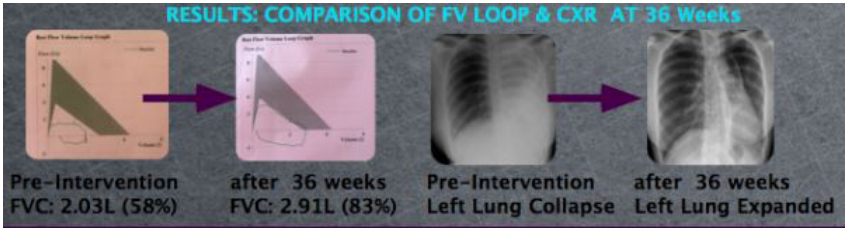


Bronchoscopic Balloon dilatation. After Dilatation, LMB was noticeably larger

First Patient

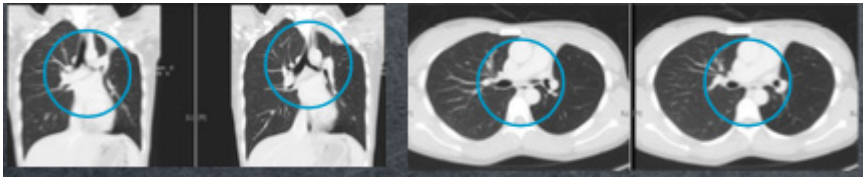
Topical MMC was applied using pledgets soaked in MMC solution (0.4mg/ml) using Rigid Forceps under direct visualisation

First Patient



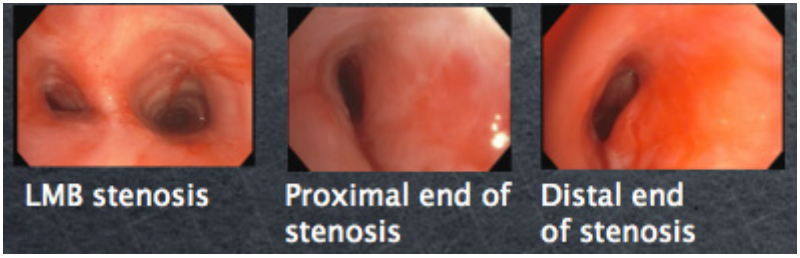
Outcome Measure for Successful Bronchoscopic Interventions

Second Patient



CT Scan showed Left Upper Lobe Collapse with Stenotic LMB, 4cm in length with a diameter of 4mm in U-shape configuration.

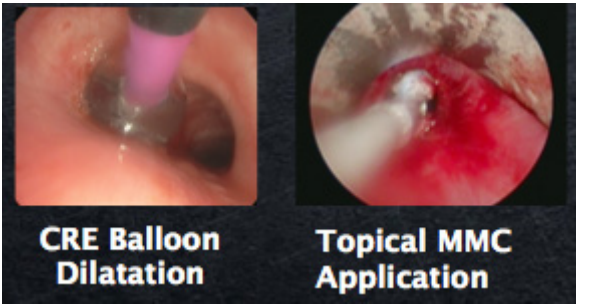
Second Patient



Bronchoscopy before the Intervention showed Stenotic LMB with Significant Bronchomalacia of the LMB giving out

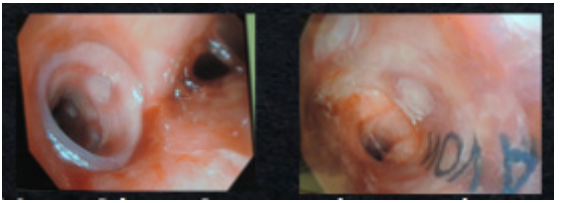
the typical appearance of 'crushed waterdrop' of the LMB

Second Patient



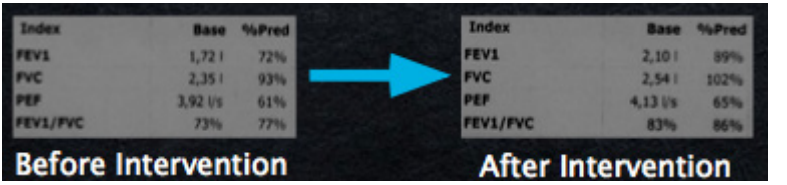
First Bronchoscopic Intervention which was Balloon Dilatation with Topical Mitomycin Application on the LMB segment

Second Patient



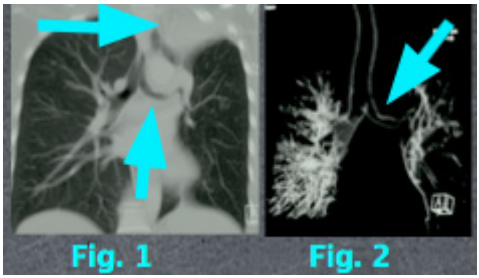
Second Bronchoscopic Intervention: 10mm Silicon Stent Deployment has opened up the Stenotic and Malacic LMB, allowing the passage of Flexible Bronchoscope & alleviated her symptoms

Second Patient



Spirometric Improvement after Stenting of LMB

Third Patient



CECT Thorax (Fig.1) with 3D Reconstruction (Fig. 2) showed LMB stenosis with left Upper lobe collapse. LMB was U-shaped with 3cm long stenosis with LMB diameter of approximately 4mm. The left lung was well aerated despite the stenotic LMB

Third Patient

First Bronchoscopic Intervention

EP-26
Outcomes of transbronchial and transthoracic biopsy in pulmonary diseases

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Department of Pulmology and allergology, General City Hospital "8 September" Skopje, R Macedonia

AIM: contribution of invasive methods- transbronchial (TBLB) and transthoracic biopsy (TTNA) in the diagnostics of certain chest X- ray infiltrations.

MATERIAL-METHODS: 76 - aged 41 to 83 years, out/ inpatient 14/ 62, male/ female 64/12 with lung and/or mediastinal changes, were analyzed since January 2015 to 2017. Bronhoscopic examination (before TTNA) excluded abnormalities.

RESULTS: 92 biopsies were made (30 TBLB, 62 TTNA, in 16 patients both methods). TBLB- 14 patients, TTNA- 46 patients, both- 16 patients.

TBLB with histological confirmation was obtained in 8 (57%) of 14 cases (4 in the first and 4 in the repeated TBLB), and in 42 (91%) of 46 made of TTNA. In 16 patients in which both methods (TBLB and TTNA) were performed, defined histological diagnosis was obtained in 4 samples of TBLB (also confirmed with TTNA), and in 12 samples of the TTNA. Defined histological diagnosis was not obtained in 18 of 30 TBLB (12 of them clarified by TTNA) and in 8 of 62 TTNA. 62 patients (81.5%) had a histopathological confirmation: 34 Carcinoma planocellulare bronchogenes; 10 Carcinoma microcellulare bronchogenes; 14 Adenocarcinoma; 4 Sarcoidosis.

CONCLUSION: TBLB and TTNA are safe and cost effective diagnostic methods for definitive diagnosis of the changes in chest wall, lung parenchyma and mediastinum. Strategy of treating bronchial carcinoma requires clear histopathological classification, and therefore at sufficiently defined histological forms indicated repeating both methods. Usage of both TBLB and TTNA, even though with congruent histopathologic findings, has strengthened definitive diagnosis, which was confirmed with our results.

EP-27

Bronchoscopic Balloon Dilatation and Topical Mitomycin-C Application as a Modification on Mehta's Mucosal Sparing Technique for Post-Intubation Tracheal Stenosis Management: Experience from Pulmonologists, Serdang Hospital, Malaysia

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[1]Respiratory Medicine Division, Serdang Hospital, Selangor, Malaysia
[2]Radiology Department, Serdang Hospital, Selangor, Malaysia

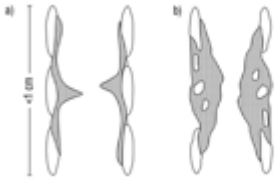
INTRODUCTION: Post-intubation tracheal stenosis (PITS) occurs in 1-4% of ventilated patients. Management options are between endoscopic and open reconstructive procedures. Mitomycin-C (MMC) which inhibits fibroblast proliferation and granulation tissue formation could be an adjunct therapy for PITS

METHODS: First patient is a teenager who developed PITS, 2 months post-extubation due to cerebral concussion following road traffic accident (RTA). His symptoms were stridor, chronic cough and reduced effort tolerance. CT Thorax showed short segment tracheal stenosis, 3 cm below vocal cord with circumferential mucosal thickening. Bronchoscopic balloon dilatation was done. Tracheal lumen pre-dilatation was 6mm. Post-dilatation lumen was 16mm. Topical MMC (dose of 0.2mg/ml) was applied on the dilated stenotic segment. Monthly surveillance bronchoscopy for 9 months showed no stenosis recurrence with symptomatic improvement. Serial spirometry also showed improvement.

The second patient is a young man, presented at 3 months post-extubation after 2 weeks of intubation in ICU due to stab injury to chest with hemopneumothorax. His symptoms were also reduced effort tolerance and new-onset chronic cough. Spirometry showed fixed airway obstruction. CT thorax showed short segment tracheal stenosis at C7/T1. Pre-dilatation tracheal lumen was 6mm. Bronchoscopic balloon dilatation was done and Post-dilatation lumen was 14mm. Topical MMC at higher dose (0.4mg/ml) was applied. Monthly bronchoscopy showed no stenosis recurrence with symptomatic improvement in tandem with serial spirometry improvement.

CONCLUSION: Topical MMC application showed good results as adjuvant therapy in selected PITS patients with early stenosis responding better than mature fibrotic stenosis obviating the need for tracheal sleeve resection surgery.

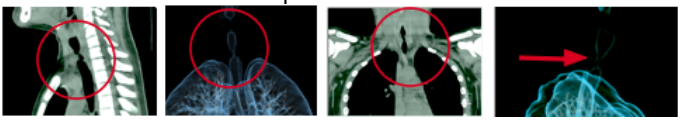
2 subtypes of Post-intubation Tracheal Stenosis



Weblike stenosis (a) is without tracheal cartilage destruction,

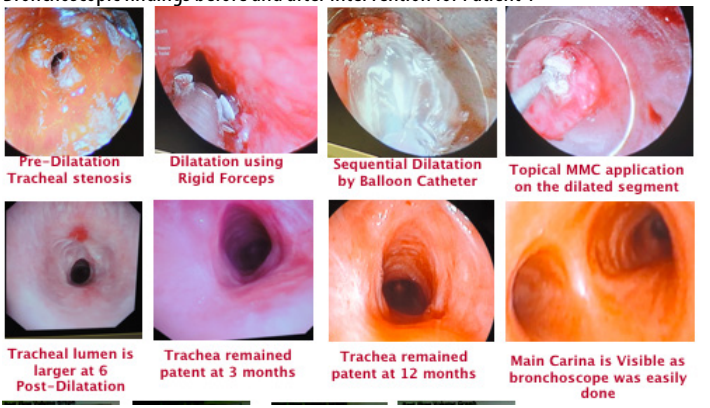
Complex stenosis (b) has cartilage destruction with consequent malacic segment
Complex stenosis usually requires stenting

CT scan with 3D reconstruction for patient 1

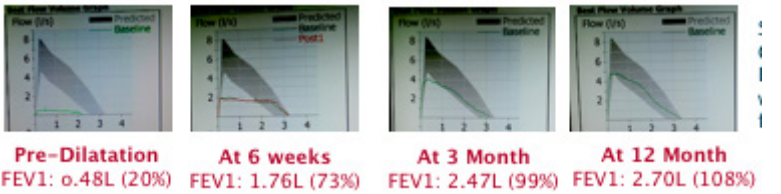


CT Thorax with 3D Reconstruction: Short Segment stenosis (0.8cm) at mid-tracheal region 2.8cm from infra-glottic region about 1.4cm in length with circumferential mucosal thickening (Red Circles)

Bronchoscopic findings before and after Intervention for Patient 1

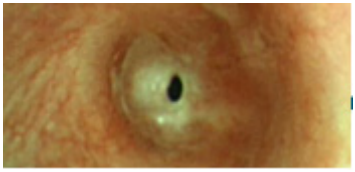


Serial Flow Volume Graph for Patient 1



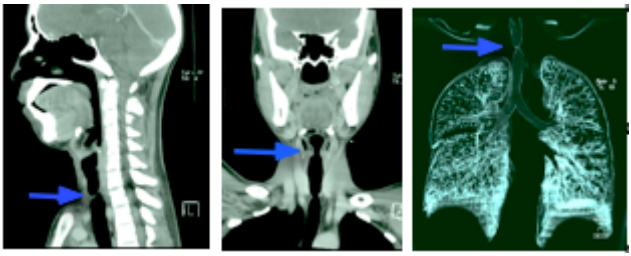
Serial Flow Volume Graph showed Improvement in tandem with bronchoscopic findings Post-Intervention

Bronchoscopic finding before Intervention for Patient 2



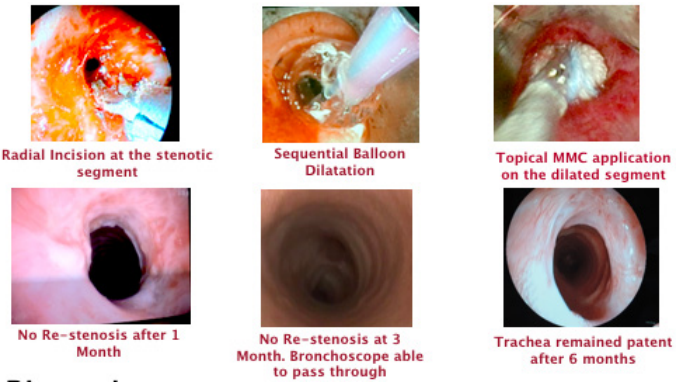
bronchoscopy showed weblike subglottic tracheal stenosis. Airway distal to the stenosis is not visualised as the bronchoscope cannot pass through

CT scan with 3D reconstruction for Patient 2



CT thorax showed short segment (1cm) tracheal stenosis at C7/T1 level.

Bronchoscopic Findings before and after Intervention in Patient 2



EP-28
Cell Death in Alveolar Cells

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[1]Institute of Histology and Embryology, Faculty of Medicine, University of Belgrade, Serbia
[2]Institute of Pulmpnary Diseases, University Clinical Centre, University of Belgrade, Serbia

Alveolar cells are the first line of lungs defense against the external environment. Different types of cell death are involved in lung epithelial injury and many acute and chronic diseases. Necrosis can occurs in response to bacterial exotoxins and cause direct lysis of epithelial cells. During prenatal and postnatal lung development apoptosis has a pivotal role in lung remodeling as a mechanism to thin the septa, airspace enlargement, ridding the lung of excess number of fibroblasts and alveolar cells type 2. Autophagy represents an adaptive response that protects a cell from death induced by many stimuli. In last decade studies showed that the cell death occurred in emphysema may be anoikis, type of programmed cell death due to loss of matrix adhesion.

The morbidity and mortality of the acute lung injury and respiratory distress syndrome is very high. Pathology of these diseases are characterized with damage and dysfunction of alveolar barrier and decreased number of alveoli which results in hypoxia. Patients exposure to prolonged hyperoxia and after that excessive reactive oxygen species production results in pneumocytes type II apoptosis. It is wellknown that cigarette smoke contains reactive oxygen species and induces alterations in alveolar epithelial cells, increase in epithelial permeability and a decrease in surfactant production. However, apoptosis of alveolar epithelial cells is involved in emphysema and fibrosis, important smoke-induced lung diseases.

Knowledge of the multiple cell death signaling pathways may lead to the development of novel pharmacological inhibitors and therapeutic strategies for the treatment of lung diseases.

EP-29
Effect of bed-side pleural pH measurement on the management of pleural effusion

Mohammed Ahmed, Breda Cushen, Antoinette Flannery, Cyrus Daneshvar, David Breen

Interventional Respiratory Unit, Galway University Hospital

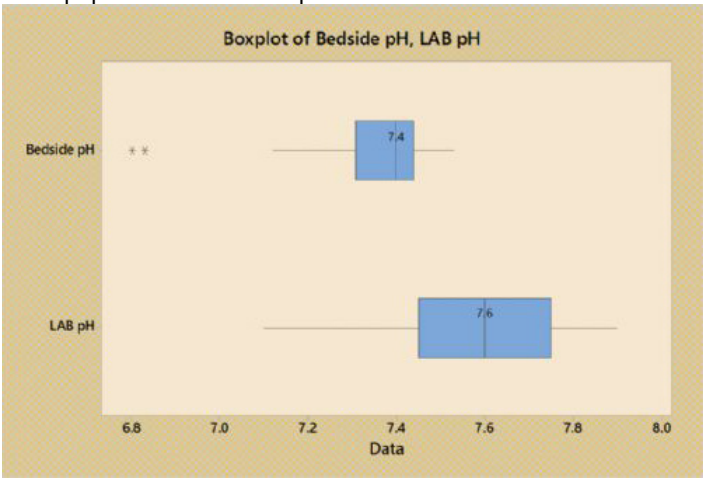
INTRODUCTION: In practice, pleural fluid pH is an essential component of the assessment of pleural effusions. Previous prospective laboratory studies have suggested that pleural fluid pH measurement accuracy can be affected by delays in testing. We aim to assess the impact of performing bed side pleural fluid pH as a part of a newly introduced respiratory led-pleural service on clinical decision making.

METHODS: All patients that underwent thoracic ultrasound performed by the interventional respiratory unit between Aug 2012-June 2013 were included. Medical, radiology and laboratory records were retrospectively reviewed. Before the introduction of a pleural service in the hospital in Nov 2011, pleural pH was only being tested in the laboratory, subject to transfer delays that might affect results accuracy.

RESULTS: 153 patients underwent thoracic ultrasound for pleural effusions. Among those pleural fluid sampling was performed in 54 patients [35.3%]. When Lights criteria were applied 85% of those with sufficient information had an exudative effusion. Pleural fluid pH done at the bedside was significantly lower than measurement in the laboratory [mean difference 0.226 units, 95% CI 0.294-0.157]. Out of 33 patients where both tests were performed, six would have missed the 7.20 cut off if only done in the lab [18.1%, 95% CI 7.0-35.5%, p=0.000].

CONCLUSION: pleural pH performed in the laboratory was significantly higher than that performed immediately at the bed side. A significant proportion of patients with a potentially infected pleural space can be missed if pleural fluid pH is not tested immediately at the bed side.

Pleural pH performed at the lab compared to the bedside



EP-30
Utility of neck inclusion on computerised tomography in lung cancer patients

Mohammed Ahmed[1], Antoinette Flannery[3], David Breen[3], Richard Riordon[2], Cyrus Daneshvar[1]

[1]Department of Respiratory Medicine, Derriford Hospital, Plymouth Hospitals NHS Trust, Plymouth, United Kingdom
[2]Department of Radiology, Derriford Hospital, Plymouth Hospitals NHS Trust, Plymouth, United Kingdom
[3]Interventional Respiratory Unit, Galway University Hospital, Galway, Ireland

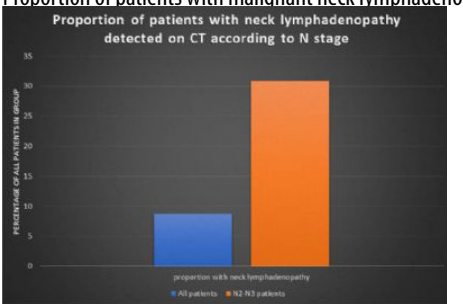
INTRODUCTION: Not all national guidelines routinely recommend Computerised Tomography CT inclusion of the lower neck for the staging of non-small cell lung cancer. In our hospital, where the lower neck is routinely included, we studied the role of this practice.

METHOD: All patients diagnosed with lung cancer between 2014-2015 with radiological evidence of ≥N2 nodal disease were included. Imaging and pathology were reviewed. Fine Needle Aspiration Cytology (FNAC) was performed under ultrasound guidance by either a radiologist or a respiratory physician. Features associated with presence of neck lymphadenopathy were explored.

RESULTS: Of 383 lung cancer patients - 110 had ≥N2 intra-thoracic disease. Neck lymphadenopathy by CT was identified in 34 patients [8.8% of total group] and in 30.9% (95% CI 22.4-40.4%) with ≥N2 intra-thoracic disease. Of these, 26 patients underwent FNAC (14 and 12 performed by a radiologist and respiratory physician respectively). Malignancy was confirmed in 25 out of 26 nodes sampled. Adequacy of FNAC by a respiratory physician was 91.8% compared to 92.6% for a radiologist (p=0.91). CT neck lymphadenopathy was associated with the largest mediastinal lymph node short diameter (p<0.001), multi-station lymph node involvement (p=0.018) and higher nodal stage (p<0.001).

CONCLUSION: The number needed to screen by lower neck CT to detect one case with neck lymphadenopathy is 11. Routine screening with neck ultrasound in clinic targeting patients with bulky N2-N3 disease may expedite diagnosis and avoid the need for EBUS. A prospective randomized study is required.

Proportion of patients with malignant neck lymphadenopathy according to N stage



EP-31
Solitary lung metastasis of malignant melanoma – case report

Daniela Buklioska Ilievska, Nade Kochovska Kamchevska, Jane Bushev, Snezana Smileska, Marjan Baloski, Iva Sajkovska, Bozidar Poposki, Vanche Trajkovska

Department of Pulmonology and Allergology, General Hospital,8-th of September",Skopje, Macedonia

Malignant melanoma is increasing last thirty years, one of the most common cancers in young adults (especially women). Primary localization on skin, mouth, intestines, eye. Survival in malignant melanoma stage IV is 10-15%, better prognosis have patients with normal lactate dehydrogenase (LDH). Lung metastases are usually asymptomatic, multiple, nodular. Desmoplastic (neurotropic, spindle cell) melanoma is rare form of infiltrating carcinoma, with diificult diagnosis due to similarity to un-melanocytic lesion as scar, fibroma, cyst.

Female patient, 69 years of age, hospitalized for changes seen on chest X-ray. Symptoms: intermittent pain in left shoulder, dyspnea. Profession: housewife, non-smoker, comorbidity: arterial hypertension. Normal lung auscultatory finding. Laboratory: sedimentation 20, hemoglobin 11,9, LDH and tumor markers (CA19-9, CEA, CA 125, CA 15-3) normal. Chest X-ray: left apical, oval, soft-tissue shadowing. Bronchoscopy – without pathological findings. A computed tomographic chest scan showed: in left apicoposterior segment, solid formation with dimensions 18x13,6mm, close to the pleura, that accumulated contrast, two mediastinal lymph nodes 5,7mm and 8,5mm. CT guided transthoracic lung core biopsy was performed. Histopathological diagnosis - Metastatic process of Spindle cell melanoma malignum. Microscopic examination with accumulation of large, pleomorphic cells with deposits of melanin irregularly arranged. The origin and systemic dissemination of the melanoma was investigated. Abdominal ultrasound without abnormalities. Dermatological, ophthalomological, gastroenterohepatological examinationas were performed, but the primary lesion remained unknown. The patient denied to receive proposed oncological and surgical therapy.
Two years after, control CT scan, the tumor was 47x43mm, in right lung secondary deposite 11x8mm, increased mediastinal lymph nodes to 18mm.

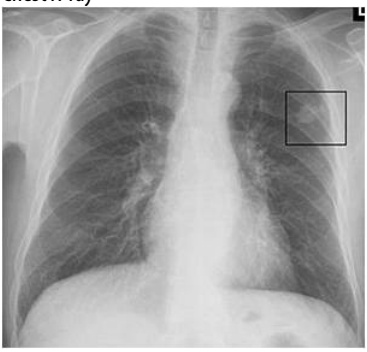
Melanoma localizations - Eye

Melanoma localizations - Mouth

Melanoma localizations - Skin

Transthoracic CT guided lung biopsy

Chest X-ray



Lung CT scan

Melanoma localizations - Eye

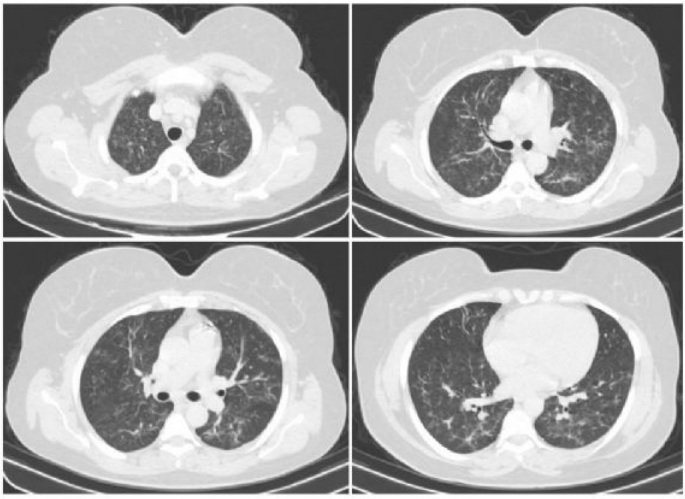
EP-32
Eosinophilic Pneumonia Diagnosed With Bronchoalveolar Lavage: Case report

Gulru Polat, Gulistan Karadeniz, Fatma Demirci, Görkem Veyisoglu, Enver Yalnız

Dr Suat Seren Chest Diseases And Surgery Research And Training Hospital

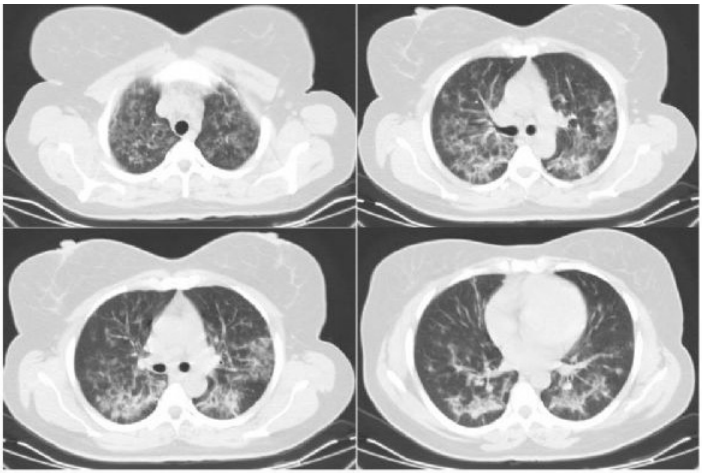
Bronchoalveolar lavage (BAL) is a useful technique for differential diagnosis of various interstitial lung diseases (ILDs) and is usually realized by analysis of the differential cell count. A 44-year-old female patient was admitted to outpatient clinic with symptoms of effort dyspnea, cough, sputum, wheezing and weakness for 2 months. On physical examination respiratory voices were coarse and there was bilateral infiltrations on chest graph and thoracic computed tomography. Sedim: 10 mm / h, Leukocyte $11.2x10^3$ / uL, Hb: 12.8 gr / dl, plt: $314x10^3$ / uL. Pulmonary function test was compatible with restrictive disorder (FVC: 1.96 %62 FEV1: 1.82 %67 FEV1 / FVC: 92% MEF 25-75: 3.25 93%). DLCO: 59% mmol / kPa / min and no endobronchial lesion was observed in FOB. Brush-BAL-bronchial aspiration cytologies were benign. In BAL, alveolar macrophages 57%, eosinophils 35%, lymphocytes 5%, neutrophils 3% no specific infection agent was found. Rheumatic markers were negative.There was no history of drug or occupational trait. The case was evaluated as idiopathic chronic eosinophilic pneumonia. Prednol started. At the first month follow-up of the patient, radiological regression is improved and clinical and respiratory function tests are improved. This case was presented to estimate the value of bronchoalveolar lavage fluid (BALF) in the diagnosis of ILD.

Picture 2



thoracic ct at first month of treatment

Picture 1



Thoracic CT before traetment started

EP-33
Chamydophila pneumoniae, laboratory diagnostic and friquency in 2016

NEBOJSA Zoran Tacevic

Department of Laboratory Diagnostic BioMedica, Belgrade Serbia

Chlamydophila pneumoniae former Chlamydia pneumonia causes the following disease pneumonia, bronchitis and sinusitis and there is evidence may cause or contribute to some other diseases. The idea behind the research was to demonstrate the presence of this pathogen in our population. The goal is to prove that the pathogen is inappropriately poorly represented in diagnostics compared to other challengers of respiratory infections. Whether the disease is present among us or not. Did professional public aware that these diagnostics are possible that was the initial questions.

For diagnostic we perform elisa test for IgM and IgG antibody. It`s well known method for initial research.

We had over 211 samples in 2016 with a request for examination for IgM antibody but only 15 samples were positive (7,2%). For IgG antibody we had 224 samples and we had 100 positive (44,65%). Also we had only 5 samples with positive result for both antibodies.

After a review of data we realized that there are few samples for diagnostic. We concluded that the diagnosis is delayed and is thus the result of a new infection was very low. We also demonstrated that the seroprevalence of this pathogen similar to that in other parts of Europe.

The conclusion would be that our doctors are not familiar with the fact that they can do this analysis. The ultimate goal became to introduce the public to the diagnosis of this pathogen has in addition to this method with MIF and PCR methods.

EP-34
Extraction of bronchial adenoid cystic carcinoma with electrocautery -Case report

Arben Redzepi[1], Marija Zdraveska[1], Dejan Todevski[1], Aleksandra Tatabitovska[1], Irfan Ismaili[1], Tome Stefanovski[1], Sasho Banev[2], Michael Simoff[3]

[1]University Clinic of Pulmology and Allergy Skopje, Macedonia
[2]Laboratory for Cytology and Pathohistology"Biopsija", Skopje, Macedonia,
[3]Pulmonary and Critical Care Medicine, Henry Ford Health System, Wayne State University School of Medicine, Detroit, MI, USA

Adenoid cystic carcinoma (ACC) is an uncommon neoplasm which usually arises from the major and minor salivary glands of the head and neck. Bronchial ACC is a rare finding, presenting as a recidivant tumor with variable degree of malignancy. We are presenting a case of a fifty year old female patient with a polypoid adenoid ACC, growing from the middle of the left main bronchus causing obstruction of the bronchial lumen. Complete resection of the polypoid mass was accomplished using an electrocautery snare through the flexible bronchoscope, cauterizing the stalk in one attempt. The tumor was extracted in the manner of foreign body extraction, attaining complete re-canalization and providing patency of the visible bronchial tree with no immediate or late complications. Follow up bronchoscopy after 6 months found no signs of persistent or recurrent disease, and clinical follow up for more tham\n 2 years, does not reveal any signs of recurrence. We recommend considering endoscopic electrocautery for selected endobronchial or endotracheal cases of ACC for curative or palliative purposes.

EP-35
Utility of endobronchial ultrasound (EBUS) for incidental finding of Dieulafoy´s disease of the bronchus

Elisa Mincholé[1], Rosa María Penin Mosquera[2], Rosa María López Lisbona[3], Noelia Cubero[3], Marta Díez[3], Rosa María Ortíz[1], Jordi Dorca[4], Antoni Rosell[3]

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[2]Department of Pathology, Hospital Universitari de Bellvitge-IDIBELL, L'Hospitalet de Llobregat, Barcelona, Spain.
[3]Department of Respiratory Medicine, Hospital Universitari de Bellvitge-IDIBELL, L'Hospitalet de Llobregat, Barcelona, Spain
[4]Department of Respiratory Medicine, Hospital Universitari de Bellvitge-IDIBELL, L'Hospitalet de Llobregat, Barcelona, Spain; Universitat de Barcelona, Barcelona, Spain; CIBER de Enfermedades Respiratorias, CIBERES, Bunyola, Mallorca, Spain.

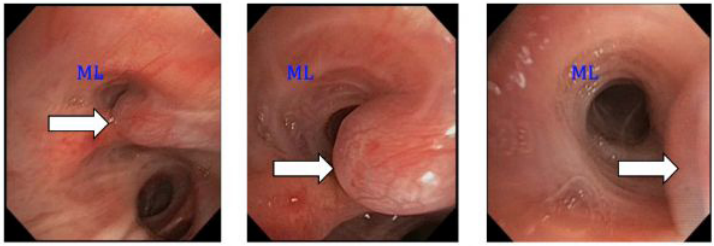
Dieulafoy's disease of the bronchus is a vascular anomaly represented by an abnormally enlarged submucosal artery, sometimes crossing to the bronchial mucosa. The diagnosis is confirmed on histological examination of resected lung tissue. This anomaly can present with potentially life-threatening hemoptysis or be asymptomatic and diagnosed as an incidental finding on bronchoscopy.

We present two cases report where Dieulafoy´s disease was an incidental finding. The first case, a 85-year old woman who suffered a fatal massive iatrogenic hemoptysis after biopsying a 5 mm smooth polilobulated protrusion of the bronchial mucosa in the right lower lobe. The second case, a 67 year-old man who presented a rounded smooth endobronchial lesion of 3mm in diameter at the entrance of the middle lobe bronchus. In the second case, a liner EBUS (Fujifilm EB-530US, Fujifilm, Tokyo, Japan) was performed in order to clarify the vascular nature of endobronchial lesion and was able to detect an anechoic area with doppler flow suggesting of pulmonary blood vessel. Embolization will be performed if hemoptysis occurs.

To the best of our knowledge this is the first case where liner-EBUS examination was performed to make an appropiate decision to avoid biopsy.

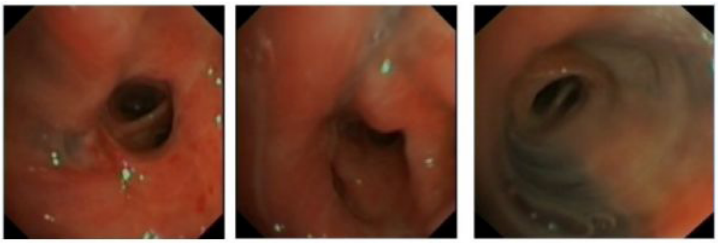
In summary, these two cases support the importance for the endoscopist to recognize suspicious lesions and refrain to biopsy them unless a Dieulafoy's disease can be discarded. We highlight the role of linear EBUS in the evaluation of bronchial changes suspected of vascular disease.

Figure 1. Bronchoscopy (case 1)



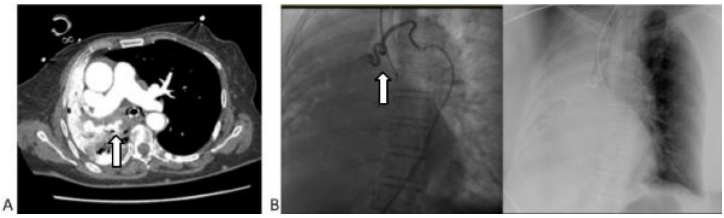
Signs of severe mucosa inflammation from intermediate bronchus to RLL with a thickening of the RLL mucosa and bluish-black anthracotic pigmentation were observed at bronchoscopy

Figure 2. Bronchoscopy (case 2)



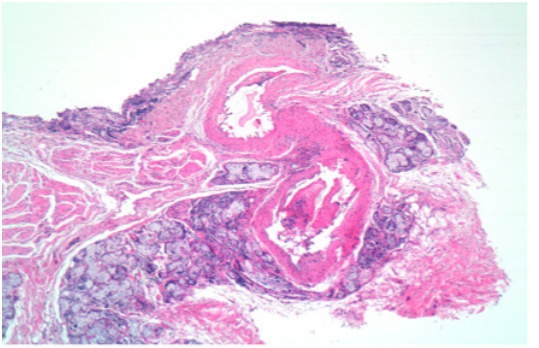
Bronchoscopy found a rounded endobronchial lesion located at the entrance to the ML (arrow)

Figure 3. Bronchial artery computed tomo-angiography (BA-CTA) (case 1)



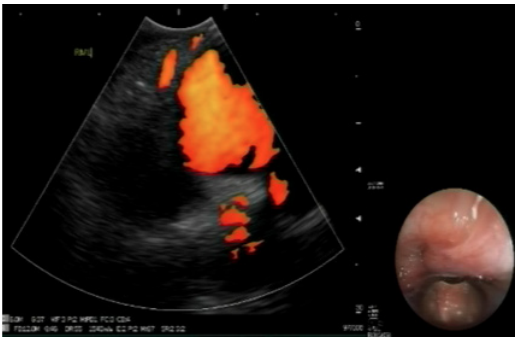
A) BA-CTA after bleeding showing hypertrophy of right bronchial artery for RLL and ML (white arrow). (B) Right tortuous bronchial artery was embolized (white arrow). The angiographic control showed a complete distal occlusion with no contrast seen beyond the plugs

Figure 4. Biopsy of the right lower lobe (case 1)



The large malformed vessel is just underneath the bronchial epithelium. Embolizaton material was identified in vessel lumen. (HEOS x 40)

Figure 5. Linear EBUS (case 2)



Linear EBUS showed an anechoic area with doppler ultrasounds highly suggestive of vascular structure (white arrow) at the entrance to ML.

EP-36
Electrocardiographic screening for chronic obstructive pulmonary disease

Biljana Lazovic[1], Jelena Milin[2], Vladimir Žugic[3]

[1]Biljana Lazovic
[2]Jelena Milin
[3]Vladimir Žugić

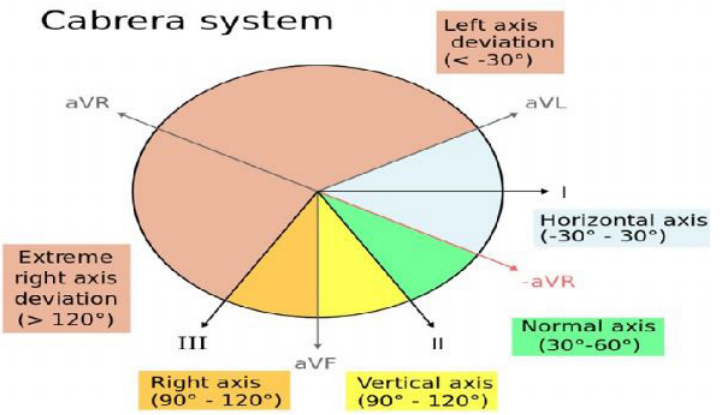
INTRODUCTION: Patients with Chronic Obstructive Pulmonary Disease (COPD) often have abnormal electrocardiogram (ECG). Electrocardiographic findings may help in clinical decision making regarding this disease entity.

MATERIAL-METHOD: A hospital based cross-sectional study was conducted in Clinical Hospital Center Zemun, Belgrade. A sample of 836 patients suffered from various respiratory disease were included in study consecutively during period 2011-2014. Mean age was 63.3±9,7 (female 70%, male 40%). We analyzed chest radiographs and electrocardiogram changes such as p wave height, QRS axis and voltage, right bundle branch block, left bundle branch block (LBBB), right ventricular hypertrophy (RVH), T wave inversion in leads V1-V3, S1S2S3 syndrome, transition zone in praecordial lead and QT interval and their pulmonary function.

RESULTS: Out of 836 patients, we found 220 COPD patients (26.31%). Normal elecotrocariographic axis had 72,7 % patients, left axis 27,3%, and no patient with right axis. Peaked p wave was observed in 48,2% COPD patients wherea duration of QRS complex was abnormal in 99,1%. RVH was found in 0,9%. RBBB in 40,9% while incomplete RBBB in 13,9% patients. Low QRS compex was observed in 50,9% patients.Transitional zone was found in 76,8%, LBBB in 4,1%, S1S2S3 configuration found in 4% and negative T V1-V3 in 2,7%. Emphysema had 52,7 % patients. Meand value of FVC was 57,3± 156, FEV1 46,8±13.5. GOLD stadium 2 was verified in 40%, 3 (106%) and 4 (11.8%) patients. Artrial fibrillation was found in 33,2 % patients.

CONCLUSION: Duration of QRS complex could be a first electrocardiographic sign of COPD.

Cabrera System



Graphicon 1. Cardiac axis

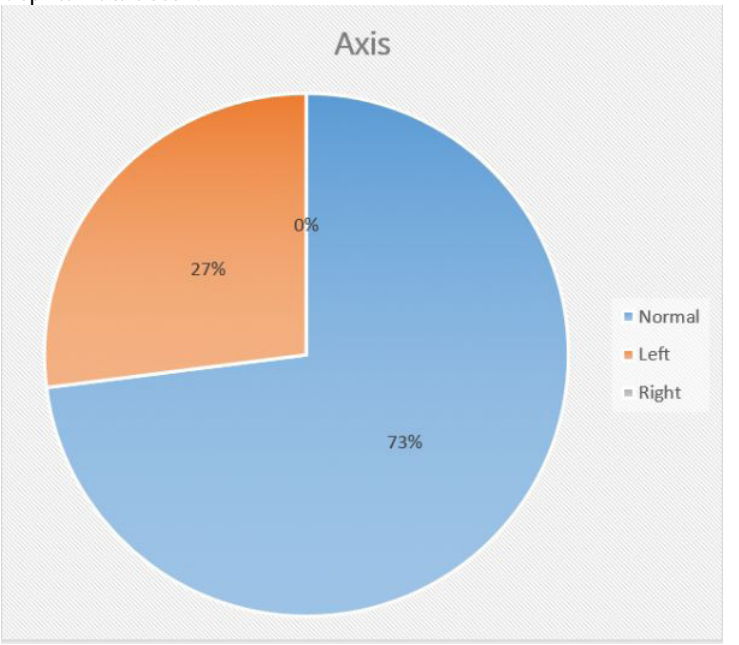
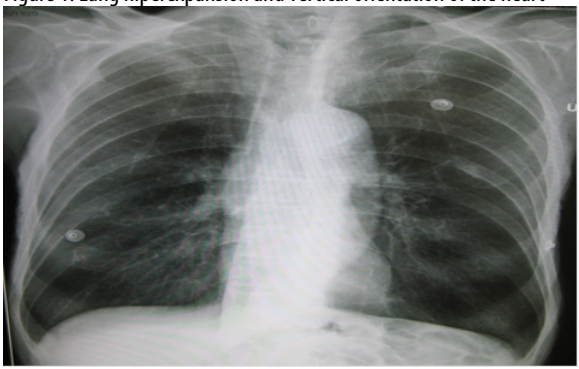
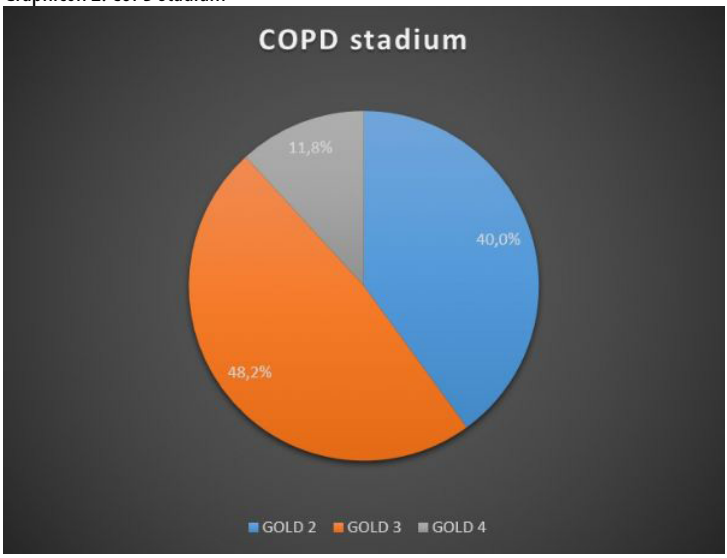


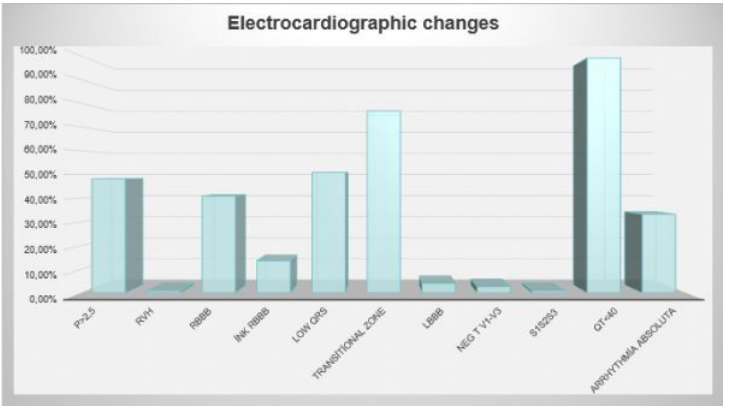
Figure 1. Lung hiperexpansion and vertical orientation of the heart



Graphicon 2. COPD stadium



Graphicon 3. Electrocardiogra[hic changes in COPD



Tablo

FVC (l/min)	57,3 ± 15.6
FEV1(l/min)	46,8 ±13.5
MEF (l/min)	15.6 (5.6-67.0)

Figure 2. Shorten QT interval in electrocardiogram

EP-37
Drainage of mediastinal cyst with EBUS- case report

Aleksandra Krum Tatabitovska, Marija Zdraveska, Arben Redzepi, Dejan Todevski, Irfan Ismaili, Tome Stefanovski

University Clinic of Pulmology and Allergy Skopje, Macedonia

Besides the well established diagnostic appliance of EBUS, we are presenting its applicability in therapeutic purposes. A 64 years old female patient was referred to our Clinic because of non-productive cough and chest pain, potentiated by swallowing. The chest CT showed a mediastinal cyst located in the right paratracheal region, with dimensions 78x92mm, compressing the vascular structures. She was not accepted by thoracic surgery for extraction. We indicated exploration with EBUS, in March 2014, visualizing a large cystic formation. The cyst was punctured on Region 4R, serous liquid was obtained in the syringe and 80 ml of the liquid was evacuated using the vacuum syringe system of the EBUS needle. Control CT showed residual cyst with dimension 28x42 mm, and a small pneumomediastinum, which was resolved in several days. The patient was followed every 3 months in the beginning, and afterwards in intervals of 6 months. On the control CT(June 2015), enlargement of the cyst was detected (40x42mm), with slight recurrence of symptoms. Another EBUS intervention was performed. The cyst was measured 56mm in diameter, and drainage was performed, obtaining 65ml serous liquid. The residual diameter immediately after intervention was 6.3mm. Control EBUS showed a persistent cyst of 27mm, with US signs of organizing. Control chest CT after 1 year showed no progression, and the patient was clinically stable. The follow up I s scheduled yearly. This case report shows the possible value of EBUS in interventional pulmology, as an alternative to surgery.

Figure 1

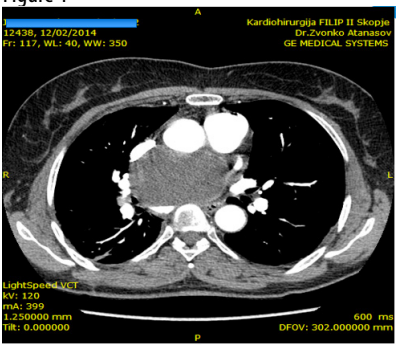


Figure_2

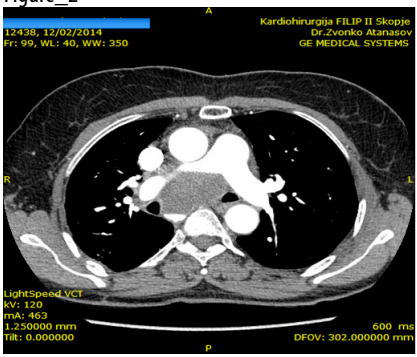
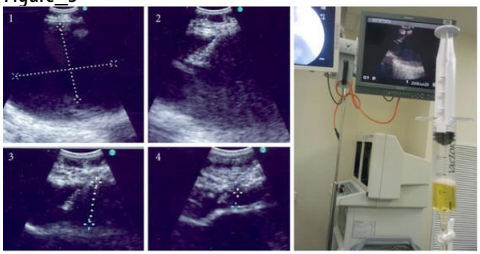


Figure_3



Anechoic cystic lesion getting progressively smaller as serous fluid is being drained via EBUS-TBNA.

Figure 4

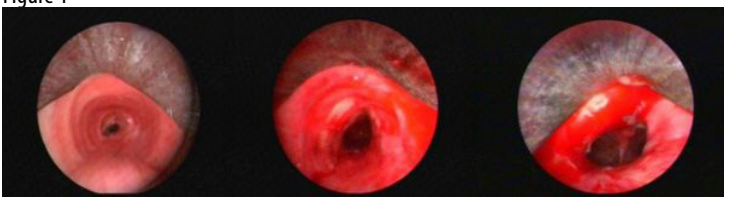
EP-38
Metallic stent placement in a case with tracheal restenosis

Cengiz Özdemir, Sinem Nedime Sökücü, Seda Tural Önür, Celalettin Kocatürk

Yedikule Chest Disease And Thoracic Surgery Training And Research Hospital, Istanbul, Turkey

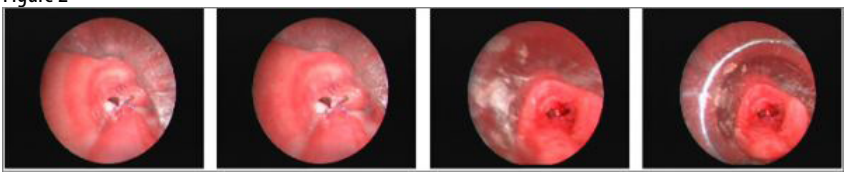
Tracheal resection and reconstruction is commonly performed for post-intubation tracheal stenosis. Most of the patients have a good result from surgery. Restenosis occurs nearly 4-5% of the cases and sometimes they cannot be reoperated. 52 years old female admitted to our clinic with stridor and dispnea. Patient had undergone 3 days of intubation due to hashimato ensephalitis 1 mounth ago. After that she had progressive dispnea and stridor. In the rigid bronchoscopy, 2 cm long complex stenosis which obstructs the lumen 90% was observed starting form the 8th cartilage, and ended 5mm to the carina. Stenotic area was dilated. Tracheal resection was made and 4 cm of trachea was removed. After 3 mounths patient presented with progresive dispnea and stridor. In bronchoscopy, operation sutures were observed at the distal trachea at the level of carina together with granulation tissue. Entrances of the right and left main bronchuses were obliterated 80% and 60%. Granulation tissue were cleaned by biopsy forceps and both main bronchuses were dilated. Although effective airway patency was optained, patient was admitted to hospital 1 mounth later with progressive dispnea and restenosis. Rigid bronchoscopy was done for dilatation. First a silikon Y stent 14x10x10 was tried to be placed but due to the angulation it could not be placed. Then 14x10x10 sized fully covered metallic Y stent was placed. In the control bronchoscopy granulation tissue observed at the legs of the Y stent was removed by cryoprob. Stent was effectively working and patient is in our follow up.

Figure 1



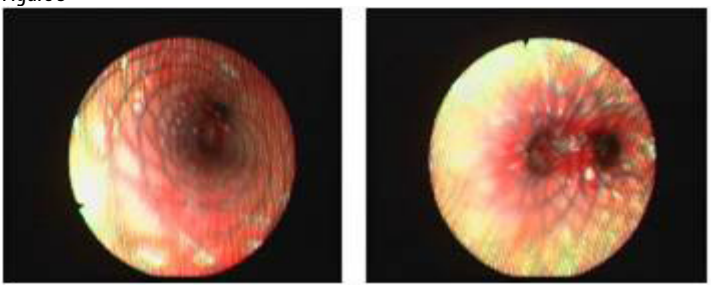
PETS view in the first rigid bronchoscopy and after dilatation

Figure 2



Restenosis view in the rigid bronchoscopy 3 mounths after operation

Figure 3



Stent view in the control bronchoscopy

EP-39
Quantification of proliferative index Ki-67 in atypical carcinoid and small cell lung carcinoma

Zaklina Zarko Mijovic, Dragan Slavoljub Mihailovic

Centre of Pathology, Clinical Center of Nis

INTRODUCTION: The discrimination between atypical carcinoid and other neuroendocrine tumors of the lung is based on histological criteria, but in small crushed bronchial biopsies differential diagnosis can be challenging.

AIM: The aim of this study was immunohistochemical analysis of MIB-1 and quantification of proliferative index Ki-67 in atypical carcinoid and small cell lung carcinoma.

MATERIAL-METHOD: Formalin-fixed and paraffin-embedded biopsies from 4 atypical carcinoid tumor patients who were diagnosed during the period of 2009-2016 and 10 from small cell carcinoma of the lung were retrieved from pulmonary pathology archives. Serial sections were stained with hematoxylin and eosin and immunohistochemical method DAKO LSAB EnVision for MIB-1 staining. Ki-67 activity was quantified by ImageJ 1.47q, with the plugin Cell Counter, and assessing the labeling index from the ratio of the number of cells stained by Ki-67 to the total number of cells counted per section. A minimum of 200 cells in 10 different randomly selected areas using objective 40× (NA=0.75) of the BX50 microscope were counted. All nuclei with brown nuclear staining were rated as positive for Ki-67.

RESULTS: The mean Ki-67 proliferative index in atypical carcinoid (11±3.3%) was significantly lower than in small cell carcinomas of the lung (69±4.5%)($p<0.05$).

CONCLUSION: Beside neuroendocrine histologic features, positive immunoreactivity on neuroendocrine markers, atypical carcinoid tumors can be diagnosed in small bronchial biopsies by Ki-67 index, as important tools in differential diagnosis.

EP-40
Large monomorphic adenoma of left interlobar carina: successful endoscopic ablation (case report)

Petru Gurau[1], Vitalie Tirbu[2]

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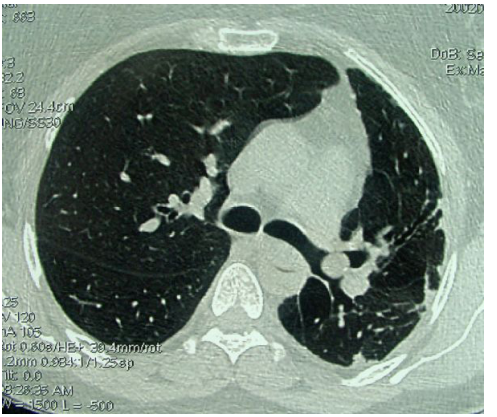
[2]Department of pathology, Institute of Oncology, Chisinau, Moldova

INTRODUCTION: Monomorphic adenoma (MA) is an extremely rare tracheobronchial tumor, known also as mucous gland adenoma, a benign tumor of salivary gland-type. We present a case of successful endoscopic ablation of endobronchial MA.

METHODS-RESULTS: Patient, female, 51 years old, came to our department with complaints of dry cough and dyspnea at physical effort. CT showed large polypoid tumor arising from left interlobar carina. Fibrobronchoscopy (FB) revealed large (2,0x1,3 cm) exophytic irregular- spheric shaped tumor with smooth rose surface, subtotally obstructing left main stem bronchus. Rigid bronchoscopy combined with flexible bronchoscopy was performed under general anesthesia with high frequency jet ventilation. First, tumor was resected partially by electrosurgical snare and after tumor implantation base, originating from interlobar carina, was exposed, complete LASER vaporization of remaining tumor was performed with Nd:YAG laser. Histologic examination revealed monomorphic adenoma with cystic glandular dilatations with mucinous content and solid areas. Lymphocyte infiltration of conjunctive stroma was determined. Tumor surface was covered by prismatic epithelium. Control FB in 40 months after tumor ablation revealed no signs of recurrence.

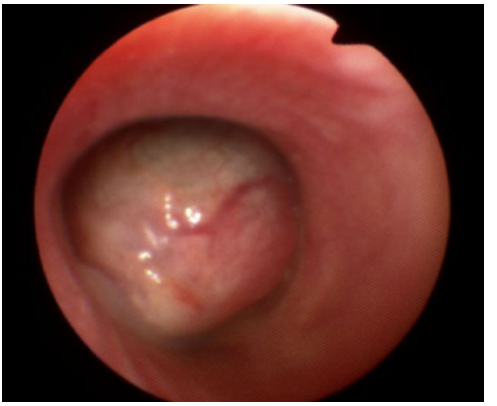
CONCLUSIONS: Nd:YAG laser vaporization combined with electrosurgical snare resection can be an effective approach in endoscopic ablation of endobronchial monomorphic adenoma.

Monomorphic adenoma (MA) - CT.



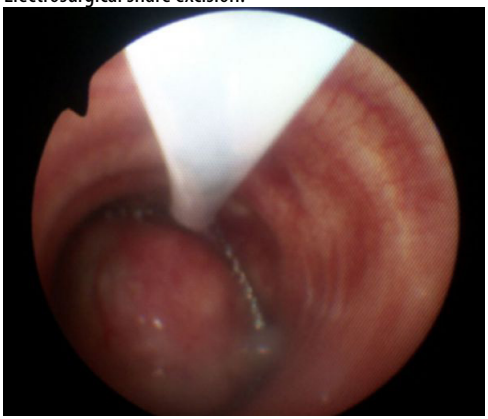
CT showed large polypoid tumor arising from left interlobar carina.

Monomorphic adenoma (MA) - endoscopic view.

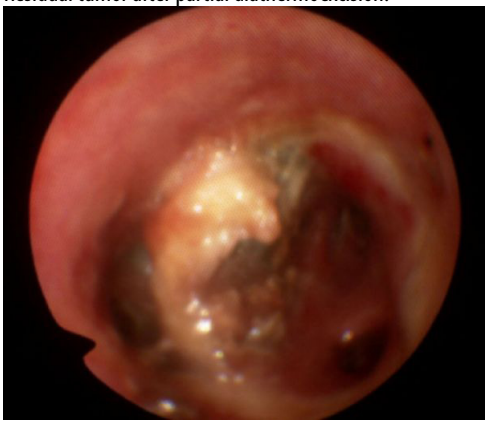


FB revealed large (2,0x1,3 cm) exophytic irregular- spheric shaped tumor with smooth rose surface, subtotally obstructing left main stem bronchus.

Electrosurgical snare excision.

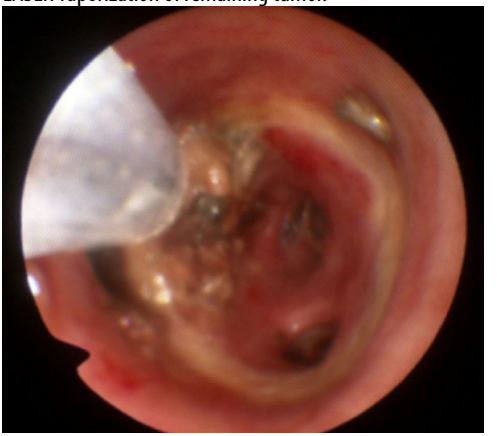


Residual tumor after partial diathermoexcision.

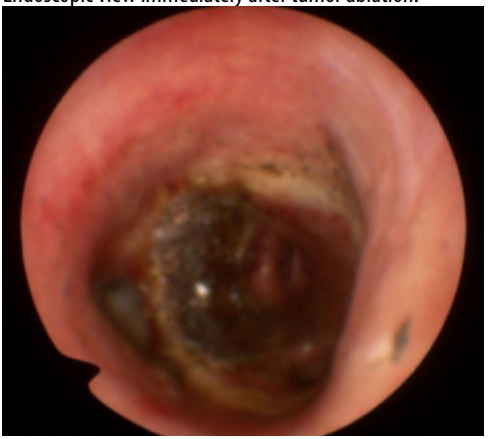


After partial tumor resection by snare, tumor implantation base, originating from interlobar carina, was exposed.

LASER vaporization of remaining tumor.



Endoscopic view immediately after tumor ablation.



Endoscopic view 12 months after tumor ablation.

FB shows a gentle scar in the region of interlobar carina and no signs of recurrence.

EP-41
Mucosa Associated Lymphoid Tissue (MALT) Lymphoma of Trachea

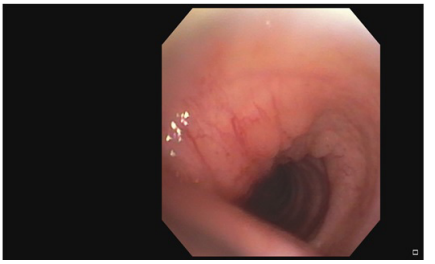
Uzair Khan Ghori, Shahryar Ahmad, Kumar Gaurav, Ali Musani

Medical College of Wisconsin, Usa

86 year old nonsmoker male with no significant medical history presented to primary care clinic with complaints of episodic cough and worsening fatigue for 6 months. Physical examination was unremarkable and lab work showed elevated D-dimer. Chest CT was subsequently ordered to rule out pulmonary embolism. CT chest ruled out PE but was concerning for a focal area of soft tissue thickening in the upper, left lateral, intrathoracic trachea. The patient subsequently underwent a bronchoscopy, which showed an abnormal, irregular and fungating mass arising from the left lateral border of trachea. The mass extended from the distal border of cricoid up to the second tracheal ring. The lesion occluded approximately 30% of the tracheal lumen. Endobronchial biopsies were consistent with the diagnosis of B-cell Non-Hodgkin lymphoma with plasmacytic differentiation consistent with MALT lymphoma. The patient underwent bronchoscopic laser ablation without any complications. Bone marrow biopsy was deferred given her advanced age and indolent nature of the disease and PET scan did not show evidence of metastatic disease.

Primary tumors of the trachea are rare entities. Squamous cell cancer and Adenoid cystic carcinoma account for the majority of malignant tumors of the trachea. Histology of tumor lesion shows reactive germinal centers with plasma cell differentiation. Immunohistochemical staining shows monoclonal expansion of B cells. MALT lymphoma is a low-grade malignancy which tends to remain localized at the primary site. Since primary MALT lymphoma of the trachea is a rare entity, there is insufficient data on long-term outcomes.

Endotracheal mass



Fungating mass arising from the left lateral border of trachea

EP-42
Epidemiologic aspects of lung cancer in Macedonia

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Lung cancer (LC) is one of the top health problems worldwide, with an increasing incidence. Shifting to different histological types is the feature of the epidemiology for the past decade. We are presenting a retrospective analysis of the incidence of various types of lung cancer, diagnosed at the Department for Invasive Diagnostics at the University Clinic of Pulmology and Allergy in Skopje, Macedonia. Data from 1997, 2007 and 2016 were compared in relation to gender and histological type. Our results show a significant increase of the overall number of diagnosed patients (224/231/296 for 1997/2007/2016 respectfully); the number of non small cell lung cancer (NSCLC) is increasing, versus the declining number of microcellular and undefined types. The incidence of LC in the male population has a steady state (204/201/226), and mostly female gender contributes to the overall increase of diagnosed LC (20/30/72). The incidence of squamous cell carcinoma is slightly decreasing throughout the years (101/94/87), small cell carcinoma is in a steady state (42/39/45), versus a significant increment of adeno-carcinoma (34/42/87) of the lung and other types of NSCLC. The incidence of smokers is over 90% in all of the analyzed groups. Further evaluation of the explanation of the factors for change in the histologic type of LC are necessary.

EP-43
Endobrachytherapy device and EBUS/EUS therapeutic method

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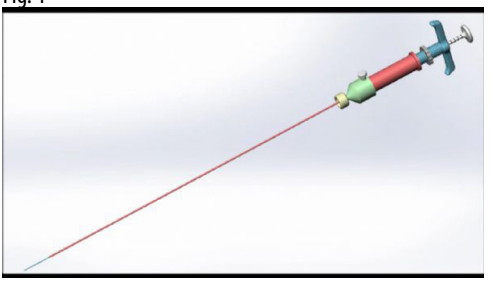
The endobrachytherapy device is the first device for EBUS/EUS local therapeutic method. This is the endoscopic treatment for the adjacent tumour by the EBUS/EUS endoscope channel in the airways and the digestive tract. The efficiency of radioactive material (I-125; Cs-131, Pd-103) included in the seed implants was approved in prostatic cancer and a lot of other cancers. The same effect we can expect for the lung cancer, or any other digestive cancer. The low dose and high energy of the local radiation is more effective without side effects on adjacent organs. This tumour access is very important in some of the clinical situations like additional treatment of the lung cancer with lymph nodes invasion (N1; N2; N3) which is not suitable for surgical treatment in the first place. This invasive cancer maybe treated by endobrachytherapy in combination with the chemotherapy, for example - prior to the surgery (a clinical trial is necessary). This method may also be useful in combination with chemotherapy for some casas of local mediastinal tumour proliferation in a patient who used to be treated with external radiotherapy or some patients with digestive tumour disease such pancreatic localisation or lymph node invasion in contact with digestive tract., This method can be used by pulmonologists and gastroenterologists who already use the diagnostic method of echo endoscopy. In France and Europe we have a lot of centres for potential application of this method, particularly in university hospitals, but actually more and more in general hospital centres.

Fig. 1

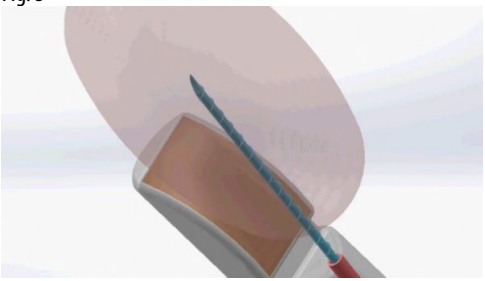


The EBT device compatible with a EBUS/EUS-endoscope channel. *All rights reserved

Fig. 2

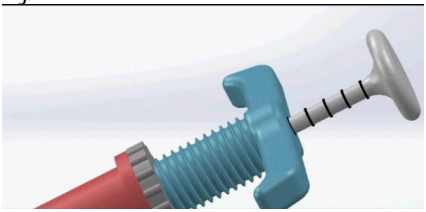
The device adapted with Ultrasonic endoscope

Fig. 3



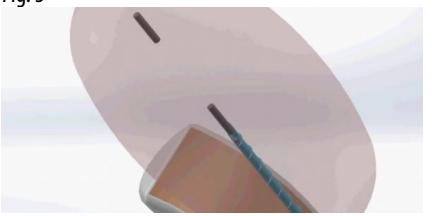
The distal extremity of device in which the flexible metallic needle, in particular beveled and threaded.

Fig. 4



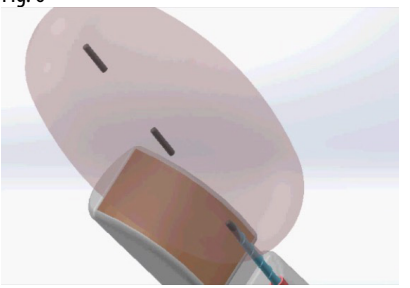
The flexible piston in the proximal extremity of device

Fig. 5



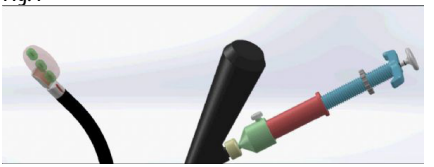
The Implantation process

Fig. 6



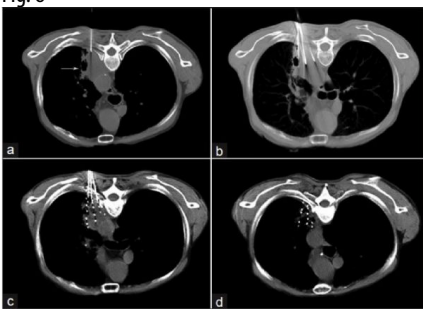
Discharge of radioactive containers

Fig. 7



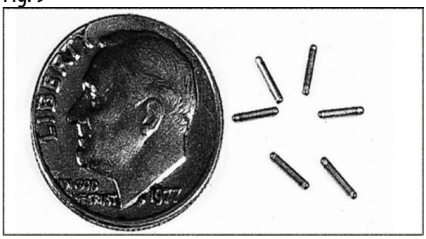
The ultrasonic control of Seeds position

Fig. 8



CT guided percutaneous Seed implantation a. b. rigide needles placement c. I-125 seeds discharge in the tumor d. tumor regression 6 month later after I-125 seeds placement

Fig. 9



I-125 Seeds

Table. 1

Table 1: Isotope Characteristics

Isotope	Half-Life (Days)	Average Energy (keV)	90% Dose Delivered (Days)
Cesium-131	9.7	30.4	33
Iodine-125	59.4	28.5	204
Palladium-103	17.0	20.8	58

Isotope characteristics relative to half-life, energy and duration of dose delivery

EP-44
Monitoring flexible fiberoptic bronchoscopy- hypoxemia and electrocardiogram

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To determine the incidence, possible causes, and prevention of electrocardiographic abnormalities during bronchological examination, clinical monitoring, blood pressure, ECG, and analysis of respiratory gases and acid-base status in arterial blood were performed 30 minutes prior to, during, and 30 minutes upon fiberoptic bronchoscopy (FFB) in 80 patients with lung cancer. The incidence of arrhythmia during FFB increased from 15% to 69% ($p < 0.01$), and ST-T alteration from 7.5% to 9%. Thirty minutes upon FFB, the incidence of arrhythmia was 36% ($p < 0.01$), and ST-T abnormalities 15% ($p<0.05$). There were no significant differences in blood pressure and arterial blood respiratory gases during FFB between patients with and without ECG alterations ($p>0.05$). Upon bronchoscopy, the significant hypoxemia developed in patients with ST-T segment alterations as compared to the initial levels of arterial oxygen ($p < 0.05$). Since hypoxemia upon FFB correlates with ECG alterations, continuous oxygen therapy can be recommended for at least 30 minutes upon FB in all the patients with coronary disease and ECG abnormalities.

A full understanding of the patient's medical history, underlying risk factors such as cardiovascular and pulmonary disease, and medication use is required to plan the requirements for the FFB. Routine ECG monitoring during bronchoscopy is not required but should be considered in those patients with a history of severe cardiac disease and those who have hypoxia despite oxygen supplementation.

EP-45
Spontaneous pulmonary hematoma in a patient with sepsis treated with dual antiplatelet therapy

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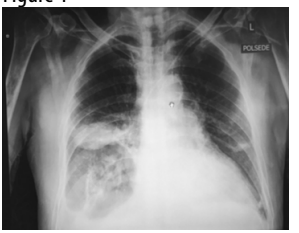
Department of Intensive Care, General Hospital Celje, Slovenia

Pulmonary hematomas are collections of blood within the alveolar and interstitial spaces. Non-penetrating injury of the thorax, either by direct blunt trauma or indirect forces, is generally known to be the major cause of pulmonary hematoma. There are only few reports of spontaneous pulmonary hematoma as a complication of anticoagulant therapy or subclavian vein catheterisation. This presentation describes a spontaneous pulmonary hematoma in a patient with sepsis who was treated with dual antiplatelet therapy for 11 days due to a concomitant non-ST segment elevation myocardial infarction (NSTEMI). Infected pulmonary hematoma was confirmed by computed tomography (CT) scan and percutaneous aspiration biopsy. Double antibiotic treatment was started but no surgery was performed after consultation with a thoracic surgeon. The antiplatelet drugs were temporarily withdrawn until the size of the hematoma showed no further increase and then antiplatelet therapy was continued. After stabilization the patient was discharged from hospital and 6 months later a follow-up chest X-ray showed almost complete resolution of the hematoma.

To the best of our knowledge, no case of pulmonary hematoma as a consequence of dual antiplatelet therapy has been described in literature.

This presentation will include the importance of use of ultrasound, CT, percutaneous aspiration biopsy for diagnosis of hematoma of the lungs and treatment options for spontaneous cases of pulmonary hematoma and hematoma secondary to anticoagulant therapy.

Figure 1

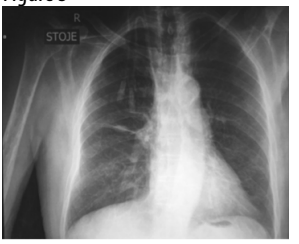


Chest X-ray shows a well-defined,round homogenous opacity in the interlobar fissure and pneumonic infiltrate in the right lower lobe

Figure 2

Chest computed tomography scan reveals a well- defined, round, high-attenuation lesion with air, measuring 7.8 cm — 3.9 cm in size

Figure 3



Follow-up chest X-ray shows an almost complete resolution of the hematoma after 6 months

EP-46
Hodgkin lymphoma – lung metastasis - Case report

Marjan Baloski, Daniela Buklioska Ilievska, Nade Kocovska Kamchevska, Jane Busev, Snezana Smileska, Iva Sajkovska, Vance Trajkovska, Bozidar Poposki

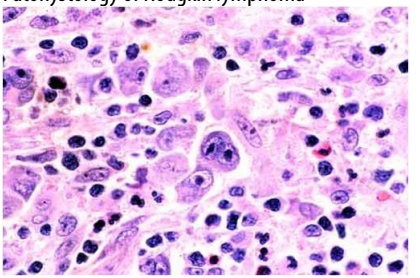
General Hospital,8-th of September" - Skopje, Macedonia

Lymphoma is the most common blood cancer. Occurs when lymphocytes grow and multiply uncontrollably in the lymph nodes, spleen, bone marrow, or other organs. Approximately 9,000 new cases of Hodgkin Lyphoma are projected each year, commonly diagnosed in young adults between the ages of 20 and 34 years.

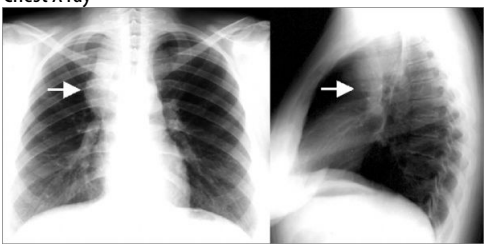
Female patient, 33 years old, diagnosed with Hodgkin Lymphoma in 2010. Treated with several cycles of chemotherapy. 2-3 months before hospital admission, she felt shortness of breath, prolonged, dry cough, haemoptysis. On physical examination – swallen lymph nodes in right axilla and neck. Auscultatory normal finding. Other systems without pathological findings. Chest X-ray - right infraclavicular, massive, heterogenous shadowing, separated and connected to right hylus. CT lung scan – in right upper medial segment, stellate, 6sm, cavernous consolidaton. Mediastinal and hilar lymphaednopathy In right axilla enlarged lymph nodes. Bronchoscopy – edematous mucosa. Abdominal and pelvic CT scan – normal. Transthoracic CT guided lung biopsy with histopathological finding - MORBUS HODGKIN PULMONUM. Microscope finding of fragments showed accumulations of mature lymphocytes mixed with macrophages, plasma cells and eosinophilic leukocytes, rare cells with basophilic cytoplasm and hyperchromatic large cores. In several cells binuclearity, in a larger cell multinuclearity. The immunohistochemical analysis conducted further, obtained the following RESULTS: CD-15 (cell marker for Reed-Sternberg cells) positive +, CD-30 (a marker for cell mitosis in cells) is positive focal +, CD-20 (B-grade. marker) positive +, CD-3 (T marker) positive focal +. For further treatment the patient was referred to the Department of Hematology.

Patohystology of Hodgkin lymhoma

Patohystology of Hodgkin lymphoma

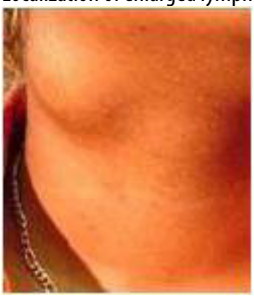


Chest X ray

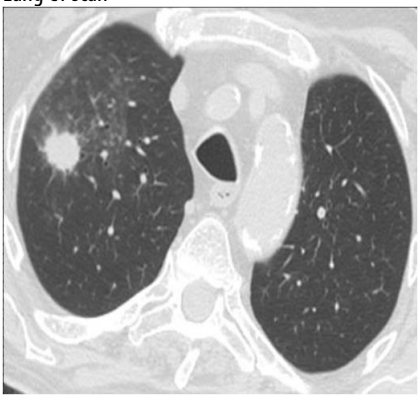


Localization of enlarged lymph nodes

Localization of enlarged lymph nodes



Lung CT scan



EP-47
Bronchoalveolar lavage utility in the diagnosis of smear-negative pulmonary tuberculosis

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[1]Department of Internal Medicine, Faculty of Medicine, "Ovidius" University, Constanta, Romania
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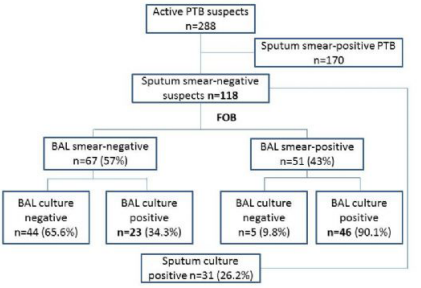
The purpose of this study was to assess the diagnostic value of fiberoptic bronchoscopy guided bronchoalveolar lavage (BAL) in the diagnosis of sputum smear-negative pulmonary tuberculosis (PTB).

MATERIALS AND METHODS: The study was conducted on 118 patients who were clinically and radiological suspected of having PTB but found to have a negative sputum acid-fast bacilli smear, between January 2014 – December 2016. Fiberoptic bronchoscopy with bronchoalveolar lavage was performed, than BAL specimens stained and cultured.

RESULTS: Of the 118 cases of suspected sputum negative-smear pulmonary tuberculosis, 51 (43%) were positive for acid-fast bacilli in BAL fluid specimens. Sixty nine (58.4%) BAL samples showed growth of Mycobacterium Tuberculosis on solid cultures, 23 (34.3%) being BAL smear negative. Thirty one of the 118 sputum specimens (26.2%) were positive culture for Mycobacterium tuberculosis. Total yield of bronchoscopy in diagnosis sputum smear negative pulmonary tuberculosis was 58.4%. No serious complications were encountered during the study, only minimal hemoptysis in 18 patients.

CONCLUSIONS: Fiberoptic bronchoscopy with bronchoalveolar lavage is a useful method for diagnosis of suspected cases of pulmonary tuberculosis in whom smears of expectorated sputum do not reveal the presence of Mycobacterium Tuberculosis.

Patients flow through the study



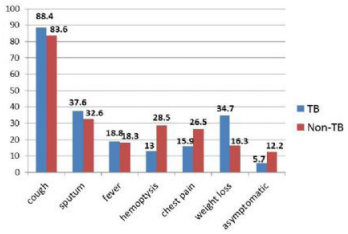
Definition of abbreviations: PTB= pulmonary tuberculosis; FOB=fiberoptic bronchoscopy; BAL= bronchoalveolar lavage

Demographic and clinical characteristics of all sputum smear-negative patients

Characteristic	All suspects n=118	TB n=69	Non-TB n=49	P-value
Age, years (mean±SD)	48.6±15.8	43.3±18.2	58.4±16.7	<0.05
Male, n (%)	93 (78.8)	52 (75.3)	41 (83.6)	0.324
Previous TB history, n (%)	10	3 (4.3)	7 (14.3)	<0.05
Immunocompromised patients, n (%)	34 (28.8)	20 (29)	14 (28.5)	0.987
CXR cavitatory, n (%)	13 (11)	11 (15.8)	2 (4)	<0.05

Definition of abbreviations: TB=tuberculosis; SD=standard deviation; n=number; CXR=chest radiography

Symptoms of TB suspected patients with sputum smear-negative



EP-48
Endobronchial growth of recurrent thymoma - therapeutic challenges

Branislav Ilic, Dragana Jovanovic, Spasoje Popevic, Marta Velinovic, Milica Kontic, Ivana Vukanic, Zivka Uskokovic Stefanovic, Milan Grujic, Jelena Markovic

University Hospital of Pulmonology, Clinical Center of Serbia, Belgrade

INTRODUCTION: Thymomas are the most common neoplasm of anterior mediastinum, which is characterized by slow growth and possible local invasion. Distant metastases, and endobronchial tumor growth are very rare.

CASE: We present the case of a patient, 69 years old, who was diagnosed a thymoma 6 years ago, limited to the anterior mediastinum. Then was performed complete resection of the tumor, preoperative bronchoscopy findings were normal. After surgery, the patient controlled with the CT of chest, without disease recurrence. Four years after surgery hemoptysis appeared, on CT of chest observed metastases in the lungs; bronchoscopy seen tumor on VIs in right lung. The morphologically and histopathological confirmed that it is a thymoma, immunohistochemical tests excluded a primary lung cancer. After that, the patient was treated with six cycles of chemotherapy (cisplatin, etoposide), the control CT chest register stable disease. A year after the end of chemotherapy verifies the disease progression with the appearance of atelectasis of the right lung caused by a tumor in the right main bronchus, which protrudes into the trachea. Then was done laser resection of the tumor and mechanical recanalization which achieved a complete recanalization of the right main bronchus; the histopathological and immunohistochemistry confirmed that it is a recurrent thymoma. In addition of treatment is planned to continue chemotherapy with periodic bronchoscopies and, if necessary, interventional bronchoscopic procedures. CONCLUSION: Endobronchial thymoma growth, especially after complete resection, is very rare and requires a specific therapeutic approach, including various chemotherapeutic protocols, as well as various techniques of interventional pulmonology.

Figure 1 - Chest X ray: before (A) and after resection (B)

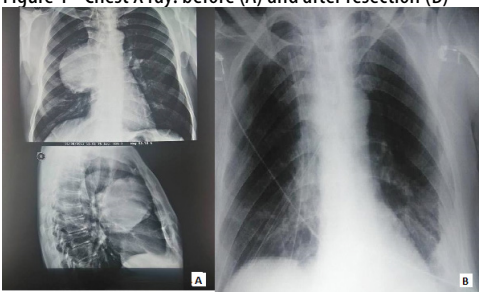


Figure 2 - Chest X ray: atelectasis of the right lung (A) and situation after recanalisation (B)

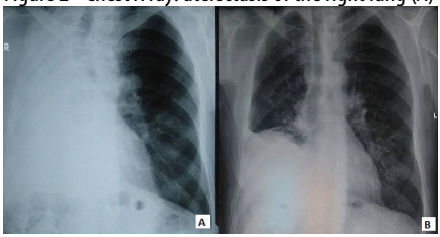
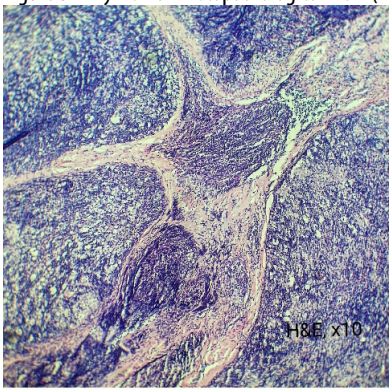
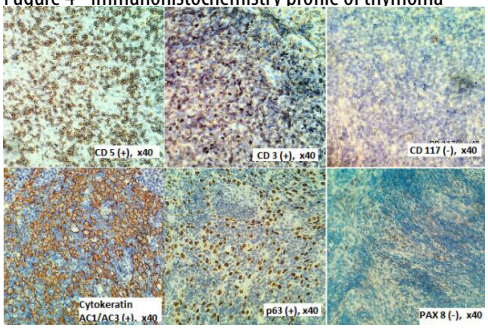


Figure 3 - Thymoma - histopathological view (H&E)



Fugure 4 - Immunohistochemistry profile of thymoma



EP-49
A Diagnostic Dilemma About Primary Lung Adenocarcinoma Following Unspecified Immunophenotype and Unusual Clinical Presentation

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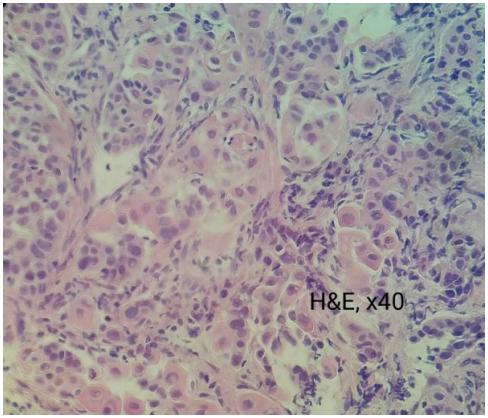
[2]Department of Gastrointestinal Pathology, Clinical Center of Serbia, Belgrade
[3]Department of Bronchology, Pulmonology Clinic, Clinical Center of Serbia, Belgrade

Sixty one year old patient was admitted to a hospital with acute intestinal obstruction. At the same time, preoperative chest radiograph showed ill-defined tumorous mass in the middle right lung lobe. Bronchoscopy was performed immediately after small intestine tumor resection. Both bronchoscopy and intestinal resection specimen were independently examined in two different pathology departments and immunohistochemistry was performed. Hematoxylin eosin stain showed adenocarcinomatous morphology.

Bronchoscopy specimen immunoprofile was positive for Cytokeratin 7, negative for TTF 1, Napsin A, Villin, CDX2, whilst CD 20 was weakly positive. We concluded as nonspecific phenotype adenocarcinoma. At the same time, independently, immunohistochemistry was performed at department for gastrointestinal pathology showed similar immunoprofile of small intestinal operation specimen.

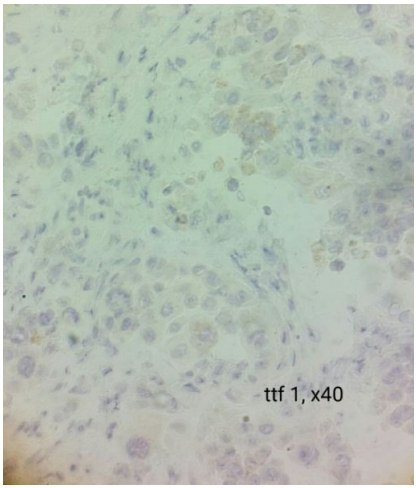
Tumor cells were positive for Cytokeratin 7 and MUC 1, negative for TTF 1, Napsin A, CDX 2, MUC 2, Synaptophysin, CD 56 and AMACR. Due to immunohistochemistry profile it was concluded as nonspecific origin adenocarcinoma. CONCLUSION: According to presentation of lung cancer as a single tumor mass, clinical correlation and general statistical data about lung cancer metastasis, we could assume this tumor as primary lung origin, metastatic to small intestine.

H&E, x40 hpf



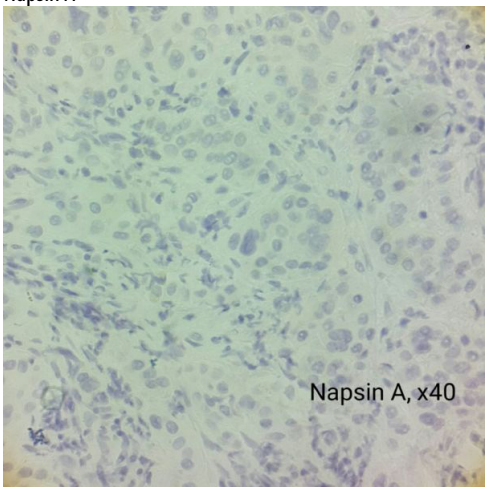
Adenocarcinoma morphology, lungs

TTF 1



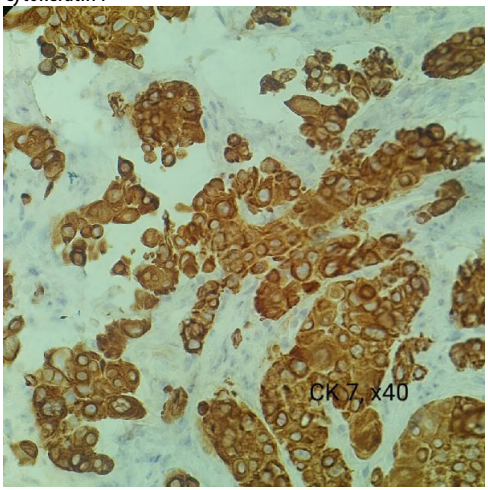
TTF 1 negative adenocarcinoma

Napsin A



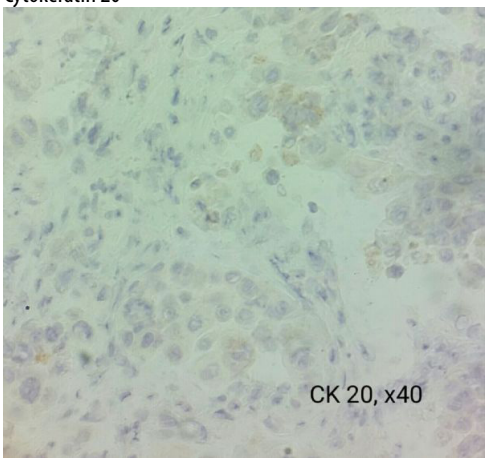
Napsin A negative

Cytokeratin 7



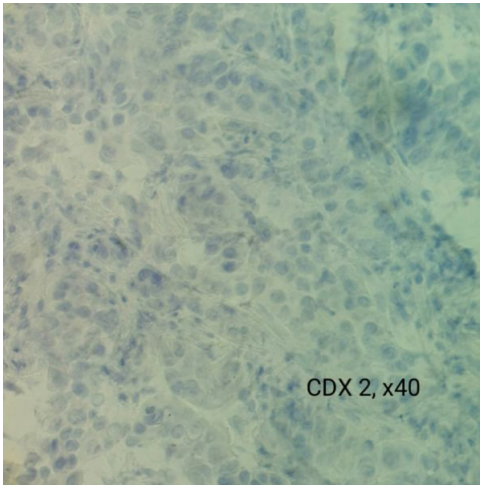
Cytokeratin 7 positive

Cytokeratin 20



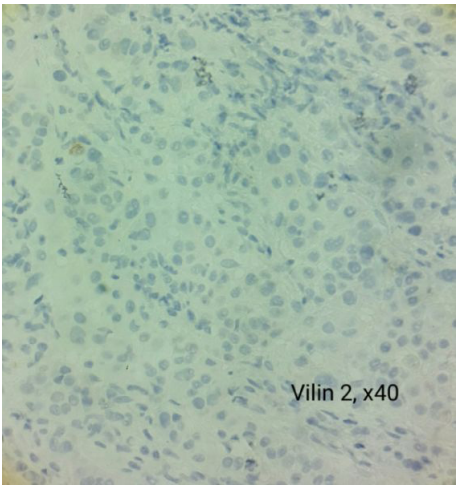
Cytokeratin 20 negative

CDX2



CDX 2 negative

Villin



Villin negative

EP-50
Immediate complications following flexible bronchoscopy. Retrospective analysis of 213 procedures

Zorica Risto Nanovikj, Karolina Pilovska Spasova

Institute of lung diseases and tuberculosis

AIM: To evaluate the frequency of post procedure complications after flexible bronchoscopy.

MATERIAL-METHODS: Data from flexible bronchoscopic procedures performed at our Institute over a period of 12 months (2016) were analyzed retrospectively using procedure reports and computerized patient information system.

RESULTS: 213 procedures due to suspected lung malignancy were included in the analysis. At least one complication was recorded in 40 procedures (18,77%). Among these, the frequency of bronchobiopsy associated hemorrhage was 30% (n=12), premature interruption of the procedure 50% (n=20) - 12,5% (n=5) of which due to tachycardia >120 and/or desaturation ≤ 85%, 35% (n=14) due to insufficient patient compliance, and 2,5% (n=1) due to hypersensitivity reaction to lidocain. In 12,5% (n=5) of procedures, an excessive coughing aggravated the bronchobiopsy. There was no case of pneumothorax. Factors associated with complications were: low rate of benzodiazepine sedation prior the procedure (15%, n=6), exclusively intratracheal route of local anesthetic application (100%, n=40), and high rate of cardiovascular comorbidities (42,5%, n=17). Bronchobiopsy hemorrhage was mostly associated with biopsing of upper lobes (58,33%, n=7).

CONCLUSION: adequate premedication, improving local anesthetic application and proper cardiovascular prearrangement with adequate monitoring during examination, are important for increasing the patient tolerance of bronchoscopy and reducing the risk for complications.

EP-51
New Therapeutic Approach To Pulmonary Rehabilitation

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[2]Institute of Rheumatology, University of Belgrade School of Medicine, Belgrade

BACKGROUND: pulmonary rehabilitation is an excercise-consisted educational program aimed at improving of the physical capacity of people diagnosed with chronic obstructive pulmonary disease (COPD). There are two main training types: the endurance training, comprised of the large muscle groups constant engagement and power training.

THE AIM of this study is to identify which type of specific training excercise would be able to enhance pulmonary volumes and capacities in COPB patients the best

METHODS: A total of 670 people were included in the study: 470 athletes (270 engaged in endurance training and 200 in power training) and 200 controls. All of the participants underwent the pulmonary function tests.

RESULTS: All participants were male. The Endurance group consisted of football players and the Power group comprised 43 rugby players, 41 boxing players, 30 kick boxing, 23 judo, 21 wrestling, 17 taekwondo, 13 kendo, 8 bodybuilding and 5 savate players. The Endurance group mean (SD) age was 22,61 (3,68) years, the Power group 23,28 (4,27) and the Control group 23,12 (4,04) years. Significant differences were found in measured spirometric values (L): VC, FVC, FEV1 and FEV1/FVC between Endurance and Power, as well as between Endurance and Control group.

CONCLUSION: Endurance type of training group has shown better performance of the pulmonary volumes and capacities than both the Power and the Control group. Although the Power training type is more adapted for patients with COPD, their functional status would be more improved by integrating of the Endurance training, carefully adjusted to individual patient status.

EP-52
Clinical and quantitative CT (QCT) predictors of response to coil lung volume reduction treatment (LVRC)

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BACKGROUND: LVRC treatment is promising for patients with severe emphysema and collateral ventilation

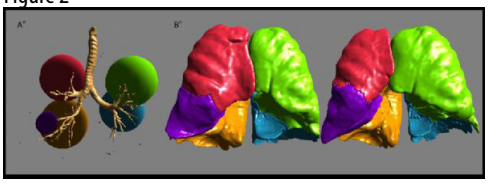
OBJECTIVE: Identify clinical and QCT parameters associated with positive treatment outcome

METHODS: CT scans from 85 patients were acquired at full inspiration at baseline and 3 months after LVRC treatment. Similarly, clinical data including forced expiratory volume in 1 second (FEV1), residual volume (RV) and 6-minute walk test (6MWT) were collected for the same time-period. Various QCT parameters were derived using Apollo imaging software (VIDA Diagnostics, Iowa, US). Changes in these and in clinical data were used as indicators of the treatment efficacy and independent predictors of outcome were identified through stepwise linear regression analysis.

RESULTS: The response rates satisfying Δ6MWT>=26m, ΔFEV1>=12% or ΔRV>=10% are 54.9%, 33.8% and 43.6% respectively. 72.5% (58/85) patients met at least one response criterion. Sicker patients with lower 6MWT, FEV1, and larger TLC at baseline tend to respond better. Regarding the QCT parameters, the SD of LAC sizes in the peripheral region of the treated lung was a predictor for Δ6MWT ≥ 26m (p= 0.0451). The QCT predictor for ΔFEV1 ≥ 12% was the median size of LAC in the central region of the target lobe (p=0.0191). Lastly, the SD of LAC size in the peripheral region of the target lobe (p=0.000158) was tested as a QCT predictor. Other QCT parameters such as emphysema percentage and heterogeneity score were not found to be predictors for positive outcome.

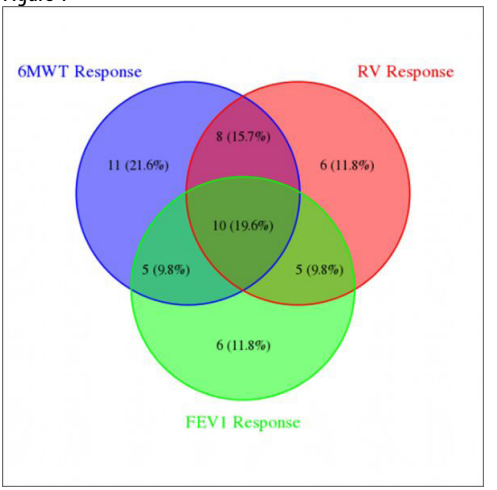
CONCLUSION: specific clinical and QCT parameters might help to further improve patient selection for LVRC.

Figure 2



LVRC responder with severe emphysema treated for the right upper lobe, successfully identified as a responder by quantitative computed tomography. (A) LAC representation of the patient at baseline. (B) Three-dimensional surface lung volume reduction representation

Figure 1



Treatment response rates for Δ6MWT ≥ 26m, ΔFEV1 ≥ 12%, and ΔRV ≥ 10%

Table 1

Positive outcome	Predictors	p-value	Adj. R 2
Δ6MWT	6MWT at baseline	0.0003	0.22
Δ6MWT	Standard deviation of low attenuation cluster sizes in the peripheral region of treated lung	0.037	0.22
ΔFEV1	FEV1 at baseline	0.02	0.15
ΔFEV1	Median size of low attenuation clusters in central region of the target lobe	0.0018	0.15
ΔRV	TLC at baseline	0.0014	0.28
ΔRV	Standard deviation of low attenuation cluster sizes in the peripheral region of the target lobe	0.007	0.28

CT predictors of positive outcome to coils treatment

EP-53
Bronchoscopic Catheter for Nodule Ablation in Resected Human Tissue

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We have designed and developed a flexible monopolar RFA catheter that can be deployed through the working channel of most bronchoscopes, and are presenting the result of benchtop study to demonstrate local control of the ablation conducted using RFA device on 5 recently resected human lung tissue specimens containing at least 1 tumor.

The tissue specimens were received after pathological evaluation was conducted between 9/1/2016 and 9/21/2016. The pathology results were made available as part of the study data. After each specimen was heated in a water bath to 37˚C ± 3˚C, the RF Ablation Catheter was inserted to the tumors in the specimen. Up to 3 temperature sensors were positioned at 3mm, 5mm and 7mm away from the electrode to measure the temperature of surrounding tissue. Temperature measurements were taken every 1 second. Ablation was conducted by applying RF energy for 8 minutes. The ablated specimens were evaluated by cutting the tissue samples along the top of the device to measure the ablation zones.

All ablation zones had Major Axis length (along the electrode axis) between 18.9mm—22.8mm and Minor Axis length (perpendicular to Major Axis) between 13.6mm—18.0mm. Temperature data showed all temperature sensors attained 60˚C or higher, with majority of them staying above 60˚C for more than 4 minutes.

The results demonstrated that RF Ablation Catheter was capable of generating ablation zones that are locally contained in ex-vivo human cancerous lung tissue and incorporated the tumors. These results merit further in-vivo study of tumor ablation in humans.

Figure 1: Ablation Zone Images for Specimen #3 and #1

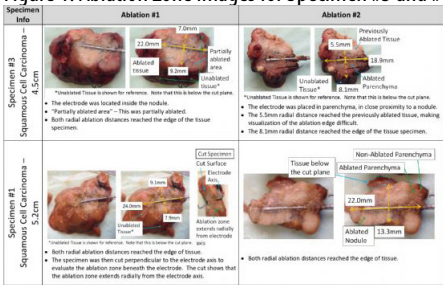

Figure 2: Ablation Zone Images for Specimen #7

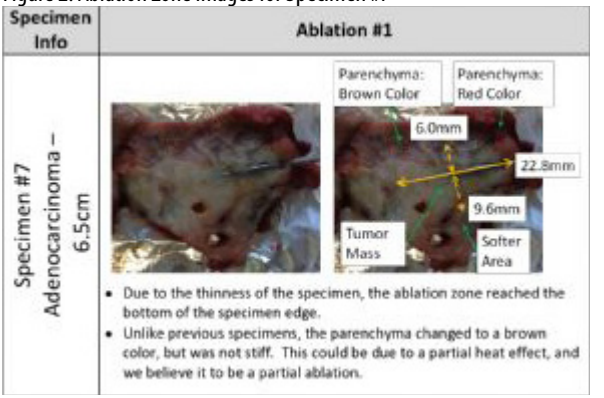

Table 1 — Temperature Sensor and Ablation Size Results

Specimen Info	Time above 60˚C (minutes) at 3mm Temp Sensor	Time above 60˚C (minutes) at 5mm Temp Sensor	Time above 60˚C (minutes) at 7mm Temp Sensor	Major Axis (mm)	Minor Axis (mm)	Max Radial Distance (mm)
Specimen 3 Test #1 Squamous Cell Carcinoma / 4.5cm	6.8	5.6	2.7	22.0	16.2	9.2
Specimen 3 Test #2 Squamous Cell Carcinoma / 4.5cm	6.6	3.0	24 sec	18.9	13.6	8.1
Specimen 1 Test #1 Squamous Cell Carcinoma / 5.2cm	6.6	4.9	4.5	24.0	18.0	9.1
Specimen 1 Test #2 Squamous Cell Carcinoma / 5.2cm	N/A	N/A	N/A	22.0	13.3	6.65*
Specimen 7 Adenocarcinoma / 6.5cm	5.0	4.9	4.7	22.8**	15.6**	9.6**

*Electrode assumed to be located at center of Minor Axis length ** Difficult to clearly identify ablation zone measurement

Table 2 —Insertion/Removal Forces for Tumor Types

Specimen Info	FleXNeedle Max Insertion Force (lb)	FleXNeedle Max Removal Force (lb)	RF Ablation Catheter Max Insertion Force (lb)	RF Ablation Catheter Max Removal Force (lb)
Specimen #3 Test #1 - Squamous Cell Carcinoma	0.32	0.13	0.32	0.40
Specimen #1 Test #1 - Squamous Cell Carcinoma	0.62	N/A	0.26	0.31
Specimen #7 - Adenocarcinoma	0.38	0.93	1.82	1.24
Average:	0.440	0.530	0.800	0.650
Standard Deviation:	0.159	0.566	0.884	0.513

EP-54
Pulmonary Cryobiopsies: Is This the Way Forward?

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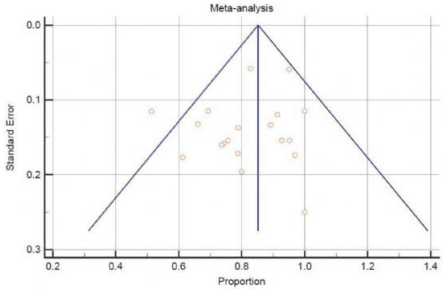
PURPOSE: Cryobiopsies have shown promise in the field of interventional pulmonology. However, most previous studies have been small and yielded variable diagnostic results. We have performed a systematic review and meta-analysis to assess the diagnostic yield and safety profile of pulmonary cryobiopsies.

METHODS: Literature search was performed using MEDLINE (Pubmed and OVID), EMBASE and Google Scholar, in February 2017. Quality of included studies was assessed using Quality Assessment, Data Abstraction and Synthesis-2 tool (QUADAS-2). Meta-analysis was performed using MedCalc (version 17.2). Inverse variance weighting was used to aggregate diagnostic yield proportions across studies, with the number of subjects in each study representing its weight.

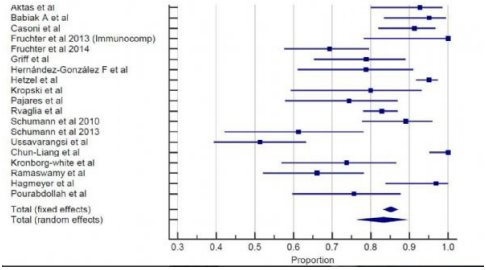
RESULTS: 23 studies were included in the analysis. 20 studies (1300 patients) evaluated diagnostic performance of cryobiopsies. Of these 16 studies (n=847) included patients with diffuse parenchymal lung diseases (DPLD), while 4 studies (n=453) included patients with endobronchial masses. Diagnostic yields for DPLD and endobronchial lesions were 79.70% (95%CI 72.25 - 86.234, p<0.001) and 94.979% (95%CI 89.110 - 98.668, P=0.0055), respectively. 7 studies directly comparing cryobiopsies and conventional biopsies, showed significantly increased diagnostic yield with cryobiopsies [91.67% vs 71.63% (relative risk of 1.359 (95% CI 1.159-1.593, P<0.001)]. The pooled mean specimen size obtained by cryobiopsy was 9.963 mm2 (6.985 – 12.94, CI 95%). Overall complication rate was 15.91% (9.78-23.20, CI 95% p<0.0001).

CONCLUSION: Our meta-analysis shows cryobiopsies have significantly higher diagnostic yield and provide larger samples when compared to conventional forceps biopsies. The overall complication rate is high, therefore careful patient selection is of utmost importance.

Funnel Plot



Forest Plot



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