386. The different ways to establish a diagnosis: needle and forcep

P3590
Does pseudo-ROSE enhance the diagnostic utility for conventional TBNA?
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Background: Conventional transbronchial needle aspiration (TBNA) is a useful mediastinal diagnostic and staging technique. It is more accessible and cheaper than endobronchial ultrasound. Some centres use ROSE (rapid on-site evaluation for cytology with a cytopathologist) to improve results but limited by cost and resources. There are less published studies on pseudo-ROSE (a cytotechnician assesses sample adequacy alone).

Hypothesis: Pseudo-ROSE improves diagnostic utility of TBNA.

Methods: 22 consecutive patients underwent pseudo-ROSE-TBNA for investigation of suspected lung cancer (with N2 or N3 disease on CT) in a UK teaching hospital by previously described methods. Diagnostic utility to detect mediastinal metastases was calculated via contingency table analysis (GraphPad Prism 5).

Results: Pseudo-ROSE-TBNA resulted in 13 true positive cases (59% of cohort) with 78% negative predictive value, 68% cancer prevalence and 91% accuracy. Pseudo-ROSE-TBNA detected granulomatous disease due to sarcoidosis in 3 of the 7 true negative cases.

Conclusion: Pseudo-ROSE improves the diagnostic utility of conventional TBNA for lymph node metastases in high prevalence cohorts with malignancy. In the absence of endobronchial ultrasound or conventional ROSE, pseudo-ROSE should be used as an effective and inexpensive adjunct to conventional TBNA.

References:

P3591
Transbronchial node aspiration for intrathoracic lymphadenopathy
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Aim: The aim of the study is to evaluate the diagnostic value and the complication rate of various minimally invasive diagnostic techniques by patients with mediastinal lesions (ML).

Materials and methods: In a prospective study (from 2001 to 2009) we observed 421 patients (pts) (227 males and 194 females) age ≤45.7±16.7 yrs.) with ML (≥56 mm ± SD 20mm). By 275 pts US guided true-cut needle biopsy (US-TCNB) were performed. By 18 pts we did CT guided TCNB. VATS (n=124) mediastinoscopy (n=18), anterior mediastinotomy (n=16) and thoracotomy (n=29) were performed by 187 pts: 17 pts with uninformative TCNB results (14 US-TCNB and 3 CT-TCNB) with benign lesions proved by TCNB and 133 pts with ML inaccessible for image guided TCNB.

Results: US-TCNB gave an adequate material to the morphological diagnosis in 261 (94.9%) of patients with ML. Sensitivity (Sn) 96% and NPV 80%. The complication rate was 0.8%. CT-TCNB yielded positive diagnosis in 88.9% of cases, Sn 88% and NPV 33%. The complications rate was 22%. VATS gave a morphological diagnosis in 121 pts (97.6%), Sn 97% and NPV 84%. The complication rate of VATS was 9.7%. The accuracy of the mediastinoscopy was 87.5%, Sn 86% and NPV 50%. The accuracy of the anterior mediastinotomy Sn 88.9%, Se 87.5% and NPV 50%. The complication rate of these procedures was 5%.

Conclusion: US – TCNB appears to be affective and a safe method in patients with US accessible ML. According to our results US- or CT-guided TCNB should be the first step in tissue diagnosis of mediastinal masses. Mediastinal lesions that are inaccessible by these methods can be diagnosed by mediastinoscopy, anterior mediastinotomy and VATS.

P3592
Minimally invasive diagnostic techniques for mediastinal lesions
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Aim: To describe the interobserver variability in the assumed optimal positions for transbronchial needle aspiration (TBNA) from lymph node station 4, 7, 10 and 11.

Methods: Four physicians with large experience in TBNA were shown six fiberoptic bronchoscopy pictures and asked to describe the optimal positions for TBNA. The variability in expert opinion for these positions is unknown.

Various guidelines have described the optimal positions for transbronchial sampling from lymph node stations. The variability in expert opinion on the diagnostic yield of transbronchial needle aspiration biopsy (TBNA) in patients with intrathoracic lymphadenopathy.

Background and objectives: Lymph node evaluation has been important for many years both regarding diagnosis and staging. This study aimed at evaluating the diagnostic yield of transbronchial needle aspiration biopsy (TBNA) in patients with intrathoracic lymphadenopathy.

Methods: Our understudy population included all patients suffering from undiagnosed intrathoracic lymphadenopathies (LAP) with no accompanying pulmonary lesions on chest CT scan who had referred to bronchoscopy unit of Masih Daneshvari Hospital. After determining the anatomic location of LAP patients underwent fiberoptic bronchoscopy (FOB) and TBNA using 19-gauge eXcelon aspiration needle. Four samples were taken from each patient from the same LAP location.

Results: In this study 39 patients were evaluated. The most common anatomic location of LAP was the paratracheal area seen in 14 patients (45.2%), next was subcarinal area and also hilar area with 12 cases (38.5%) for each of them. Five patients (15.6%) had LAP in other anatomical locations. Evaluation of the aspirates obtained by TBNA showed that the sample was adequate and diagnostic in 21 patients (55.26%), adequate but non-diagnostic in 9 patients (23.68%) and inadequate in 8 cases (21.06%). Definitive diagnosis was made in 22 patients among which the most common diagnosis was atypical and malignant lesions in 11 cases (56%) followed by sarcoidosis in 8 (36.36%), tuberculosis (TB) in 2 (9.09%) and other diagnoses in 1 (4.55%) case.

Conclusion: Based on our study results, TBNA was diagnostic in more than half of the cases. Various studies have reported a wide range of results in this respect but all of them including ours emphasize on the acceptable diagnostic yield of this technique.
P3594
The diagnostic yield and safety of fine needle aspiration of intrathoracic hydatid cysts: A three year retrospective study

Background: We retrospectively included 11 cases (35±9.1 years, 7 females) who underwent US-assisted TTFNA for suspected thoracic hydatid cysts. We reviewed this diagnostic yield and negative safety. A serious complication (empyema) was observed in one case.

Conclusion: US-assisted FNA of thoracic hydatid cysts has a modest diagnostic yield. US-assisted FNA should be reserved for cases with indistinct imaging and/or a negative serology, given the risk of complications.

P3595
EBUS-TBNA for diagnosis of granulomatous mediastinal lymphadenopathy

Introduction: We retrospectively reviewed all patients who underwent EBUS-TBNA between 2008 and 2011.

Methods: We retrospectively included 33/371(9%) patients who underwent EBUS-TFNA over a three-year period and who were eventually confirmed to have histological proof (surgical resection) of hydatid cyst. Complications were reviewed, and the diagnostic yield of US-assisted TTFNA was compared with serology (using histology as the gold standard).

Results: Cytology was diagnostic in 5/1/1 of cases (45%), compared to serology that was diagnostic in 68% cases (p = 0.352). Cytology was diagnostic in one case with negative serology. A serious complication (empyema) was observed in one case.

Conclusion: US-assisted FNA of thoracic hydatid cysts should be reserved for cases with indistinct imaging and/or a negative serology, given the risk of complications.

P3596
EBUS-TBNA in a tertiary care center: Real life experience and quality assessment

Introduction: Endobronchial ultrasound-guided transbronchial needle aspiration (EBUS-TBNA) has become the standard minimally invasive modality for sampling mediastinal lymph nodes. In this study, we evaluate our performance with the technique and propose a methodology that can be used in other centers.

Methods: We included all EBUS-TBNA procedures performed in 2011 in our service. We proceeded to a thorough analysis of each case from a pragmatic perspective.

Results: Fourteen patients were included, and EBUS-TBNA diagnosed lung cancer in 12 cases (11 NSCLC, 2 SCLC) (yield=100%). No complications occurred. The typing of (N)SCLC was allowed by cytological specimens in 9 cases (65%), by cell blocks in 3 cases (21%), whereas NSCLC could not be subtype in 2 cases (14%).

Conclusion: EBUS-guided FNA might represent the first diagnostic step in patients with intrapulmonary tumours located near or adjacent to the esophagus.
P3602 Additional benefit of cytotechnique in transbronchial biopsies for histological diagnosis in interstitial lung disease (ILD)

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Background: Due to the small size of specimen from transbronchial forceps biopsy, the histological diagnosis of interstitial lung disease is often difficult. In comparison transbronchial cytopathologies were shown to be bigger and to contain more often and larger amount of alveolar tissue.

Methods: Since 2009, all histological results of patients suspicious of ILD (clinical signs, pulmonary function, CT-scan criteria) who underwent bronchoscopy with transbronchial forceps- and cryobiopsy were analysed concerning the impact of the additional use of cytotechnique.

Results: We evaluated data of 34 patients (age 60.0±13.2 years) who underwent forceps- and cryobiopsy. For 10 patients (29.4%) neither forceps- nor cryobiopsy assured a histological diagnosis. In 11 cases (32.4%) both methods ensured a diagnosis. In 12 cases (35.3%) a histological classification was found only in the cryobiopsy, in 1 case (2.9%) only in the forceps biopsy.

Conclusion: By additional use of the cryobronchoscope in transbronchial biopsy, in this prospective case series up to today we were able to increase the amount of ensured histological diagnoses in ILD from 12/34 = 35.3% without cryobiopsy to 23/34 = 67.6% with cryobiopsy. This shows the high potential of cytotechnique as a tool in transbronchial biopsy in the diagnosis of ILD.

P3603 In vivo probe-based confocal laser endomicroscopy in chronic diffuse parenchymal lung disease

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Diagnosis of diffuse parenchymal lung diseases (DPLDs) is challenging and requires a multidisciplinary approach. Probe-based confocal laser endomicroscopy (pCLE) enables microimaging of the distal lung in vivo.

Objective: To describe pCLE features in DPLD patients.

Methods: pCLE was performed in 50 DPLD patients with at least 21 healthy volunteers (HV). Results were compared between HV and each of the pathologic groups, blindly to the diagnosis (Fisher’s exact test and Bonferroni correction). The association between the pCLE and CTScan features was assessed using multivariate analysis.

Results: 9 of the 17 pCLE descriptors were significantly more frequent in DPLD patients than in HV (131 areas). pCLE different in sarcoidosis (16 patients, 105 areas) by the presence of fluorescent bronchial cells, convoluted alveolar elastic fibers, alveolar nodules; in idiopathic pulmonary fibrosis (n=8, 36 areas) by interalveolar septal fibers and a rigid acinar elastic network; hypersensitivity pneumo-nia (n=6, 34 areas) by bronchial and alveolar cells; systemic interstitial pneumonia (n=6, 38 areas) by fluorescent bronchial cells, septal fibers and a rigid network; asbestosis (n=10, 72 areas) by alveolar mouths <200 µm, axial fibers >20µm, septal fibers, and a rigid and dense acinar elastic network; systemic sclerosis (n=6, 38 areas) by fluorescent alveolar cells, septal fibers and a rigid network. HRTC homozygous was associated to pCLE large alveolar mouths and a disorganized elastic network; both interlobular septa thickening and cysts were associated to the presence of septal fibers using pCLE.

Conclusion: pCLE could be added to the multidisciplinary discussion for the etiologic diagnosis of DPLD.

P3604 Retrospective study of transbronchial cryobiopsy (TCB) data in a case series of 20 patients with interstitial lung disease

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Introduction: So far surgical lung biopsies are the state-of-the-art technique to obtain histological data in patients with interstitial lung disease. We analyzed whether histological specimens obtained by TCB could contribute to establishing the definite diagnosis and whether the procedure is a safe one.

Methods: A series of 20 patients showing interstitial patterns in high-resolution computerized tomography underwent the procedure of TCB. In all patients, 2-3 biopsies were sampled from different isipleral segments.

Results: In 16/20 (80%) cases the pathological findings correlated well with the suspected diagnosis according to clinical, serological, radiological and bronchoalveolar lavage fluid evaluation findings. In 4/20 (20%) patients the diagnosis was not possible due to small biopsy size.

P3600 Intratumoral injection of tranexamic acid for control of biopsy-induced bleeding: Two years experience of a new bronchoscopic technique

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Background: Significant bleeding may occur following forceps biopsy or brushing of necrotic or hypervascular tumors in the airways. In some cases, such methods as prebiopsy injection for endobronchial necrotic or hypervascular tumors.

Methods: IIT was performed in those patients who had endoscopically visible tumoral lesions with continuous active bleeding following the first attempt of bronchoscopic sampling (forceps biopsy or bronchial needle aspiration).

Results: In 36 cases, IIT was used in a dose of 200-500 mg was injected through a 22-gauge needle into the lesion. For 2.5–5 minutes of waiting time, multiple forceps biopsy specimens were obtained from the lesion.

Conclusion: Bronchoscopic IIT is a useful and a safe technique for controlling significant bleeding due to forceps biopsy procedure, and might be suggested as a pre biopsy injection for endobronchial necrotic or hypervascular tumors.

P3601 Comparison of conventional forceps biopsy and cryobiopsy in endobronchial lesions

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Background and objectives: Forceps biopsy has long been the standard method of extracting samples from endobronchial lesions, however diagnostic yield of the specimen obtained by this method is not very desirable due to small size and artifact. Therefore, in order to increase the diagnostic yield in endobronchial lesions as well as diminish the complications we evaluated a new technique called cryobiopsy (using flexible cryoprobes to obtain frozen samples).

Methods: All patients with endobronchial lesion except for vascular lesions referred to Intervention ward of Masih Daneshvari Hospital were included in this study. For each patient, 6 specimens were obtained by conventional forceps, and 2 were extracted through cryobiopsy. The first one of them 3 seconds after freezing (CB3) and the other one 5 seconds after freezing (CB5). All biopsy samples were blindly to the diagnosis (Fisher’s exact test and Bonferroni correction). The association between the CB3 and CB5 features was assessed using multivariate analysis.

Results: Of all 30 patients, diagnosis was achieved for 27 patients (90%). Diagnostic rate of forceps biopsies was 67%, while this rate was 86% and 79% for CB3 and CB5 respectively. Although there was no significant difference between these three rates, total diagnostic yield of both CB3 and CB5 together was significantly higher than conventional biopsy (P-value=0.016). Severe bleeding requiring APC to be controlled occurred in 2 cases during CB3, while no hemoptysis happened during forceps biopsy.

Conclusion: According to our results, obtaining at least two samples from endobronchial lesions by cryobiopsy technique can lead to a higher rate of diagnosis compared with 6 samples by forceps biopsy. However, duration of freezing 3 or 5 seconds does not have a significant impact on the quality of specimen.
remained doubtful after TCB so that these patients were subsequently forwarded to video-assisted thoracoscopic biopsy. In 3/4 (75%) of these cases the surgical lung biopsy and the TCB specimen showed the same histological pattern, therefore leading to a definite diagnosis. Regarding the safety of the studied procedure, in 4/20 (20%) patients an iatrogenic pneumothorax occurred after TCB, endobronchial bleeding was severe in 1/20 (5%) cases and moderate in 11/20 (55%) cases. Bleeding in all patients could be stopped by endobronchial application of adrenaline.

Conclusions: TCB seems to be a suitable minimal-invasive tool in the diagnostic work-up of ILD-patients with a moderate peri-procedural risk.

P3607 Diagnostic approach of lung malignancies through CT-guided percutaneous needle cytology and biopsy

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Background: The use of CT-guided percutaneous needle procedures is well established in the diagnostic approach of suspected lung malignancy.

Aim: To evaluate the efficacy and the complication rate of these procedures.

Methods: A retrospective study of patients submitted to transthoracic needle biopsy/cure biopsy for suspected lung malignancy in a 2 year period.

Results: We assessed 129 episodes concerning 117 patients (213 punctures), 76% male, mean age 65.4 years. Most common localizations were RUL 35.7% and RIL 22.5%. 55% had other lesions.

Cytology was performed in all patients; core needle biopsy was needed in 23.3. 107 patients have a definite diagnosis (malignancy in 83.2%) of which 63.6% were done as an extemporaneous exam. The most frequent diagnosis was lung adenocarcinoma (36.4%) and NSCLC (12.1%).

We assessed 15 episodes of pneumothorax (7% of punctures), 3 needing aspiration and 1 tube drainage. 3 small hemorrhagic episodes and 1 hemoptysis. The distance to the chest wall significantly affected the presence of pneumothorax (3.8 vs 17.6mm; p<0.01).

NODULES that were diagnosed as cancer were statistically bigger than non malignant lesions (51.7 vs 33.8 mm) (p<0.05). Biggest nodules had a higher need of core needle biopsy in order to obtain a diagnosis (p=0.01).

The presence of cavitation or ground glass opacification did not interfere with diagnostic accuracy.

Conclusions: CT-guided percutaneous lung punctures are important tools in the diagnostic approach of lung malignancies with a low rate of complications. The possibility of having a pathologist to provide an extemporaneous exam speeds the diagnosis and reduces the need for further invasive diagnosis and iatrogenic damage.

P3608 Role of bronchial artery embolisation in chronic recurrent haemoptysis

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Introduction: Bronchial artery embolisation (BAE) involves selective bronchial artery angiography, followed by embolisation of identified abnormal vessels. It is useful in massive haemoptysis. But there are only a few literatures on its use in chronic recurrent haemoptysis.

Aim and objectives: To assess the efficacy and safety of BAE in the management of chronic recurrent haemoptysis.

Methods: This is a retrospective study of all patients with chronic recurrent haemoptysis who underwent BAE between January 2007 and January 2012 in a tertiary care hospital. The decision to offer BAE and its timing was jointly made after assessment by respiratory physician and interventional radiologist.

Results: 63 patients, (39 males and 24 females), underwent BAE for chronic recurrent haemoptysis during the period of study. Mean age of patients was 32.5 years (range: 18-81 years). Maximum number of patients recruited in this study had active pulmonary tuberculosis (29 cases – 46.0%). Amongst them, five patients had MDR, and one case had XDR-TB. 18 (28.5%) patients had bronchiectasis. Malignancy was the cause of haemoptysis in 7 (11.1%) cases. Mycetoma was present in 5 (7.9%) cases. One patient (1.5%) had lung abscess. BAE was successful in 58 (92.1%) cases. Bleeding stopped in 3 more patients following repeat procedure within a period of 48 hours. There was no major complication. Three patients had a short period of self limiting febrile illness. Three other patients developed local haematoma which improved following compression of the local part.

Conclusions: BAE is an effective means of controlling chronic recurrent haemoptysis. It is also a safe procedure.

P3609 Bronchial artery embolization in the management of hemoptysis:

A multicenter study in 218 cases

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Aim: To evaluate the sort and long term results in control of massive and chronic recurrent hemoptysis in 218 patients with special microspheres (embospheres).

Material and methods: Fifty six patients with massive and 162 with chronic recurrent hemoptysis were included. Microspheres were used to achieve distal embolization with precisely calibrated microspheres of hydrogel core and polyzene
REULTS: The most common cause of hemoptysis was bronchectasis in 126 (58%) of patients, of whom 27 (12.4%) had cystic fibrosis, followed by lung cancer in 27 (12.4%), tuberculous cavities in 14 (6.4%), mycetomas in 8 (3.6%), fibrothorax in 6 (2.8%), bullectomy adhesion in 5 (2.3%), Takayasu arteritis in 1 (0.5%), arteriovenous malformation in 1 (0.5%) and cryptogenic in 19 (8.7%) cases. Non bronchial collaterals were embolized in 36 (16.6%). Successful control of the hemoptysis was seen in 89% after the 1st session and in 94% after the 2d. Mean follow up period was 3.7 years. In cystic fibrosis bronchiecasis the overall recurrence was 36%, with a mean time to recure 26.2 months, whereas without cystic fibrosis recurrence was 11%, in mean time of 3.3 years. Major hemoptysis free rates were 92.2%, 83% and 69.6% at 1, 3 and 5 years respectively. Fever was seen in 3.6% and transient chest pain in 12.4% of cases.

Conclusion: The managment of massive and chronic reccurent hemoptysis is safe and successful using precisely calibrated embospheres.