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49. Are needles really enough?

P226**Late-breaking abstract: Do trainee respiratory doctors under supervision achieve acceptable results with EBUS-TBNA?**

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Background: Endo-bronchial ultrasound guided transbronchial needle aspiration (EBUS-TBNA) is a useful tool in the staging and diagnosis of thoracic malignancy. There is limited evidence on the safety and efficacy of instructing respiratory trainee doctors in EBUS-TBNA.

Aims: To compare the results obtained by trainee respiratory doctors performing EBUS-TBNA as principal operator supervised by consultant respiratory physicians, to the results obtained from consultants as principal operators. We aim to discover if trainees can perform this procedure with acceptable accuracy and safety.

Methods: All EBUS reports were retrospectively collected between February 2009 and July 2010. The reports were analysed to determine the sensitivity, specificity and diagnostic accuracy for the EBUS operator, and rates compared for trainees, consultants and published series. Complication rates were also compared.

Results: Overall sensitivity and diagnostic accuracy were similar for trainees as primary operator compared to consultants. There were no significant adverse events in either group (table1).

Table 1. Sensitivity, specificity and diagnostic accuracy of EBUS-TBNA

Principal operator	Total no.	Positive	Negative	False +ve/ false -ve	Sensitivity %	Specificity %	Diagnostic accuracy %
Trainee	26	21	2	0 / 3	87.5	100	88.5
Consultant	77	53	18	0 / 6	89.8	100	92.2

Conclusion: Provided there is close supervision by a consultant, trainee respiratory doctors performing EBUS-TBNA as primary operators appear to have similar safety and efficacy results.

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Late-breaking abstract: Radial probe endobronchial ultrasound scanning assessing invasion depth of central lesions in the tracheobronchial wall

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Background: Patients with central tracheobronchial benign or malignant lesions who have not received surgical treatment can be treated by interventional techniques. The accuracy of the invasion depth of central lesion in tracheobronchial wall plays an important role in making interventional treatment plan. This study used radial probe endobronchial ultrasound (EBUS) scanning to evaluate the accuracy of the invasion depth of central tracheobronchial lesions, and the influence of EBUS scanning in treatment plan making and guidance.

Methods: A radial ultrasonic probe with a balloon sheath was introduced through the channel of a flexible bronchoscope. The balloon at the tip of the probe was inflated with distilled water until coupling with the airway wall under endoscopic control. The circular image of EBUS, which revealed the layered structure of the tracheobronchial wall, could be achieved.

Results: Total of 125 patients were enrolled in the study. 30 patients underwent surgical operation and pathologically proved the EBUS diagnosis accuracy of 90% (27/30), sensitivity and specificity were 88.89% (24/27) and 100 (3/3) respectively. In response to EBUS images, 40 approaches were altered or guided: lymph-node metastasis and compressive lesions was diagnosed by EBUS-guided transbronchial needle aspiration (n=8); Lesions ablation with laser or electricity were stopped when EBUS demonstrated close range with vessels or perforation possibility (n=13), stents size were changed (n=14), operation was canceled (n=3) and foreign body was removed (n=2).

Conclusions: EBUS can be a useful tool in assessing the central lesion invasion to the tracheobronchial wall.

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A comparison of the combined ultrasound of the mediastinum by use of a single EBUS scope versus two scopes EBUS and EUS for lung cancer staging – A prospective study

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Introduction: The aim of the prospective trial was to compare diagnostic yield of the combined ultrasound of the mediastinum for lung cancer (LC) staging by use of a single EBUS bronchoscope – (CUSb) and two scopes: EBUS and ultrasound gastroscopy (EUS) – (CUS).

Methods: In consecutive LC patients in stage IA-IIIb the CUS or CUSb were being performed under mild sedation. All patients with negative result of biopsy subsequently underwent lung resection with systematic lymph node dissection (SLND) of mediastinum as a confirmatory test.

Results: In 216 LC patients, 110 underwent CUS and 106 CUSb and 624 mediastinal nodes were biopsied. The CUS revealed metastatic nodal involvement in 55/110 patients (50%) and CUSb in 51/106 patients (48.1%). A prevalence in both groups was 60%. In 55 CUS negative and 55 CUSb negative patients the subsequent SLND revealed metastatic nodes in 5 patients (4.5%) and in 9 patients (8.5%), respectively. There was “minimal N2” in 11 of these 14 patients (78.6%). A diagnostic sensitivity, specificity, accuracy, PPV and NPV of CUS was 91.7%, 98%, 94.6%, 98.2% and 90.7% and of CUSb was 85%, 93.2%, 88.7%, 94.4%, 82.7%, respectively.

There was no significant difference in sensitivity and NPV of CUS versus CUSb (p = 0.215 and p = 0.187). A mean time of CUS (25±4.4 min) was significantly longer comparing with CUSb (14.9±2.3 min) (p < 0.001). No complications of both methods were observed.

Conclusions: The combined ultrasound of the mediastinum by use of a single EBUS scope is significantly less time-consuming and as equally effective and safe as by use of two scopes (EBUS and EUS) for lung cancer staging.

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A combined approach of endobronchial and endoscopic ultrasound-guided needle aspiration for TNM lung cancer staging – A three years experience

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Introduction: The aim of the trial was to assess the utility of the combined endobronchial (EBUS) and endoscopic (EUS) ultrasound-guided needle aspiration (CUS-NA) for TNM lung cancer (LC) staging.

Methods: The CUS-NA were being performed under mild sedation in consecutive LC patients (pts) with enlarged or normal mediastinal nodes on CT scans. All non-small cell LC pts with negative CUS-NA underwent subsequently the transcervical extended bilateral mediastinal lymphadenectomy (TEMLA) as a confirmatory test and if negative underwent systematic lymph node dissection (SLND) by thoracotomy.

Results: From Jan. 2008 to Dec. 2010 in 588 LC pts who underwent CUS-NA there were 1529 mediastinal nodes biopsied (EBUS-TBNA – 805, EUS-FNA – 724). The CUS-NA revealed metastases in 273/588 pts (46.4%) and a prevalence was 52.3%. In 272 CUS-NA negative pts and in 5 pts suspected for metastases, who underwent subsequent TEMLA and SLND metastatic nodes were diagnosed in 35 pts (5.9%), in whom double or multilevel N2 disease was found in 14 of them (2.4%). A diagnostic sensitivity, specificity, accuracy, PPV and NPV of CUS-NA were 88.6%, 98.2%, 92.7%, 98.2% and 88.6%, respectively. In pts with nodes highly suspected for metastases by echosonography positive results were obtained by both methods in 96.7% and in all small cell LC pts. The results of EUS-FNA of left suprarenals (M1-staging) impacted on surgery in 24 pts (4.1%). The CUS-NA influenced on T-staging in 38 pts (6.5%).

No severe complications of CUS-NA were observed.

Conclusions: The CUS-NA is especially effective for mediastinal N staging but it also plays an additional role for TM staging in LC patients.

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Complication rate of EUS-FNA and EBUS-TBNA in mediastinal nodal aspiration: A meta-analysis

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Introduction: Esophageal and endobronchial ultrasound-guided fine needle aspiration (EUS-FNA/EBUS-TBNA) are rapidly spreading minimally-invasive techniques for the diagnosis and staging of lung cancer and sarcoidosis. Generally, endosonographic procedures are considered to be safe although several severe complications have been reported in case reports. We performed a meta-analysis to assess the morbidity of EUS and EBUS for mediastinal nodal analysis.

Methods: A Pubmed and Embase search was performed including all original studies (1999 - October 2010) using EUS and EBUS for mediastinal nodal analysis. Case-reports and studies not mentioning procedure morbidity were excluded from analysis.

Results: 353 studies (118 EUS; 74 EBUS; 10 both) were reviewed of which 151 were excluded from analysis. The other 202 studies consisted of 17200 patients (EUS: 7504 patients, EBUS: 8742, both 954). In those patients, 72 complications (0.42%) were reported of which 36 severe (0.21%) (pneumothorax, n=9; thoracic bleeding, n=5; esophageal rupture, n=5; mediastinitis, n=4) and 36 minor (0.21%) (minor pain, n=10; sore throat, n=9; hemoptysis, n=4; fever, n=2). Of the severe complications 20 occurred at EUS (0.27%) and 12 at EBUS (0.14%). No procedure-related deaths were reported.

Conclusions: The morbidity of mediastinal nodal endosonography is low and mortality has not been reported. The complication rate might well be an underestimated due to underreporting, publication and performer bias. Further prospective evaluation is warranted to determine the actual complication rate of endosonography and identify possible subsets of patients that are at risk for complications.

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Is there a role of EBUS in the decision-making of endoscopic treatment for carcinoid tumors?

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Determination of the depth of invasion of carcinoid tumors is the most important finding for choosing the appropriate mode of therapy, whether it be local laser destruction or surgical resection, yet computerised tomography and bronchoscopy have not been very adequate for the decision. We assessed the usefulness of endobronchial ultrasonography (EBUS) in the determination of the depth of tumor invasion of the tracheobronchial wall in carcinoid tumors.

From 2005 to 2010, 18 patients with carcinoid tumors were evaluated with high resolution computerised tomography (HRCT), bronchoscopy and EBUS prior to surgery.

EBUS by a 20MHz-radial probe with balloon was performed in all cases to determine the size of the tumor, the depth of invasion, and to evaluate the relationship

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of the tumor with the adjacent vessels and lymph nodes. All patients were operated on in days after bronchoscopy. Histopathological findings were compared with the HRCT, bronchoscopy and EBUS findings. The tumor was visualized with EBUS in all cases. The exact size of the tumor could be measured in 15 cases, while in 3 cases it was out of range of EBUS. When compared to the pathological size EBUS measurements were more accurate than HRCT measurements. In 3 cases with no lesion but just atelectasis in HRCT, EBUS revealed only superficial infiltration of the bronchial wall with the tumor and the cartilage was intact, indicating a tumor potentially suitable for bronchoscopic resection. In all patients surgery confirmed EBUS findings. Our study showed that EBUS evaluation in carcinoid tumors adds to bronchoscopic and radiologic findings and can be useful in decision making for local laser destruction instead of surgical resection.

P232**Endosonography for the diagnosis of lymphoma**

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Introduction: Transesophageal and transbronchial ultrasound-guided fine needle aspiration (EUS-FNA/EBUS-TBNA) are well-established procedures for mediastinal nodal staging of patients with non-small cell lung cancer (NSCLC). Malignant lymphoma often presents with intrathoracic lymph node enlargement. Data on the role of EUS-FNA and EBUS-TBNA for the diagnosis of mediastinal lymphoma are limited.

Objective: To assess the role of endosonography (EUS-FNA/EBUS-TBNA) for diagnosing mediastinal lymphoma.

Methods: We retrospectively analyzed 30 patients with suspected (recurrent) lymphoma in which mediastinal lymph nodes were investigated by endosonography using 22-Gauche needles. All patients had a final diagnosis of lymphoma (Hodgkin/Non-Hodgkin lymphoma), based on either surgical procedures, endosonography or clinical follow-up. Sensitivity, specificity and negative predictive value for EUS and EBUS test results were investigated.

Results: A total of 32 procedures were performed (2 patients underwent both EUS and EBUS). In 13 procedures, aspirates obtained by endosonography demonstrated lymphoma cells. Of these, 12 were true positive and 1 was false positive. Of the other 19 procedures, endosonography findings were true negative in 5 and false negative in 14. Sensitivity, specificity and negative predictive value were 46%, 88% and 26% respectively. No complications occurred.

Conclusion: EUS-FNA and EBUS-TBNA have moderate sensitivity in diagnosing mediastinal malignant lymphoma. Therefore, negative test results should be followed by surgical staging procedures. Future studies should concentrate on more detailed analysis of cell specific markers on cytology samples (eg flow cytometry) and the use of histology needles.

P233**The impact of rapid on site evaluation of cytological specimens on a new endobronchial ultrasound (EBUS) service**

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Background: Mediastinal lymph node sampling using endobronchial ultrasound (EBUS) transbronchial needle aspiration (TBNA) has a proven role in the staging and diagnosis of lung cancer. It may also have a role in the diagnosis of benign diseases (e.g sarcoidosis). For many experienced bronchoscopists EBUS TBNA is a new technique with a steep learning curve. We introduced an EBUS service at our institution in January 2010. Whenever possible we undertook the procedure with a consultant cytopathologist which allowed rapid on site evaluation (ROSE) of specimens and real time feedback on specimen quality.

Aims: To assess the impact of ROSE in a newly established EBUS service.

Methods: We reviewed the impact of ROSE on the procedure duration, amount of lidocaine local anaesthetic (LLA), amount of intravenous sedation (midazolam and alfentanil) and the diagnostic procedure rate in our first 30 EBUS cases.

Results: ROSE of cytological specimens was available for 22 (73.3%) of our first 30 cases. The availability of ROSE resulted in a significantly shorter procedure time (39.7 (SD ± 3.8) minutes Vs 57.3 (± 4.4) minutes, p = 0.01), and significantly lower amounts of sedation with midazolam (5.8 (± 2.2) mg Vs 9.0 (± 2.4) mg, p=0.002) and alfentanil (522.7 (± 187.5) µg Vs 781.3 (± 311.6) µg, p=0.01). There was no difference in the amount of LLA or in the percentage of cases in which diagnostic material was obtained (82.8% with ROSE and 87.5% without ROSE).

Conclusions: ROSE of TBNA samples results in a significant reduction in length of procedure and the amount of sedation required for EBUS. The provision of ROSE is an important consideration in the development of an EBUS service.

P234**Outcomes of non-diagnostic endobronchial ultrasound guided transbronchial needle aspiration**

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Introduction: Endobronchial ultrasound-guided transbronchial needle aspiration (EBUS-TBNA) is a procedure, which is increasingly available for the evaluation of mediastinal lymph nodes and masses. Although it has been proved to be a helpful diagnostic procedure for mediastinal node metastasis, the value of negative EBUS is not clear.

Methods: Retrospective review of the EBUS procedures.

Results: A total of 106 EBUS procedures were attempted over 18 months, 105 procedures were completed, 1 patient did not co-operate and the procedure was abandoned. All the procedures were done with local anaesthesia and conscious sedation. In 4, EBUS did not show any significantly enlarged lymph nodes, so no samples were taken. The mean age of the patients was 65.6 yrs (range 22-87 years), with 68 males (64.2%). In 97 of 101 lesions sampled (97%), EBUS-TBNA yielded representative samples. In 51 cases the EBUS sample yielded diagnosis and were considered true positive. In the rest 50 cases the samples were non-diagnostic, out of which 19 were true negative based on either mediastinoscopy or follow up. Four were false negative. The remaining 27 need follow up to know whether they are true negative or otherwise. In the 74 cases the overall sensitivity, specificity, positive predictive value and negative predictive value were 92.7%, 100%, 100% and 82.6% respectively.

Conclusions: EBUS-TBNA yielded diagnosis in half of the cases. In majority of patients with non-diagnostic EBUS, based on multi-disciplinary team review it was decided to follow up rather than directly proceed with mediastinoscopy or surgery because of either high risk for surgery or low clinical probability of malignancy.

P235**Endobronchial ultrasound-guided transbronchial needle aspiration in the diagnosis and staging of lung cancer**

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Objective: The aim of the study was to assess the diagnostic yield of the real-time endobronchial ultrasound-guided transbronchial needle aspiration (EBUS-TBNA) in the diagnosis and staging of lung cancer.

Patients and methods: 134 patients with suspected lung cancer with mediastinal and/or hilar lymph nodes underwent EBUS-TBNA using the convex probe EBUS. All patients with negative EBUS-TBNA subsequently underwent the surgery or mediastinoscopy as a confirmatory test.

Results: One hundred thirty four patients underwent CP-EBUS-TBNA between December 2007 to December 2009. There were 233 mediastinal & hilar lymph nodes biopsied (stations: 2R-3,4R-7,3, 4L-21, 7-65, 10R-23, 10L-5, 11R-26, 11L-17). EBUS-TBNA revealed metastatic lymph node involvement in 54 of 134 patients (40.3%) and in 56 of 233 biopsies (24%). In 80 patients with negative or uncertain EBUS-TBNA who underwent subsequent surgery, mediastinoscopy, metastatic nodes were diagnosed in four patients (3%) in stations: (4R-2,4L-1 & 7-1). The false-negative results of biopsies were found only in small nodes <1cm. A diagnostic sensitivity, specificity, positive predictive value (PPV), negative predictive value (NPV), and diagnostic accuracy of EBUS-TBNA was 93.1%, 100%, 100%, 94.5%, and 96.9%, respectively. There was no significant relation between lymph node location and EBUS-TBNA cytology results. No complications of EBUS-TBNA were observed.

Conclusion: EBUS-TBNA is an effective and safe technique for diagnosis & mediastinal staging in patients with lung cancer. In patients with negative results of EBUS-TBNA, surgical exploration of the mediastinum should be performed.

P236**Endobronchial ultrasound for the diagnosis of granulomatous disease**

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The aim of this study was to evaluate the yield of EBUS-TBNA in the diagnosis of granulomatous lymph nodes.

Patients and methods: All patients, from October 2005 to October 2010 in Hospital U Germans Trias I Pujol (Badalona) and Hospital U La Fe (Valencia), with hilar or mediastinal granulomatous lymph nodes were collected. Diagnosis of sarcoidosis was established based on clinical and radiological findings, supported by histologic evidence of noncaseating epithelioid-cell granulomas in the absence of necrosis or organism. Diagnosis of tuberculosis (TB) was made by the presence

of necrotizing granulomas with exclusion of other granulomatosis or cultivation of *Mycobacterium tuberculosis* (MTB).

Results: 34 patients were diagnosed: 15 sarcoidosis, 16 TB, 1 silicosis, 1 sarcoidosis-like, and 1 with HIV infection and reconstitution of immune response syndrome with granulomatous lymphadenitis. Sarcoidosis patients had a average age of 49 years, 9 males. 9 had suspect sarcoidosis and everyone had mediastinal and/or hilar lymphadenopathies and 5 showed lung nodules. 36 lymph node stations were explored (average 2.4) and was punctured station 7 (15 times) and 10 L (6). EBUS-TBNA was decisive in 10 cases. TB mean age was of 49 years, 12 males and 2 HIV. 8 had prior suspicion of TB, 6 with PPD skin test + and 6 showed also lung injuries. 44 lymph nodes stations were explored (average 2.8), the more punctured was stations 7 (14 times) and 4R (10). Necrosis was found in 9 cases and in 6 culture of MTB was positive and EBUS-TBNA was decisive in 9 cases. There were no complications of the technique.

Conclusion: EBUS-TBNA is a safe and cost effective diagnostic method that was decisive in involvement with granulomatous disease.

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EBUS-TBNA learning curve for mediastinal and hilar lymph node diagnosis
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Introduction: The learning curve required for the EBUS-TBNA diagnostic procedure in patients with mediastinal or hilar lymph nodes from different aetiologies is unclear. No evidence is available regarding the procedure's influence on other parameters, such as length of proceedings or the number of lymph node passes required for obtaining the diagnosis.

Methods: The learning curves of two experienced bronchoscopists who conducted exhaustive theoretical training on EBUS and 10 supervised procedures were prospectively analysed. The number of suitable samples and accuracy were assessed in six groups of 20 consecutive patients with >10 mm lymph nodes on chest CT or > 5 mm if positive increase in uptake on PET. The number, location, and size of punctured lymph nodes, the passes made in each node, and the length of the procedure were also recorded.

Results: Over 13 months, 215 lymph nodes in 120 patients were evaluated by EBUS-TBNA. The number of adequate samples and accuracy were 90.5% and 85.4% respectively (lymph nodes as the unit of analysis) and 89.2% and 84.9% respectively (patient as unit of analysis). A significant increase was observed, approaching 90% after the first 60 procedures. The mean number of passes in each lymph node was 2.1 (standard deviation 0.7), lymph nodes examined per patient 1.8 (0.8), and length of procedure 30 (8.5) minutes.

Conclusions: Experienced bronchoscopists need to perform more than 60 procedures to achieve acceptable diagnostic yield. Learning allows improvement in the quality of the samples obtained and the number of lymph nodes studied per patient.

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EGFR direct sequencing on TBNA samples

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Recent study have shown the superiority of treatment with gefitinib or erlotinib in lung tumors positive for EGFR mutation. In 75% of cases the diagnosis of lung cancer is performed on cytology specimens; there is the need to obtain a complete and reliable molecular diagnosis on cytologic specimens. TBNA allows the sampling of mediastinal lymph node for diagnosis and staging purposes.

The aim of this study is to demonstrate that direct sequencing of exons 19 and 21 of EGFR in lung tumors, carried out on the cytological samples obtained through TBNA, is as reliable as the same analysis carried out on a histological surgical sample obtained from the same subject.

We considered 50 patients with a histologic diagnosis of lung adenocarcinoma, whose cytological samples obtained by TBNA and histological samples obtained by surgical resection were available. A comparison of the sensitivity and reliability of the molecular biology analyses carried out on histological and cytological samples of the same patient will be carried out. The percentage of mutation of exons 19 and 21 of EGFR was 10%. The results of the analyses carried out on TBNA cytological samples matched those obtained from the histological samples. The feasibility of EGFR analysis on TBNA samples has already been demonstrated in previous studies, however these studies referred to the method of fluorescence in situ hybridization (FISH), or did not make any comparison between histological samples from the same patient; our work, on the other hand, shows that direct sequencing of exons 19 and 21 of EGFR gene can be performed also on TBNA cytological samples with the same reliability offered by the histological samples obtained from the same patient.

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EGFR mutation detected in cytological samples by lymph nodal TBNA: Our first year experience

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Introduction: Classical blind transbronchial needle aspiration (TBNA) is an endoscopic technique useful for diagnosis and staging of lung carcinoma (LC). Many bronchoscopist (Br) thinks that with ultrasound endoscopic technique, TBNA should rest in peace.

Aims and objectives: Evaluate if the TBNA material is good enough not only for diagnosis and staging of LC but also to decide for targeted therapy in case of adenocarcinoma (ADC) when used by non expert bronchoscopy team (NEBT).

Methods: We evaluate the yield and applicability of molecular testing for EGFR status (S) in TBNA cyto specimens during the first year practice for each one of two Br. We had retrospectively analyzed the results of 60 patients (pts) and 72 lymph nodal (LN) TBNA. We used ROSE (Rapid on site examination) to recognize lymphocytes (LFC) in the slide as a prove that the material was LN. We did at least 3 aspirations in LN >12 mm in long axis in LC setting. We considered a successful puncture one with LFC in cyto exam evaluated by pathologist. We found 4 ADC female cases with light or no smoking habit and we asked to our lab to evaluate the slides for EGFR S.

Results: We found No DNA to be amplified 1 case, 2 cases Wild type EGFR and 1 with M 19 exon.

Patients EGFR status in our series

Patient	Age (y)	EGFR status	Stage
C.F. n°1	76	Wild type	IV
D.S. n°2	78	Wild type	IV
C.M. n°3	67	Exon 19	III B
C.M. n°4	65	Unknown	IV

All cases are female with adenocarcinoma.

Conclusion: We think that TBNA is not a dead technique and also material collected by NEBT is useful to detect S EGFR. This support the concept that little but good material is enough if one work jointly with good cytopathologists and a modern equipped lab.

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A prospective study of TBNA of 63 patients from a tertiary care hospital in India

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Introduction: Role of TBNA (Transbronchial Needle Aspiration) through bronchoscopy in diagnosing mediastinal and hilar lesions is well established. Unfortunately, it is underutilized due to poor training and wide variation (20 to 89%) in yield. The yield is dependent on operator's expertise besides size and location of the lesion. We share our experience of a prospective study of 63 cases performed at a tertiary care hospital by single operator over 6 months.

Method: Bronchoscopy was performed in 63 consecutive patients with mediastinal and hilar lesions. Besides TBNA, bronchial biopsy, BAL and trans-bronchial lung biopsy were also performed when needed.

Results: Most frequent presenting complaint was fever 63% (n=38) with or without cough. Lymph nodes greater than 0.5cm in size were punctured. Subcarinal node (n=52) and right paratracheal node (n=42) were most commonly punctured. TBNA was performed with 21 G needle and piggyback method was found to be most effective method for puncture. A positive result was obtained in 84% of patients (n=53). Tuberculosis was diagnosed in 55% (n=29) of the positive cases, malignancy in 23% (n=12) and sarcoidosis in 21% (n=11). Fungal infection and carcinoma were also seen.

Conclusion: In expert hands, yield of TBNA can be quite high (84% in this study) and even small nodes can be targeted. In India, the cost of EBUS procedure is \$600 vs. conventional TBNA, which costs \$200 and is available in very few centers. Authors recommend, especially for developing countries, that before proclaiming EBUS as the new gold standard, proper method of conventional TBNA should be learned, which is more cost effective. Patient should be referred for EBUS only when TBNA is inconclusive.

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Role of endobronchial ultrasound-guided transbronchial needle aspiration in the diagnosis of bronchogenic carcinoma

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Endobronchial ultrasound guided transbronchial needle aspiration (EBUS-TBNA) is technique used for the diagnosis of peribronchial/peritracheal mass lesion and the staging of bronchogenic carcinoma.

The aim of this study is to determine the role of EBUS-TBNA in patients

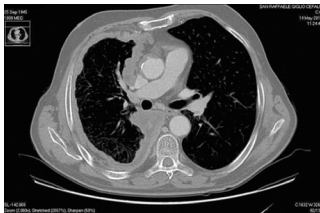
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with peribronchial/peritracheal mass without endobronchial lesion suspected for bronchogenic carcinoma and patients with a diameter of mediastinal/hilar lymphadenopathy bigger than 1 cm in CT, prediagnosed as bronchogenic carcinoma. Between April 2010 and January 2011, 56 patients with mean age 60,8 years (47 M/9 F) were admitted to study. EBUS-TBNA was performed to only lymph node in 47 patients, both lymph node and mass in 5 patients and only mass 4 patients. The definite diagnosis was done in twenty five patients without endobronchial lesion. Ninety six out of ninety seven lymph node aspiration was positive (70 mediastinal/27 hilar). One patient diagnosed with mediastinoscopy. (Sensitivity 98,9%, specificity 100%, PPV 100%, NPV 67% and accuracy 98,9%) Twelve N3 lymph node were positive for malignancy. Seven out of nine mass biopsies were diagnosed as malignant. Two patients were diagnosed with other diagnostic procedures. No complication was observed during EBUS-TBNA. In conclusion, EBUS-TBNA seemed a safe and effective technique in making bronchogenic carcinoma diagnosis for mediastinal/hilar lymph nodes and intrapulmonary masses.

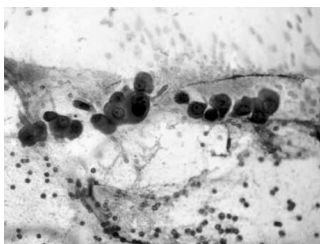
P242**TBNA (submucosal) for diagnosis of mesothelioma (and ROSE for a faster one)**

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We describe a malignant pleural mesothelioma (MPM) case diagnosis obtained with submucosal (SM) TBNA (transbronchial needle aspiration) and ROSE (Rapid on site examination). A 64 year old man was admitted to our unit because of pneumonia and scanty pleural effusion (PE) on chest radiography (see figure, Thorax CT scan).



Thick fissures in the mediastinal pleura (MP) nodules and enhancement maximum diameter 2.0 cm. Minimal PE, lung atelectasis. Lymphnodes diameter <1.5 cm aorta and right paratracheal. e. PET/CT scan showed pleural activity none in the lymph nodes. We decided to sample the nodulation by SM-TBNA in the posterior wall of the right main bronchus and we recovered material enough for cyto exam. In this case, our pathologist felt confident of a diagnosis of epithelial MPM from the first exam by ROSE which was confirmed definitely by morphological diagnosis using the cytodiagnosis criteria outlined by Whitaker et al, Tao and De May and finally defined by an immunocytochemical panel using CK 5 and calretinin.



To our knowledge, this is the first time that a mediastinal involvement of MPM is approached via TBNA and ROSE was diagnostic for Epithelial MPM.

P243**Transbronchial needle aspiration (TBNA) in the diagnosis and staging of lung cancer in a large cohort of patients**

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Introduction: TBNA is a minimally invasive bronchoscopy technique, that allows to examine mediastinal and hilar lymph nodes, avoiding surgical mediastinal exploration.

Objectives: The aim of this study was to assess the sensitivity and diagnostic

accuracy of TBNA in a large cohort of patients. In addition, we appraised the relationships between TBNA yield and lymph node size and location.

Methods: Between March 2009 and November 2011, we prospectively examined 110 patients (age range: 30 to 87 yr, 31 F) with suspected lung cancer and enlarged mediastinal lymph nodes. Each patient performed TBNA during flexible bronchoscopy with rapid-on-site evaluation.

Results: TBNA was positive in 88 of 110 patients with suspected lung cancer (80%). No complications was observed. The lymph node size cut-off point, that better identified patients with positive aspirate was ≥ 24 mm (0.83 sensitivity and 0.51 specificity; AUC=0.681, p=0.018 by ROC curve analysis).

In all patients, the subcarinal and arterial carina lymph node locations had the higher percentage and the left paratrachea lymph node location had the lower percentage of patients with positive aspirates (98%, 75% and 50%, respectively).

Conclusions: Our results confirm that in a large cohort of patients conventional TBNA is a sensitive technique and an effective tool to diagnose and stage lung cancer and show that a ≥ 24 mm lymph node size has a high likelihood to be associated to a positive aspirate. Additionally, the lymph node location may play a role in the diagnostic yield of TBNA.