involved in the procedure. Overall diagnostic yields were calculated for trainers compared to trainees for both manoeuvring the bronchoscope and needling. Diagnostic rates according to year of EBUS-TBNA for trainers vs trainees were also calculated. Mann-Whitney U test was used to check for differences in hit-rates for trainers vs trainees between the two components of the procedure, whilst Kruskal Wallis test was used to assess difference in diagnostic yield between 2011–2016.

Results 1083 patients underwent EBUS-TBNA with mean age 61 years (SD +/-14), 464 (43%) were female. The overall diagnostic rate was 88%, with 479 (44%) malignant, 212 (20%) granulomatous, 262 (24%) benign and 130 (12%) non-diagnostic. Trainees manoeuvred the bronchoscope for 577 (53%) and needled for 461 (43%) patients. There were no differences in diagnostic yields between trainers compared to trainees for manoeuvring [88% vs 88% (p=0.81)] nor for needling [88% vs 88% (p=0.84). There were also no significant differences in diagnostic yield between years (figure1).

Conclusion In our institution we can teach multiple trainees whilst maintaining high diagnostic yield in two operator EBUS-TBNA for both manoeuvring the bronchoscope and needling when one operator is fully trained.

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P37 THE CLINICAL UTILITY OF RAPID ON-SITE EVALUATION (ROSE) IN THE DIAGNOSIS OF NON-MALIGNANT GRANULOMATOUS MEDIASTINAL LYMPHADENOPATHY FOLLOWING ENDOBRONCHIAL ULTRASOUND (EBUS)

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Introduction EBUS guided trans-bronchial needle aspiration with ROSE ensures adequacy of specimen samples and provides preliminary cytological diagnosis. Few studies have explored the utility of ROSE in granulomatous mediastinal lymphadenopathy. This retrospective study looks to further assess the validity of ROSE in the setting of non-malignant granulomatous disease.

Methods We reviewed a prospectively maintained database of ROSE and laboratory cytology Results for all EBUS procedures performed during a 12 month period from 1 st January to 31 st December 2015 at our institute. We included all patients who had granuloma (including probable or possible granuloma) identified at ROSE or final cytology analysis, or both. We then reviewed clinico-radiological data to ascertain the final diagnosis and excluded those patients with malignant disease.

Results During the study period, 366 EBUS were performed, with granuloma identified in 51 patients. Three patients were found to have malignancy and were excluded therefore 48 were included in the final analysis. The final diagnoses for the 48 patients are shown in Table 1. Patients with TB were more likely to have at least one granuloma at ROSE (84%) than patients with sarcoidosis (67%). Patients with granuloma identified at ROSE had a slightly lower number of nodes sampled per patient compared to those with no granuloma at ROSE (mean 1.8 vs 2.4 nodes per patient). The positive predictive value of ROSE for granuloma in our cohort was 100%, with a sensitivity of 71%. This is comparable to other studies.

Conclusions In our cohort of patients, ROSE had a high positive predictive value and a sensitivity of over 70% for the diagnosis of granuloma in non-malignant disease. Our Results suggest that with the use of ROSE fewer nodes are sampled which may reduce procedure time and potential complications. This study is limited due to the small sample size but supports the use of ROSE in this context. We plan to carry out further work with larger data sets, and to look at the characteristics of those subsequently diagnosed with sarcoidosis or tuberculosis.

Abstract P37 Table 1

	Granuloma at ROSE		Granuloma at final cytology	
Final diagnosis	**N**	**%**	**N**	**%**
Sarcoidosis	18	38	27	56
TB (all)	16	33	19	40
TB (culture positive)	5	10	8	17
TB (culture negative)	11	23	11	23
Reactive	0	0	2	4
Total	34	71	48	100

P38 EBUS-TBNA IN LUNG CANCER – CAN WE SIMPLIFY DIAGNOSIS AND STAGING IN A SINGLE PROCEDURE?

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Background Lung cancer(LC) is the leading cause of worldwide cancer-related deaths and its accurate diagnosis and staging is crucial to guide appropriate treatment and prognosis.[1] EBUS-TBNA is a minimally invasive standard procedure for staging that has proven to be useful in diagnosis too, allowing a complete characterisation of the disease in a single procedure and, thus, decreasing time-to-treatment.[2]

Aim To evaluate the role of EBUS-TBNA as initial technique for simultaneous diagnosis and staging in patients with suspected LC and calculate its sensitivity, specificity, positive and negative predictive values.

Methods Retrospective study of all patients with suspected LC in computed tomography(CT) or positron-emission tomography(PET)/CT submitted to EBUS-TBNA for simultaneous diagnosis and staging, from September/2011 to February/2017. Results of EBUS-TBNA were compared to surgical ones, when patients were subsequently submitted to surgery, or to clinical and radiological follow-up.

Results Patients included(n=62) had mean age of 68 years (SD=10) and 66.1% were male. Smoking history was present in 53.2% and history of extrathoracic malignant disease in 17.7%. Mean diameter of pulmonary lesions in CT or PET/CT was 37.2 mm(SD=21 mm) and in 64.5% of cases were associated to lymphadenopathy. 59.7%(n=48) of patients were diagnosed with LC, 77.1%(n=37) of them by EBUS-TBNA, 8.3(n=4) by other bronchoscopic methods at same time of EBUS and 14.6%(n=7) needed surgical biopsy. LC diagnosed by EBUS-TBNA were 59.5% adenocarcinoma, 16.2% squamous, 21.6% small cell and 2.7%

carcinoid. In all of LC diagnosed by EBUS-TBNA, staging was achieved in the same procedure(8.1% N0, 5.4% N1, 67.6% N2 and 18.9% N3).EBUS-TBNA showed a sensitivity of 86%, specificity of 88.9%, PPV of 97.4% and PNV of 57.1% for simultaneous diagnosis and staging in our setting.

Conclusions In our study EBUS-TBNA was useful to simplify the diagnosis and staging of LC, allowing both simultaneously in 77.1% of the patients and may be the preferred method for the initial approach after CT or PET/CT scan in this group of patients, in order to achieve faster diagnosis.

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P39 THE ROLE OF EBUS-TBNA IN ISOLATED INTRATHORACIC LYMPHADENOPATHY IN NON-NEOPLASIC PATIENTS – A COMMON DILEMMA IN CLINICAL PRACTICE

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Background Malignant or benign diseases can cause isolated intrathoracic lymphadenopathy (ITLN), a common dilemma in clinical practice.[1] Our aim was to analyse differential diagnosis of isolated ITLN in patients undergoing EBUS-TBNA and to calculate its sensitivity, specificity, positive predictive value (PPV) and predictive negative value (PNV).

Methods Retrospective study of patients with isolated ITLN undergoing EBUS-TBNA for diagnosis, from August 2011 to April 2017. For non-specified granuloma, reactive or inconclusive LN by EBUS-TBNA, a definite diagnosis was established by other procedures or clinical, laboratorial and radiological follow-up of 18 months. Exclusion criteria: suspicion or history of cancer.

Results We included 58 patients with mean age of 53 years (SD=15), mostly female (56.9%). EBUS-TBNA diagnosed 21 (36.2%) granulomatosis, 15 (25.9%) reactive LN, 8 (13.8%) cancer and 4 (6.9%) other diseases. 17.2% (n=10) of cases were inconclusive by EBUS-TBNA and definite diagnosis was established by surgical biopsy (60%) and other bronchoscopic methods (40%). In granulomatous disease, EBUS-TBNA diagnosed mycobacteriosis in 23.8%, sarcoidosis in 4.7%, silicosis in 4.7% and 66.6% remained as non-specified granuloma. The definite diagnosis of these granulomas was made by other bronchoscopic methods (42.9%), surgical methods (21.4%) and clinical follow-up (35.7%). 73.3% of reactive LN (n=11) were subsequently confirmed by follow-up (91%) or mediastinoscopy (9%). 26.7% (n=4) of reactive LN resulted in tuberculosis (6.7%), sarcoidosis (6.7%) and neoplasia (13.3%) by others procedures or follow-up. EBUS-TBNA showed a sensitivity of 74%, 66.7% and 92.3%, specificity of 94.7%, 100% and 91.1%, PPV of 95.2%, 100% and 75%, and PNV of 84.4%, 92.6% and 97.6% for granulomatosis, neoplasia and reactive LN diagnosis, respectively.

Conclusions Isolated ITLN were mostly benign and reactive LN was the second most frequent cause. More than 70% of reactive LN by EBUS-TBNA were confirmed and the majority had no need for more invasive procedures. EBUS-TBNA showed to be a useful diagnostic procedure in isolated ITLN, with a great PPV, and its accuracy can be optimised by follow-up or minimal invasive procedures.

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P40 PREDICTORS FOR PNEUMOTHORAX FOLLOWING CT GUIDED BIOPSY (CTGB) FOR LUNG MASSES

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Background CTGB is widely used to sample lung masses. One of the important complications is pneumothorax which could potentially lead to a prolonged hospital stay. The aim of the study was to examine the prevalence and potential predictors associated with pneumothorax following GTGB.

Methods We retrospectively reviewed CTGB data over a two year period (August 2014 to July 2016) for all patients who underwent CTGB. The data collected included age, sex, comorbidities, smoking history, spirometry, performance status, presence of emphysema, thickness, depth of the needle, size of the lesion and lobe of the lesion.

Results 227 patients underwent CTGB with an overall diagnostic yield of 93.8% (213/227). The incidence of pneumothorax was 61/227 (26.9%). Of the patients with pneumothorax, 8/61 (13.1%) needed chest drain insertion with a median hospital stay of 4.5±2.1 days. There was no difference in diagnostic yield between both pneumothorax and the no pneumothorax group. Overall 89.2% (190/213) of the positive biopsies were malignant while 10.8% (23/213) were benign. There was no difference in the performance status, severity of airflow obstruction or lobe of the lesion between groups. Binary logistic regression analysis showed the size of the lesion as a determinant of developing pneumothorax (p=0.022). The risk of developing a pneumothorax was 27.1% for a lesion ≤10 mm and 18.7% for a lesion ≤20 mm.

Abstract P40 Table 1

	No pneumothorax (n=166)	Pneumothorax (n=61)
Age (mean±SD)	71.3±9.8	69.2±10.3
FEV1% predicted	69.5±22.3	71.5±22.8
Smokers	145 (87.3%)	52 (85.2%)
Emphysema on CT	80 (48.2%)	32 (52.5%)
Needle depth (median±SEM) mm	8±1.9	11±1.9
Gauge of needle (median)	18	18

Conclusion The incidence of pneumothorax following CTGB was 26.9% but only 3.5% of all patients undergoing CTGB had a chest drain inserted for their pneumothorax. While CTGB is a safe procedure with a good diagnostic yield one