

**P70 CAN ENDOBRONCHIAL ULTRASOUND (EBUS) GUIDED TRANSBRONCHIAL NEEDLE ASPIRATION (TBNA) BE USED AS A FIRST LINE INVESTIGATION IN THE DIAGNOSIS OF CENTRAL LUNG PARENCHYMAL LESIONS?**

doi:10.1136/thoraxjnl-2012-202678.312

S Leykathali Khan, M Haris, S Diver, B Miller, M Munavvar. *Royal Preston Hospital, Preston, UK*

**Background** Accurate diagnosis and staging remains a cornerstone in the management of patients with lung cancer. EBUS-TBNA has been demonstrated to be a safe and minimally invasive tool to evaluate mediastinal and hilar lymph nodes in patients with suspected lung cancer. It has also shown to be effective in sampling central lung parenchymal lesions with no obvious bronchoscopic findings. The aim of the study was to evaluate the role of EBUS TBNA as an early investigative tool in the diagnosis of lung cancer with central lung parenchymal lesions.

**Methods** Retrospective study of 119 consecutive patients who had EBUS-TBNA from paratracheal and peribronchial masses between January 2009 and February 2012. All patients had a non-diagnostic flexible bronchoscopy just before having EBUS. 15 of these also had mediastinal or hilar lymph node sampling at the time of procedure.

**Results** N=119, mean age 68 years (SD 10); male: female, 56(%) : 63(%) . 37 paratracheal and 82 peribronchial lesions were identified using convex-probe EBUS. 5 with no further data were excluded.

Of the 114 samples, 110 were diagnostic confirming lung malignancy 107(97%), lymphoma 1 (1%) and bronchial cysts 2(2%); 1 sample was insufficient and 3 showed no malignant cells (1 had surgical biopsy confirming squamous cell carcinoma, 1 was benign on follow imaging, 1 had CT guided biopsy positive for adenocarcinoma, 1 was not suitable for further invasive tests but CT showed progressive changes suggestive of lung malignancy).

Of the 107 lung malignancy, 31 were adenocarcinoma, 34 squamous cell carcinoma, 25 small cell carcinoma, 12 non-small cell carcinoma – not otherwise specified (NOS), 3 malignant cells - NOS and 2 extrapulmonary metastases. The sensitivity of EBUS-TBNA for the diagnosis of lung cancer was 97% (95% confidence interval 92–99%) with a negative predictive value 56% (95% CI 26–83%).

**Conclusion** Our results show that EBUS TBNA has a very high sensitivity in the diagnosis of central lung masses related to lung cancer. It could be used as a “one stop” as an early minimally invasive tool in the lung cancer diagnostic pathway to enable accurate diagnosis and a negative result may warrant other invasive tests.

**P71 PATIENT SATISFACTION DURING ENDOBRONCHIAL ULTRASOUND-GUIDED TRANSBRONCHIAL NEEDLE ASPIRATION PERFORMED UNDER MILD CONSCIOUS SEDATION**

doi:10.1136/thoraxjnl-2012-202678.313

A Jeyabalan, H Lockman. *ARL Medford North Bristol Lung Centre, Southmead Hospital, Bristol, UK*

**Introduction** Endobronchial ultrasound-guided transbronchial needle aspiration (EBUS-TBNA) is an increasingly used mediastinal sampling technique recommended by NICE<sup>1</sup> for staging and diagnosis of non-small cell lung cancer. It is also used to diagnose unexplained accessible mediastinal adenopathy and lesions. Many EBUS-TBNA centres use conscious sedation in an ambulatory setting to optimise patient flow, save costs and shorten recovery time. The size of the EBUS-TBN. A scope with an external diameter of just below 7mm requires it to be inserted orally, which has been associated with lower patient satisfaction at bronchoscopy in the past.<sup>2</sup> There is only one published EBUS-TBN. A patient satisfaction

study which used deep conscious sedation with propofol and was not a UK study.<sup>3</sup> This study was carried out to investigate the experience of patients undergoing EBUS-TBNA using mild conscious sedation without propofol in a UK setting.

**Methods** 45 consecutive patients requiring EBUS-TBNA for investigation of unexplained mediastinal adenopathy were invited to complete a questionnaire post procedure. EBUS-TBNA was performed under light conscious sedation as previously described.<sup>4</sup> The average dose of intravenous sedatives was also recorded.

**Results** The average age of the 38/45 (84%) patients who completed the questionnaire was 59.0 years and 24/33 (72%) patients were male. Five patients had previously undergone fibreoptic bronchoscopy. The most common reason for referral was for diagnosis of suspected malignancy (30/45, 67%).

All patients felt that they had been provided with adequate written and verbal information, been given adequate opportunity to ask questions and had all potential risks explained to them prior to the test.

The average dose of sedative agents administered was 59.4 mcg fentanyl and 3.2 mg midazolam. The most commonly reported symptom was cough in 35 (92%) patients. Of these patients, 27 (78%) described the severity as being mild. All but 3 patients (35/38, 92%) stated that they would definitely or probably undergo a repeat EBUS-TBNA. No complications were reported.

**Conclusions** This UK single centre study demonstrates that EBUS-TBNA under mild conscious sedation (without propofol) is a well tolerated procedure with patients reporting a high degree of satisfaction with both the test and the information received prior to having the test.

**References**

1. The diagnosis and Treatment of Lung Cancer. NICE clinical guideline. <http://publications.nice.org.uk/lung-cancer-cg121>. Accessed 11th June 2012.
2. Lechtzin N, Rubin HR, White P et al. Patient satisfaction with bronchoscopy. *Am J Resp Crit Care Med* 2002; 166(10): 1326–31.
3. Steinfort DP, Irving LB. Patient satisfaction during endobronchial ultrasound-guided transbronchial needle aspiration performed under conscious sedation. *Respiratory Care* 2010; 55(6): 702–6.
4. Medford AR, Agrawal S, Free CM et al. A performance and theoretical cost analysis of endobronchial ultrasound-guided transbronchial needle aspiration in a UK tertiary respiratory centre. *QJM* 2009; 102(12): 859–64.

**P72 THE USE OF ENDOSCOPIC ULTRASOUND IN THE DIAGNOSIS OF MEDIASTINAL LYMPHADENOPATHY: A COMPARISON OF TRUCUT BIOPSY VERSUS FINE NEEDLE ASPIRATION**

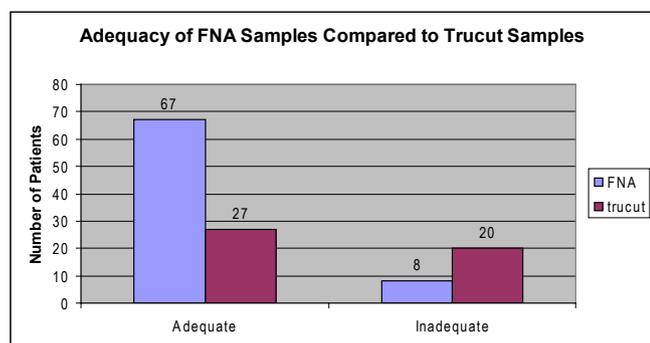
doi:10.1136/thoraxjnl-2012-202678.314

P Ramachandran, F Al-Murani, R Banka King. *George Hospital, Ilford, UK*

**Background** Endoscopic ultrasound guided fine needle aspiration is a commonly used tool in the diagnosis of mediastinal lymphadenopathy. However, less is known of the value of additional trucut biopsy. This retrospective study compares the outcomes of EUS-guided FNA and trucut biopsy, in an unselected group of patients with mediastinal lymphadenopathy of unknown origin.

**Method** The endoscopy database of two district general hospital sites was reviewed for all patients who had undergone endoscopic ultrasound for mediastinal lymphadenopathy. Results were reviewed for all patients who had cytological or histological specimens taken. Documentation of patient comfort levels and immediate complications was also collected.

**Results** 77 patients underwent EUS for mediastinal lymphadenopathy and had specimens taken via FNA, trucut or both. For 1 patient



Abstract P72 Figure 1

no data was available and therefore was excluded from analysis. Of the remaining 76 patients, 46 had trucut and FNA sampling, 29 FNA alone and 1 trucut alone.

Comparison of the subgroups having FNA plus trucut and FNA alone, via Fisher's exact test, showed no statistically significant difference in the diagnostic information acquired ( $p=1.0000$ ).

There was no difference in the immediate complication rates or level of patient comfort during procedure (both  $p=1.0000$ ).

Trucut did provide additional information in 5 patients but this was not statistically significant. A large number of trucut specimens received were inadequate for histological analysis (20/47) compared with FNA (8/67). This was statistically significant with  $p=0.0001$ .

**Conclusions** EUS-guided trucut biopsy provided additional diagnostic information in some patients and is well tolerated, with no reports of immediate complications. This retrospective study performed in a single NHS hospital trust was unable to provide statistically significant data to confirm the benefits of trucut sampling however it did confirm its safety and tolerability of EUS-trucut. It may be beneficial to repeat this study in multiple centres with a larger sample size and multiple operators.

**References** Initial experience with EUS-guided trucut needle biopsies of perigastric organs. Wiersema et al. *Gastrointestinal Endoscopy* 56 (2) 2002.

### P73 IMPACT OF EBUS-TBNA ON MODALITIES FOR TISSUE ACQUISITION IN PATIENTS WITH LUNG CANCER: A STUDY OF 407 PATIENTS

doi:10.1136/thoraxjnl-2012-202678.315

RJ José, M Taylor, A Ahmed, P Shaw, J Brown, G Hardavella, DR Lawrence, PJ George, SM Janes, N Navani. *University College Hospital, London, United Kingdom*

**Introduction** NICE guidance for the diagnosis and treatment of lung cancer recommends choosing "investigations that give the most information about diagnosis and staging with the least risk to the patient".<sup>[1]</sup> EBUS-TBNA is expanding as an important diagnostic modality in lung cancer and provides simultaneous information on lung cancer phenotype, genotype and nodal staging. The impact of the introduction of EBUS-TBNA on the use of diagnostic modalities for tissue acquisition in patients with lung cancer is unknown.

**Methods** A retrospective review of 407 consecutive patients diagnosed with lung cancer at a university teaching hospital in 2007, 2009 and 2011. Data were collected on age, gender, FEV1, performance status, diagnostic modality, and pathological subtype. Patients where only a clinical diagnosis was made ( $n=21$ ) were excluded.

Data were analysed using the SPSS version 17 (Chicago, IL, USA). For comparison between categorical variables, Chi-square or

Abstract 73 Table 1 Modalities for the diagnosis of lung cancer and patient and tumour characteristics

		Year of diagnosis		
		2007 n=95 (%)	2009 n=173 (%)	2011 n=118 (%)
Diagnostic modality	Standard bronchoscopy	43.16	17.92	14.41
	CT guided biopsy	36.84	30.64	16.10
	Endobronchial ultrasound	0.00	21.39	25.42
	Extra-thoracic biopsy	0.00	0.00	5.08
	Liver biopsy	0.00	0.00	2.54
	Mediastinoscopy	4.21	3.47	0.00
	Pleural aspirate or biopsy	0.00	0.00	3.39
	Sputum cytology	1.05	0.00	0.00
	Supraclavicular LN biopsy	0.00	0.00	7.63
	Thoracotomy	6.32	16.76	22.03
Performance Status	VATS excision biopsy	8.42	9.83	3.39
	Unknown	0	5.20	5.10
	0	20	28.90	42.40
	1	43.20	41.60	40.7
	2	20.00	15.60	7.60
	3	15.80	7.50	4.20
Histological subtype	4	1.10	1.20	0.00
	Adenocarcinoma	51.58	54.91	52.54
	Squamous Cell	27.37	24.28	31.36
	Small Cell	8.42	6.36	12.71
	Other	0.00	0.00	2.54
	Adenosquamous NOS	0.00	0.00	0.85
	Large Cell	11.58	5.2	0.00
Staging	Unknown	0.00	0.00	1.61
	NSCLC			
NSCLC	I	40.82	35.79	19.36
	II	16.32	22.11	17.75
	III	16.32	11.58	19.36
	IV	26.53	30.53	41.94
SCLC	Limited	25.00	54.55	26.67
	Extensive	75.00	45.45	73.33

Fisher's exact test were used as appropriate. All reported  $p$ -values are two-tailed, and are considered statistically significant when  $p<0.05$ .

**Results** 386 patients were included in the analysis. The mean (SD) age (years) and FEV1 (L/min) were 69 (12) and 1.81 (0.80) for 2007, 67 (10) and 1.81 (0.79) for 2009 and 68 (12) and 2.07 (0.68) for 2011 respectively. In 2007, 2009 and 2011 57.9%, 51.4% and 62.7% were males. The results on diagnostic modalities, performance status, histological subtype and staging are listed in Table 1. Comparing 2007 to 2011 there has been a significant reduction in standard bronchoscopy ( $P=0.0001$ ), CT guided biopsy of peripheral lesions ( $P=0.0008$ ) and mediastinoscopy ( $P=0.0382$ ). The proportion of cases diagnosed by EBUS-TBNA significantly increased from 0% in 2007 to 21.4% in 2009 and 25.4% in 2011 ( $P<0.0001$ ). There has been a significant increase in the proportion of patients going straight to surgery without pathological confirmation ( $p=0.002$ ).

**Conclusions** The use of diagnostic modalities that provide information on diagnosis and staging in a single intervention are increasing. At our hospital, the use of EBUS-TBNA has led to a significant