histological and surgical details were extracted from clinical records. Analysis was conducted on MedCalc software v13.3.1 and reviewed by an independent statistician.

Results 42 patients who underwent EBUS+/-EUS for mediastinal staging were found to have no evidence of N2/3 disease. In 3 cases subsequent mediastinoscopy was performed as a high degree of suspicion for mediastinal disease persisted. However, in all cases surgical staging correlated with endosonographic staging. At thoracotomy, 3 (other) patients were upstaged to N2 disease. In two cases, micrometastatic disease was present in a station 7 node and one case had positive station 5/6 not accessible at EBUS/EUS. Overall the NPV of EBUS+/-EUS was 93% (95% CI, 80%–98%). In 22 of 42 patients, the same nodal stations sampled on EBUS/EUS were removed at surgery. In this subset, EBUS/EUS had a NPV of 91% (95% CI, 71% to 99%).

Conclusion We have shown that in an experienced centre, mediastinal staging by EBUS+/-EUS can have a high NPV. In these circumstances, surgical staging following negative endosonography is probably not warranted unless a high degree of clinical suspicion remains following MDT discussion. Regular audit of NPV is recommended to ensure performance standards are maintained.

REFERENCES

1 Annema *et al*. *JAMA* 2010;304:2245
2 NICE guidelines, 2011, *Lung Cancer*, CG121

P218 NODAL STAGING IN LUNG CANCER: A RISK STRATIFICATION MODEL FOR LYMPH NODES CLASSIFIED AS NEGATIVE BY EBUS-TBNA

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Background Over the last 10 years, EBUS-TBNA has become established as the first line nodal staging procedure of choice for lung cancer patients. However, the pathway for patients following a negative EBUS-TBNA has not been clearly defined.

Aims and objectives The primary aim of this study was to develop and validate a risk stratification model to categorise lymph nodes deemed negative by EBUS-TBNA into 'low risk' and 'high risk' groups, where 'risk' refers to the risk of false negative sampling.

Materials and methods A retrospective analysis of a prospectively maintained database at a UK tertiary EBUS-TBNA centre. Only patients with primary lung cancer and only negative lymph nodes by EBUS-TBNA were included in the analysis. A risk stratification model was built from a derivation set using independent predictors of malignancy and the validation set used to evaluate the constructed model. The study period was March 2010 to August 2013.

Results 329 lymph nodes were included in the analysis (derivation set n = 196, validation set n = 133). Lymph node SUV, the SUV ratio between the lymph node and primary tumour and heterogeneous echogenicity during sonographic assessment were the only independent predictors of malignancy. Using a simplified scoring system based on the natural logs of the odds ratios from the multivariable analysis on the derivation sample, lymph nodes can be stratified into 'low risk' (score ≤1) and 'high risk' (score ≥2). 141/142 and 94/96 lymph nodes classified as 'low risk' in the derivation and validation set respectively were ultimately proven to be benign and 35/54 and 24/37 lymph nodes classified as 'high risk' were proven malignant. The negative predictive value of the risk stratification model for the derivation set and validation set was 99.3% (95% CI 96.1–99.6) and 97.9% (95% CI 92–99.6%) respectively.

Discussion This risk stratification model may assist lung cancer MDTs in deciding which patients need further staging procedures and which may proceed directly to treatment after a negative EBUS.

P219 A RETROSPECTIVE ANALYSIS OF THE RELATIONSHIP BETWEEN EBUS-TBNA DIAGNOSTIC UTILITY AND LUNG CANCER STAGE

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Endobronchial ultrasound-guided transbronchial needle aspiration (EBUS-TBNA) is an important minimally invasive technique in lung cancer staging and diagnosis.

Aim A retrospective analysis of EBUS-TBNA performance in patients with suspected malignancy referred between November 2009 and December 2013 to a UK tertiary EBUS centre.

Methods We reviewed consecutive EBUS-TBNA cases with CT/PET positive mediastinal/hilar nodes detected in suspected malignancy. EBUS-TBNA was performed as previously documented [Medford A. *et al*. QJM 2009; 102:859–864]. No rapid on-site cytology was available.

Results 186 patients with suspected malignancy (intra/extrathoracic and lymphoproliferative) were referred for EBUS--TBNA. Mean age was 66(31–87) with a 3:2 male:female ratio. In this group the sensitivity of EBUS-TBNA was 95.5%, accuracy 96.2% and negative predictive value (NPV) 80.6%. The prevalence of malignancy was 84.4%.

159 patients (85%) were referred with suspected lung cancer. In this group the sensitivity of EBUS-TBNA was 94.7%, accuracy 95.6% and NPV 78.8%. The prevalence of lung cancer was 83.6%.

The performance of EBUS-TBNA by lung cancer stage was also analysed, (See Table).

Conclusions This study shows high EBUS-TBNA diagnostic accuracy for all lung cancer stages. The NPV may have been reduced by the high prevalence of lung cancer in our cohort.

The majority of EBUS-TBNA procedures were performed for radiological stage III-IV disease where confirmation of disease would select those suitable for palliative rather than radical treatment.

Abstract P219 Table 1 Showing the performance of EBUS-TBNA by lung cancer stage

Stage	Number	Sensitivity (%)	Accuracy (%)	NPV (%)	Prevalence (%)
I and II	20	100	100	100	60
IIIa	49	92.5	93.9	75	81.6
IIIb	28	100	100	n/a	100
IV	62	92.4	93.5	69.2	85.5