P220 ROLE OF EBUS-TBNA IN THE DIAGNOSIS OF PRIMARY AND RELAPSING HAEMATOLOGICAL MALIGNANCY

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Introduction Endobronchial ultrasound and transbronchial needle aspiration (EBUS-TBNA) has been embraced as a breakthrough in the diagnosis and mediastinal staging of lung cancer. However, its utility in determining a diagnosis of lymphoma is not well defined, and is currently not recommended by the British Thoracic Society.

Aim Evaluate the role of EBUS-TBNA in the diagnosis and subtyping of haematological malignancies.

Method Patients referred with mediastinal lymphadenopathy for EBUS-TBNA in whom lymphoma was suspected, were identified retrospectively in 3 tertiary centres in the UK between 2008 and 2013. EBUS was performed using a linear array ultrasonic bronchoscope and specimens taken with a 21 or 22 gauge needle. The diagnostic accuracy, avoidance of mediastinoscopy and surgical biopsy in cases of primary and relapsing haematological malignancy was recorded. Where EBUS-TBNA was negative, patients subsequently underwent surgical biopsy or clinical and radiological surveillance.

Results Twenty-four patients (10 female and 14 male) with a mean age of 55.5 years underwent EBUS-TBNA for evaluation of mediastinal lymphadenopathy. Clinical and radiological diagnosis was of either, isolated mediastinal lymphadenopathy of unknown cause (n = 15) or suspected mediastinal recurrence of lymphoma (n = 8). Five patients (62.5%) were found to have a relapse of their haematological malignancy, whilst a new diagnosis of lymphoma was made in 11 cases (73.3%) where the presentation was of isolated mediastinal lymphadenopathy. One patient in this group was found to have tuberculosis. Tissue obtained from nodal aspiration was sufficient to subtype the disease in detail in 14 patients with immunohistochemistry. Overall, 17 patients (70%) were prevented from having mediastinoscopy and other biopsies, and the diagnostic accuracy and sensitivity of EBUS-TBNA in primary and relapsing lymphoma was 74%.

Conclusion EBUS-TBNA is a safe and important approach to mediastinal lymphadenopathy in suspected lymphoma, whereby detection of either primary or relapsing haematological malignancy prevents need for other more invasive biopsies.

P221 THE USE OF CYTOLOGICAL SPECIMENS TO DETERMINE EPIDERMAL GROWTH FACTOR RECEPTOR (EGFR) MUTATION STATUS IN NON-SMALL CELL LUNG CANCERS (NSCLC)

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Introduction Treatments for patients with advanced NSCLC are improving, including the use of drugs which act on those cancers that express EGFR mutations. However, determination of EGFR status requires an adequate sample for analysis and national guidelines indicate that this is best obtained by tissue biopsy. Unfortunately, in this ill patient group tissue biopsy may be

problematic and a diagnosis is often made through cytology alone. There are few published studies on the utility of cytological specimens for EGFR analysis and we wished to study this further.

Methods We reviewed all lung cancer samples that had been sent from our large cancer unit since EGFR mutation analysis became available 35 months ago, comparing the yield from cytology and formal tissue biopsy.

Results Of 330 cases sent for EGFR analysis, cytology was the only sample available in 92 cases [28%] – as might be expected this group contained individuals with poor lung function and high rates of metastatic disease (Mean FEV₁ 0.76 L, Median stage=4). Samples were most commonly obtained from EBUS [59%], bronchial brushings/washings [23%], or pleural aspiration [11%], and 64 [70%] of these were deemed adequate for mutation analysis.

Although formal histological samples were more likely to provide sufficient material for EGFR analysis than cytological methods [84% vs. 70%], those acquired through EBUS or pleural aspiration gave comparable rates [81% and 88% respectively].

Overall, 34 cases [10%] were EGFR positive, and 4 of these [12%] were based on cytology samples alone.

Conclusions Our data show that most cytopathological specimens, especially when obtained by EBUS or pleural aspiration, will provide adequate material for EGFR analysis and increase the identification of patients eligible to receive targeted therapy. As cytology specimens can often be obtained through relatively non-invasive means our findings further underline the importance of attempting a tissue diagnosis even in patients who may otherwise be regarded as too unwell for more intensive investigations.

P222 SHORT AND LONG-TERM CONSEQUENCES OF PNEUMOTHORAX FOLLOWING CT-GUIDED LUNG BIOPSY FOR LUNG MALIGNANCY

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Introduction and objectives Pneumothorax (PTX) is a common complication of Computed Tomography-guided lung biopsy (CTLB). We sought to quantify the short and long-term consequences of post-CTLB PTX in patients with lung malignancy.

Methods We retrospectively reviewed case records and imaging of all who underwent CTLB in NHS Greater Glasgow and Clyde between August 2011 and August 2012. Patient characteristics (including diagnosis, lung function and blood results), biopsy characteristics, 30-day mortality, PTX management and survival were recorded. Lesion size, depth and maximum PTX depth were directly measured on digitally-stored PACS images.

Patients were classified into no PTX, non-significant PTX (nsPTX) and significant PTX (sPTX), which was defined as any PTX which required pleural intervention. Differences in patient and biopsy characteristics between groups were identified by ANOVA and quantified by Tukey's Multiple Comparisons Test. Kaplan-Meier curves were plotted and differences quantified by log-rank, log-rank for trend and Hazard Ratios. Results are mean (±SD).

Results 324 CTLB were performed. Malignancy was confirmed in 285/324 (88%). Mean age was 70(±11) years. 84/285 (29%) developed a PTX. 17/285 (6%) developed a sPTX. There were

Abstract P222 Figure 1 (A) Lesion size by PTX group, (B) Lesion Depth by PTX group, (C) Survival by PTX group and (D) Survival in patients with a peripheral NSCLC

no deaths related to CTGLB (30-day mortality: 100% in all groups).

SPTX were larger than nsPTX ($34(\pm 6)$ mm vs. $19(\pm 6)$ mm, $p = 0.0003$). Other factors associated with sPTX were lesion size and depth (see Figure 1 (a and b)), larger needle gauge ($p < 0.0001$), higher FEV1 ($p = 0.01$) and lower DLco ($p = 0.049$).

Length of stay (LoS) was longer in sPTX ($5.8(\pm 5.9)$ days, $p < 0.0001$) and nsPTX ($1.7(\pm 2.3)$ days, $p < 0.0001$) than No PTX ($0.7(\pm 0.9)$ days), but long-term survival was better (see Figure 1 (c and d)). This survival difference was pronounced in a subgroup of patients with a peripheral non-small cell lung cancer (defined as a lesion depth ≤ 0 mm, $n = 53$).

Conclusions CTGLB was associated with a low rate of sPTX (6%) and no short-term mortality. sPTX was associated with lung function indicative of emphysema and smaller, deeper lesions. The latter association likely explains the apparent survival advantage found in PTX patients but any long-term survival disadvantage seems unlikely. Post-CTLB PTX may be a positive sign in peripheral NSCLC, possibly inferring resectability.

P223 CONSENT FOR MEDICAL THORACOSCOPY: THE TRUTH, THE WHOLE TRUTH AND NOTHING BUT THE TRUTH?

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Introduction Failure to provide adequate information for valid informed consent may impact negatively on patient satisfaction and trust, and is a common cause of medical litigation. Some professional societies produce standardised consent forms in an attempt to reduce variation in quality of consent. There is no published national guideline standard for consent for medical thoracoscopy. We reviewed the quality of consents for medical thoracoscopy in a unit performing an average of 40 medical thorascopies per year.

Methods Case records of 80 patients who had undergone medical thoracoscopy were retrospectively reviewed. Consent forms were assessed for mention of potential complications, and grade and competency at thoracoscopy of consent-takers. We analysed the consistency between consents taken by the same individuals

at different times, and numbers of patients experiencing complications for which they were not consented.

Results Consent was taken by 19 individuals. Consultant thoracoscopists took 54% of consents; non-thoracoscopist consultants took 15% and trainees 31%. Potential complications consented for were: bleeding (100%), 'infection' (99%), persistent pneumothorax/trapped lung (81%), pain (73%), Empyema (46%), damage to underlying organs (28%), respiratory distress (28%), non-diagnostic procedure (20%), (talc related) fever (16%), cardiac complications (15%) and haemothorax (10%).

Consultant thoracoscopists were significantly more likely than all other consent-takers to consent patients for empyema; 72% vs 16% of consents, $p < 0.001$, and pain; 93% vs 49%, $p < 0.001$.

Consistency with which consent-takers omitted or mentioned complications varied by individual and complication. For example, those individuals who consented at least once for empyema (7/19 consent-takers) did so collectively on 80% of their consents (individual range 25%-100%), whereas those who took consent for damage to underlying organs (10/19 consent-takers) did so on only 35% of their consents (range 5%-100%).

Empyema occurred in 5% of patients, all of whom had been consented for this complication. 38/80 patients (48%) experienced significant pain, of whom 34% were not consented for this.

Conclusion Information provided on thoracoscopy consent forms is inconsistent, both for common minor and serious complications. Even experienced thoracoscopists may fail to clarify significant complications. Introduction of a standardised consent form could reduce variation and consequent potential for patient distress and medico-legal risk.

P224 LYMPH NODE ASSESSMENT IN SURGICAL RESECTION OF NON-SMALL CELL LUNG CANCER (NSCLC): ARE WE HITTING THE TARGET?

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Introduction Guidelines from the British Thoracic Society (BTS) and the National Institute for Health and Care Excellence (NICE) recommend that nodal assessment be performed in all patients who have anatomical lung resection for NSCLC.

Nodal status is one of the major determinants of outcome and most multidisciplinary teams now record adequacy of nodal assessment. N1 nodes are removed with the specimen perforce; therefore, a better indicator of surgical performance is the number of N2 nodal stations sampled.

This paper describes a continual audit cycle of lymph node sampling performance data in relation to N2 nodes.

Methods A retrospective analysis of patients who underwent anatomical lung resection for NSCLC in the calendar years 2009, 2010, 2012 and 2013 was undertaken. Lymph node sampling data was taken from pathology reports. The number of different stations sampled, rather than number of individual lymph nodes, was counted. Basic patient demographics were also collected.

After each audit cycle individual results were tracked and presented at open local, regional and national forums.

Results A total of 937 patients were audited after anatomic lung resection for NSCLC during the study periods. Pathology of NSCLC resections were as follows: 52% adenocarcinoma,