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Title: Adequacy of endobronchial ultrasound transbronchial needle aspiration samples in the sub-typing of non small cell lung cancer

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Body: Introduction The histological sub-typing of non small cell lung cancer (NSCLC) has become increasingly important due to advances in systemic therapy. There are now important differences in the treatment of squamous and non-squamous cancers. Non-squamous cancers (particularly adenocarcinomas) are also suitable for targeted therapy if the epidermal growth factor receptor (EGFR) genetic mutation is present. Diagnosis is frequently made by fine needle aspiration from lymph node metastases. Objectives To analyse endobronchial ultrasound transbronchial needle aspiration (EBUS TBNA) data to establish our NSCLC not otherwise specified (NOS) rate and determine the technical success of EGFR testing. Methods All EBUS TBNA procedures performed at Leeds Teaching Hospitals between February 2009 and November 2011 were analysed. Data was collected on the indication, final histological diagnosis and whether EGFR mutation testing was possible. Results Data from 391 procedures was analysed. The indication was staging of malignancy in 345 patients and suspected non-malignant disease in 48 patients. Malignant disease was diagnosed in 204 patients (52.2%), small cell 43, squamous cell 64, adenocarcinoma 40, adenosquamous 2, large cell 12, NSCLC NOS 31 and malignant disease of non lung primary 12. The number of cases of NSCLC NOS was 31 of 149 NSCLCs. The NOS rate was 20.8%. EGFR testing was requested in 36 patients. The sample was sufficient to allow testing in 32 patients (88.8%). Conclusion This data shows that EBUS TBNA samples are of adequate size to allow the determination of NSCLC sub-type and EGFR mutation status provided appropriate laboratory techniques are used.