

European Respiratory Society Annual Congress 2012

Abstract Number: 3490

Publication Number: 4546

Abstract Group: 11.1. Lung Cancer

Keyword 1: Lung cancer / Oncology **Keyword 2:** Bronchoscopy **Keyword 3:** Thoracic oncology

Title: Diagnostic yield of ROSE (rapid on-site evaluation) and cell block obtained by endobronchial ultrasonography (EBUS) in patients with lung cancer

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Body: Introduction: The cytological diagnosis of lymph node(LN) metastases depends on many variables such as the number of passes made at each station,access to ROSE or type of sample processing.Our objective was to analyze the diagnostic value of ROSE and cell block(CB) obtained for mediastinal staging by EBUS in lung cancer. Methods: Selective EBUS sampling was performed to patients with lung cancer and mediastinal disease by chest CT or PET-CT.For each fine needle aspiration(FNA),we collected the results of ROSE,final cytology diagnosis and CB.At least 3 FNA per LN were performed if ROSE did not show malignant cells. Results: We studied 148 patients from June 2010 to August 2011,of which 49 met the inclusion criteria.87.8% were male with a mean age of 62.7 years(42-78).A total of 130 FNA were performed,being unable to obtain a BC in 23.1% of them.The % of agreement between cytology and CB was 94.9%.BC added 3.1% of new diagnoses.ROSE avoided the need of obtaining 71 FNA,from a total of 134 second and third passes(47%).The % of agreement between ROSE and the final cytology report was 82.6%, presenting a NPV and a PPV of 73% and 100%, respectively.Benignity was confirmed by surgical techniques in all patients with negative EBUS,which represents a NPV of 100% in the studied sample. Conclusions: 1.CB has a high correlation with cytology(94.9%)but adds few new diagnoses(3.1%).It should be mainly used for immunohistochemical or molecular studies. 2. ROSE avoids 47% of FNA,based on its PPV of 100%. 3. The NPV of cytology after 3 passes with ROSE assessment is 100%.This approach can avoid further confirmatory surgical techniques.