

DIAGNOSTIC RESULTS OF TISSUE SAMPLE PROCESSING METHODS FOR EBUS (EUS-B)-FNA: RESULTS OF 211 CONSECUTIVE PROCEDURES

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Area and Category(at submission):

[WCBE: 8. Mediastinum] 1. Malignant tumor / 3. Diagnosis Test

Presentation Preference: Either

Case Report: YES

Background. The role of endobronchial ultrasound (EBUS) and transesophageal bronchoscopic ultrasound (EUS-B)-guided fine-needle aspiration (FNA) of intrathoracic lymph nodes has acquired paramount importance in obtaining definitive diagnosis in malignant and benign diseases. Recently, the value of cell block processing of EBUS-FNA samples has been studied, but the diagnostic yield of tissue sample processing methods within different disease categories have been marginally investigated in a larger cohort of patients.

Objective. The objective of this study is to review tertiary hospital experience with EBUS-FNA and EUS-B-FNA in obtaining tissue diagnosis of intrathoracic lymph nodes and evaluate the value of different tissue sample preparation techniques for all consecutive procedures performed within a calendar year. **Methods.** The pathological examination was based on smear cytology (SC) and cell block preparation (CBP) routinely obtained during EBUS (EUS-B)-FNA. We evaluated diagnostic rates of the techniques, separately and combined, within malignant and benign group of diseases. Benign diseases were subcategorized, as sarcoidosis and non-specific reactive lymphadenopathy.

Results. From January 2012 to December 2012, 209 patients (211 procedures) with mediastinal and hilar lymph nodes pathology underwent EBUS-FNA or simultaneous EUS-B-FNA in North Estonia Medical Center. Cytological assessment of smears from aspiration samples was performed in all cases. Formalin fixed paraffin-embedded cell block for histopathological examination was available in 195 (93.3%) cases. The overall diagnostic rate was 78.2 % for SC and 76.4% for CBP. The combination of smears with cell block significantly increased diagnostic yield: up to 91.9%. The overall diagnostic rate for malignant diseases was 92.9% and for benign diseases 91.3 % using both methods simultaneously. The diagnostic accuracy for malignant diseases was 84.3% in cytologic examination and 79.2% in histology. The diagnostic results for benign diseases were similar for SC and CBP, 74.2% and 73.7% respectively. SC and CBP, separately and combined, did not reveal differences in diagnostic results within subcategory of benign diseases. CBP provided clinically significant information for accurate subtyping of lung cancer in 26 (31.3%) cases.

Conclusions. EBUS (EUS-B)-FNA can provide accurate diagnosis, but the diagnostic yield is suboptimal in using conventional cytological examination or cell block preparation alone. Regardless of disease under the evaluation, benign or malignant, both tissue processing techniques should be routinely applied whenever possible. Although the diagnostic accuracy of cytology and histology in benign and malignant diseases are comparable, cell block preparation is superior tissue processing method in subtyping of lung cancer histology.