

ENDOBRONCHIAL ELASTOGRAPHY STRAIN RATIO IN THE DIAGNOSIS OF MEDIASTINAL LYMPH NODES

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BACKGROUND:

Elastography measures the biomechanical characteristics of tissue and its deformation under compression. Comparing two different areas of tissue allows numeric display of strain ratio between the areas. The aim of this pilot study was to evaluate EBUS elastography strain ratio in assessment of mediastinal lymph nodes in patients with suspicion for lung cancer for the first time. Strain ratios of mediastinal lymph nodes were compared with EBUS B-mode features and with tissue diagnosis as a gold standard.

PATIENTS AND METHODS:

EBUS bronchoscopy was performed on 20 consenting consecutive patients referred to bronchoscopy with suspicion for lung cancer according to chest CT-scan. Eligible patients had either enlarged discrete N2/N3 lymph nodes, or central tumor or enlarged N1 lymph nodes with normal mediastinal lymph nodes. Elastography evaluation with strain ratio measurements was performed before EBUS-TBNA. Standard EBUS characteristics of lymph nodes were described. The main outcome was the accuracy of strain ratio in differentiating between benign and malignant lymph nodes.

RESULTS:

EBUS elastography and TBNA were performed on 50 lymph nodes. Cytological malignancy was confirmed in 18 (36%) nodes. The mean strain ratio for malignant lymph nodes was 20.06 $\pm$ 21.08 and 6.69 $\pm$ 8.61 for benign. The ROC area under the curve for strain ratio was 0.86 (95% CI 0.74 to 0.98, $p < 0.0001$). Optimal cut-off point for distinguishing between malignant and benign lymph nodes was at strain ratio 8 with accuracy of 86.0% (sens. 88.89%, spec. 84.38%, PPV 76.19%, NPV 93.10%).

CONCLUSION:

EBUS elastography strain ratio measurement is a promising new technique for diagnosis of mediastinal lymph nodes in patients with NSCLC. It may complement standard EBUS-TBNA, help in selection of biopsy spot or even reduce the number of EBUS-TBNAs.

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