

ENDOBRONCHIAL ULTRASOUND STUDY IN DIAGNOSTICS OF PULMONARY CANCER AND MEDIASTINAL NEOPLASMS

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Area and Category(at submission):

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

Presentation Preference: Oral

Case Report: YES

Study objective: To show the capabilities of endobronchial ultrasound study for the diagnostics of ultrasound cancer and pulmonary neoplasms.

Materials and methods: We performed 189 endobronchial ultrasound studies at the Blokhin Russian Cancer Research Center of the Russian Academy of Medical Sciences. All the patients underwent pulmonary X-ray imaging, CT-angiography of chest and standard bronchoscopy before the study as part of diagnostics research algorithm.

Endobronchial study using radial sensor (scanning frequency 20 MHz) was performed in 54 patients with peripheral neoplasms. The main objective of the study was to receive the samples for morphological verification. Visualization of tumor was achieved in all patients. The endosonography detected differently sized hypoechogeneous lesions with unclear, irregular contours, of non-homogeneous structure. In 38 cases the tumor was sleeve-like around the bronchus, in the rest of the cases it was partially adjacent to the semi-circle of the bronchus. In 15 cases there were signs of the growth though all the layers of the wall, violated differentiation of bronchi walls layer, rough irregular contour. Morphological confirmation of malignant neoplasm was received in 48 (88.9%) patients, in 6 cases (11.1%) the material was poorly informative, which is most likely caused by small size of tumor (< 10 mm) or the lack of the invasion of tumor into bronchial wall.

Ultrasound study with convex sensor with scanning frequency 7.5 MHz with subsequent thin needle puncture aspiration biopsy with ultrasound control in real time was performed to 135 patients. The study was performed in order to visualize mediastinal lymph nodes, bronchopulmonary nodules, mediastinum neoplasms, with subsequent puncture biopsy for morphological verification of the process. We performed the puncture of the following groups of lymph nodes (Mountain-Dressler classification: upper paratracheal, lower paratracheal, subcarinal, hilum lymph nodes, intralobular lymph nodes. The scanning evaluates the shape of nodule (flat, round, presence of thickened rim), contours (sharp, non-sharp), structure of lymph node (homogeneous or heterogeneous), presence of hyperechogeneous inclusions, septa (always present in sarcoidosis), vascularization degree as well as the type of vascular component - linear or bent vessels. Morphological confirmation of tumor damage of lymph nodes was received in 125 (92.6%) of patients. Out of them in 18 patients we detected lymph proliferative damage, in 85 patients we detected cancer metastases to mediastinal lymph nodes and bronchopulmonary metastases of different localizations, in 22 patients there was detected pulmonary sarcoidosis.