

FIRST USE OF A HELICOIDAL CORE BIOPSY NEEDLE GUIDED BY TRANSTHORACIC ULTRASOUND FOR THE DIAGNOSIS OF LUNG CANCER

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[WCBIP] Diagnosis of periferal lung nodules

Presentation Preference: Either

Case Report: NO

Background:

The complete diagnosis of lung cancer doesn't actually rely on the sole pathologic identification of the tumor. Immunohistochemistry and molecular analyses are needed to provide targeted treatments. Research requires even much more preserved samples to analyze fragile macromolecules such as mRNA. Until this day, only surgery provided high quality tumor tissue in sufficient quantity. Guided microbiopsies often provide poor quality samples, especially concerning RNA quality. Data concerning noninvasive RNA harvesting in the lung is rare.

Objective:

We evaluated a frontal core macrobiopsy system (Spirotome, Cooks Medicals) for the diagnosis of lung masses suspected of malignancy. The objective was the evaluation of the diagnostic performance, the quality and quantity of the samples (including RNA quality index) and complications.

Methods:

Twenty-three consecutive patients referred to the department of Interventional Pneumology of the CHU de Liege for the diagnostic of lung nodules abutting the pleura were included. All gave informed consent. The study was approved by the local Ethic Committee. The biopsies were harvested using the Spirotome device; which consists of a helicoidal cutting needle system (see figure). The biopsy was guided with transthoracic ultrasound. All required pathological and molecular analyses were performed. Additionally, the quantities and qualities of DNA and RNA were evaluated for 12 cases. A visual pain score was used, and complications were looked after with low dose chest CT.

Results:

The sensibility and specificity of the technique were respectively 85 and 100%. The negative predictive value was 40%. All samples positive for the diagnosis of lung cancer allowed a comprehensive pathological workup including analyses for targeted therapies. The evaluation of the RNA quality showed 7/12 samples suitable for microarrays analyses (RQI>7). The mean pain scale was 1.43/10. Complications included pneumothorax (2 required chest tube), 1 local infection and 1 case of fistulization to the pleura.

Conclusion:

The Spirotome system under ultrasound guidance for the diagnosis of peripheral lung masses is an efficient and safe procedure. The possibility to harvest macrobiopsies without surgical procedure is important in an era of personalized medicine, demanding larger biopsy samples to process a complete workup or research. Comparative studies are needed to confirm the superiority of the device over the standard microbiopsy systems.

