

DIAGNOSIS OF PULMONARY NODULES USING RADIAL-EBUS. A SINGLE FRENCH CENTER EXPERIENCE IN 345 PATIENTS

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Background : Radial-EBUS allows the observation and sample of peripheral lung nodules that cannot be imaged with conventional bronchoscopy.

Aim : To assess the diagnostic yield of radial-EBUS for the diagnosis of peripheral lung nodules.

Methods : 345 patients underwent radial-EBUS at the Rouen University Hospital between May 2008 and May 2013 for the diagnosis of peripheral lung nodules. Before each procedure, the nodule location was mapped using a virtual bronchoscopy software (iLogic System). EBUS procedure was performed using a 4.0mm bronchoscope and a 17S Olympus radial-EBUS probe.

Results : 310/345 procedures were performed under local anesthesia. No adverse event was reported. The nodules' median diameter was 25mm [min-max= 5-32mm]. The median nodule-to-pleura distance was 15mm [min-max= 0-91mm]. Radial-EBUS provided the diagnosis in 210 of the 281 diagnosed nodules, including 199/245 malignant lesions, and 11/36 benign lesions (2 actinomycosis, 1 aspergillosis, 2 sarcoidosis and 6 others). EBUS-guided brushing and biopsies were both contributive in 36% of the procedures, the brushing alone in 23%, and the biopsy alone in 13%. The sheath washing was contributive in 66 patients but was contributive alone (negative brushing and biopsy) for only one patient. The diagnostic accuracy was higher in malignant lesions (199/245 vs. 11/36, $p < 0.001$, Fisher test), when the lesion was visualized with the radial probe (205/295 vs. 5/14, $p = 0.0153$, Fisher test), and when the lesion was > 2 cm (147/220 vs. 62/120, $p = 0.073$, Fisher test). The diagnostic yield did not change between 2008 and 2013 but the nodules were smaller in 2013 than in 2008 (median = 25.5 vs. 19.5mm, $p = 0.01$, Mann-Whitney test).

Conclusion : Radial-EBUS guided with a virtual bronchoscopy software is an easy and safe new endoscopic technique that allows the visualization and the diagnosis of peripheral lung nodules.