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**Title:** Radial endobronchial ultrasound (EBUS) guided suction catheter-biopsy in diagnosis of peripheral pulmonary lesions

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**Body:** Background: EBUS guided biopsy became standard in diagnosis of peripheral pulmonary lesions (PPL). Suction catheter-biopsy is a technique for obtaining a histology sample from peripheral lung parenchyma. Aim of this study was to evaluate diagnostic efficiency, feasibility and safety of EBUS guided suction catheter-biopsy (SCB) in comparison to transbronchial biopsy (TBB) in diagnosis of PPL. Methods: Radial EBUS probe (UM-3R) without guiding sheath was used to navigate suction catheter and TBB forceps to the PPL. Catheter was connected to the collection canister via vacuum pump. The SCB specimens were fixed with 10% buffered formalin on room temperature over night. Tissue specimens were embedded in paraffin. Serial sections, 4- $\mu$ m thick, were cut from each selected block, deparaffinized, rehydrated and stained for histological examination. Results: There were 168 patients enrolled in this study; 69.9% males and 30.1% females. Main lesion diameter was  $4.7 \pm 1.9$  cm. Diagnostic efficiency of EBUS-SCB was 71.3% and EBUS-TBB 70.8%. Prevalence of malignancy in the study was 41.1%. Sensitivity, specificity, positive and negative predictive value (PPV and NPV) of EBUS-SCB in diagnosis of malignancy were 95.1%, 44.2%, 52.6% and 93.3%, respectively. Positive and negative likelihood ratios (PLR and NLR) for both SCB and TBB, were 1.7 and 0.1, respectively. Sensitivity, specificity, PPV and NPV for EBUS-TBB were 95.3%, 46.2%, 55.3% and 93.4%, respectively. Conclusion: EBUS guided SCB is efficient, feasible and safe in diagnosis of peripheral lung cancer. Absence of guiding sheath might be the reason for relatively low specificity.