

Feasibility of cryobiopsy specimen retrieval through standard guide sheath for peripheral pulmonary lesions without bronchoscope removal

ABSTRACT

Background: Transbronchial cryobiopsy is a promising technique for biopsy of peripheral pulmonary lesions (PPL). However, cryobiopsy specimen retrieval can pose problems due to the risk of bleeding during the blind period when the bronchoscope and cryoprobe are removed en bloc. Artificial airways and prophylactic balloon placement are risk-reducing measures, but the latter is challenging in upper lobe PPL. Specimen retrieval through standard guide sheath (GS) system without the need for bronchoscope removal may now be feasible with the ultrathin cryoprobe. Methods: Retrospective review of radial endobronchial ultrasound (rEBUS)-guided transbronchial cryobiopsy for PPL cases in which cryobiopsy specimen was retrieved through the GS over a 6-month period. Results: Twenty patients were included with an overall median age of 66.50 (IQR: 53.0 to 76.7). The median procedural time was 30 (IQR: 25.0 to 33.7) minutes. Median target size was 3.20 (IQR: 2.17 to 4.84) cm with 85% of lesions demonstrated "within" rEBUS orientation. Overall technical feasibility was 85% with median cryoactivation of 4.0 (IQR: 3.0 to 4.0) seconds. No specimen was retrieved in 3 patients. The diagnostic yield for forceps and cryobiopsy was 70% and 60%, respectively, and the combined diagnostic yield was 85% ($P<0.01$ vs. forceps biopsy). Median aggregate size for forceps and cryobiopsy was 8.0 (IQR: 5.3 to 10.0) and 4.5 (IQR: 2.3 to 7.0) mm respectively ($P<0.01$). No pneumothorax was reported and mild self-limiting bleeding was encountered in 30% of cases. Conclusion: Retrieval of cryoprobe through standard GS appears to be a safe and feasible method that can simplify the transbronchial cryobiopsy procedure and complement forceps biopsy in specific cases.