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| **ION robotic bronchoscopy improves on EBUS bronchoscopy for lung nodules.** |
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| **Introduction/Aim:** To explore yields of ION bronchoscopy, a state-of-the-art biopsy device for lung nodules, in patients with prior negative attempts at biopsy- Endobronchial Ultrasound Guide sheath (EBUS-GS) or CT core biopsy.  ION uses a steerable 3.4mm catheter which allows the proceduralist to follow a CT-derived virtual path. Once the nodule is localised transbronchial biopsies, brushes and needle aspirations may be taken.  **Methods:** From a prospective ethics approved study of 60 patients CT characteristics of those patients who had prior negative procedures were reviewed. Bronchus sign positive meant a bronchus seen within the lesion. Bronchus adjacent the nodule regarded as negative. Patients with undiagnosed pulmonary nodules underwent general anaesthetic with endotracheal intubation and the ION procedure was undertaken using a pre-loaded CT for virtual pathway tracking. performed Biopsy out comes were reviewed.  **Results:** 11 patients had prior procedure (EBUS-GS 10, CT Core biopsy 1). Median lesion size was 14 ± 5 mm. Bronchus sign was positive in 4 patients (36%). Bronchus next to the lesion or absent occurred in 4 and 3 patients respectively. All nodules were situated at 7th-8th order bronchi. Lesions were located by ION bronchoscopy in all cases. The time taken to register the catheter, navigate, localise the lesion and commence biopsy was 14.2± 4 minutes. Overall diagnostic sensitivity was 9/11 (82%). Sensitivity for malignancy was 7/7 cases (100%). One complication post procedure bleeding was observed which resolved.  **Conclusion:** ION represents a significant advance over existing techniques. Biopsy out comes were excellent despite the small size of the nodules and adverse radiologic features for transbronchial biopsy. The absence of bronchus sign is not a contra-indication of ION bronchoscopy and reflects the superior design features which allow biopsy in this technically difficult situation. Time taken to perform technical components of the procedure is similar current practice of EBUS-GS.  **Grant Support:** Qld Technology Future Fund Grant 2019 |