

The Usefulness and Limitations of Manual Aspiration Immediately after Pneumothorax Complicating Percutaneous CT Guided Lung Biopsies: A Retrospective 9-Year Review from a Large Tertiary Centre

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Abstract : Background: The aim of this study was to evaluate the effect of manual aspiration of air from the pleural cavity in mitigating the need for chest drain placement after a CT-guided lung biopsy. Method: This is a single institution retrospective review of CT-guided lung biopsies performed on 799 patients between September 2013 and May 2021 in a major tertiary hospital. Percutaneous manual aspiration of air was performed in 104/306 patients (34%) with pneumothoraxes as a preventative measure. Simple and multivariate analysis was performed to identify independent risk factors (modifiable and nonmodifiable) for the success of manual aspiration in mitigating the need for chest drain insertion. Results: The overall incidence of pneumothorax was 37% (295/799). Chest drains were inserted for 81/295 (27%) of the pneumothoraxes, representing 81/799 (10%) of all CT-guided lung biopsies. Of patients with pneumothoraxes, 104 (36%) underwent percutaneous aspiration via either the coaxial guide needle or an 18 or 20G intravenous catheter attached to a three-way stopcock and syringe. Amongst this group, 13 patients (13%) subsequently required chest drain insertion. The success of percutaneous aspiration in avoiding subsequent pleural drain insertion decreased with aspiration volume >500mL, radial pneumothorax depth >3cm, increased subpleural depth of the lesion, and the presence of background emphysema.

Keywords : computed tomography, lung biopsy, pneumothorax, manual aspiration, chest drainage

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