Fascinating World of Windpipe: A Case with Variation and Implications

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Fig. 1: Scout view of the patient on radiology showing a left sided hydropneumothorax (black arrow) with intercostal chest tube drain (white arrow) in situ

Fig. 2: Fibre-optic video bronchoscopy showing the carina (black arrow), and the opening of an aberrant bronchus (tracheal bronchus) arising from trachea superior to carina (white arrow)

Fig. 3: Negotiation of tracheal bronchus with a pediatric bronchoscope revealing two openings (black arrows)

Fig. 4: Coronal MinIP (minimal intensity projection) of the lung showing tracheal bronchus (white arrow) with left sided hydropneumothorax with passive collapse of the left lung (black arrow)

Fig. 5: HRCT (High Resolution Computed Tomography) Chest showing Right upper lobe bronchus dividing into anterior (white arrow) and posterior (black arrow) segmental bronchi, with left sided hydropneumothorax (curved arrow)

A 2-yr-old male presented to the Department of Pulmonary Medicine, Government Medical College and Hospital, Chandigarh with fever and dyspnoea since 2 months. Chest radiograph revealed left sided hydropneumothorax, subsequently diagnosed as tubercular. Patient was managed with intercostal chest tube drainage (Figure 1) and anti-tubercular therapy. However, due to non-expanding lung and as a part of routine work-up as per surgical advise, Fibre-optic bronchoscopy (FOB) was done. It revealed an aberrant bronchus (tracheal bronchus) arising from lateral tracheal wall superior to carina (Figure 2). Negotiation of tracheal bronchus with pediatric bronchoscope revealed two openings (Figure 3). Rest of the bronchial tree was normal, except that right upper lobe bronchus was dividing and supplying only two segments. CT (Computed Tomography) reconstruction confirmed the findings (Figures 4 and 5) and showed that aberrant tracheal bronchus was supplying apical segment of right upper lobe. Patient meanwhile subsequently responded, and drain was removed.

Tracheal bronchus is an aberrant bronchus originating from the lateral tracheal wall, superior to carina.¹ Found within 2 cm of carina, it supplies the right upper lobe.² Detailed assessment of tracheobronchial tree, keeping in mind the presence of aberrant bronchi/segments, is needed for the following reasons. Firstly, besides the basic indications, complete assessment of airways to look for anatomical variation is in itself a valid reason for such an invasive FOB procedure. Secondly, if patient is taken up for surgery, gross one lung ventilation with an endotracheal tube placed too distally (overlooking tracheal bronchus) may cause complications and endanger life.³ Thirdly, modifiable risk factors like Quitting smoking are of paramount importance because of reported increased incidence of malignancies in patients with tracheal bronchus.⁴

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References