

Technical Note

Tracheal Bronchus: High Resolution Computed Tomography diagnosis in a symptomatic patient

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Abstract

A 75-year-old female underwent a High Resolution Computed Tomography (HRCT) scan for recurrent bronchitis and cough. HRCT images showed an anomalous supernumerary bronchus to the right upper lobe directly arising from the right side of distal trachea, corresponding to Tracheal Bronchus (TrB). TrB can cause recurrent right upper lobe pneumonia and special care is requiring during endotracheal intubation. © 2014 The Authors. Published by Elsevier Ltd. This is an open access article under the CC BY-NC-ND license (<http://creativecommons.org/licenses/by-nc-nd/3.0/>).

Keywords: Tracheal Bronchus; Bronchial disease; Bronchus suis; Congenital abnormalities; Multidetector computed tomography

1. Introduction

A 75-year-old Caucasian female, awaiting elective laparoscopic cholecystectomy, complained to her general practitioner of persistent cough, dyspnoea and low-grade fever that had lasted for more than one month. She was prescribed antibiotic therapy for two weeks, without symptomatic improvement.

She presented to the Emergency Department, where a chest radiograph showed areas of consolidation in the lower lobes and in the right apex. Another course of antibiotics was prescribed and her symptoms improved.

To ensure resolution of the pneumonia, prior to laparoscopic cholecystectomy, twenty days later the patient had a High Resolution Computed Tomography (HRCT) scan in our institution.

CT images showed the resolution of the pneumonia, but revealed an anomalous supernumerary bronchus directly arising from the right side of distal trachea corresponding to Tracheal Bronchus (TrB).

The discovery of this aberrant bronchus had implications for her airway management during anaesthesia.

2. Discussion

Tracheal Bronchus (TrB) is a congenital supernumerary bronchus to the right upper lobe that arise directly from the lateral wall of tracheal, generally located 3 cm proximal to the carina [1] (Fig. 1).

TrB is an incidental finding in man, with a low prevalence (1–5%), conversely it is a normal finding in pigs and for this reason it is also called “bronchus suis” or “pig bronchus”. It can be classified into two types: (1) supernumerary, as an accessory bronchus, and (2) displaced when the entire upper lobe (usually right side) is supplied by this bronchus [2].

The congenital abnormality is usually asymptomatic: the accessory bronchus is discovered, as incidental finding, during radiological investigation or bronchoscopy. TrB may also be related to inflammatory conditions due to retained secretions and may cause recurrent pneumonia, chronic bronchitis and atelectasis as in the case discussed. Therefore, it should be considered in differential diagnosis of recurrent pulmonary infections [3].

Multidetector CT permits a direct diagnosis of TrB, non-invasively, and is able to correctly identify the origin of the right upper lobe bronchus with 3D airway reconstructions (Fig. 2).

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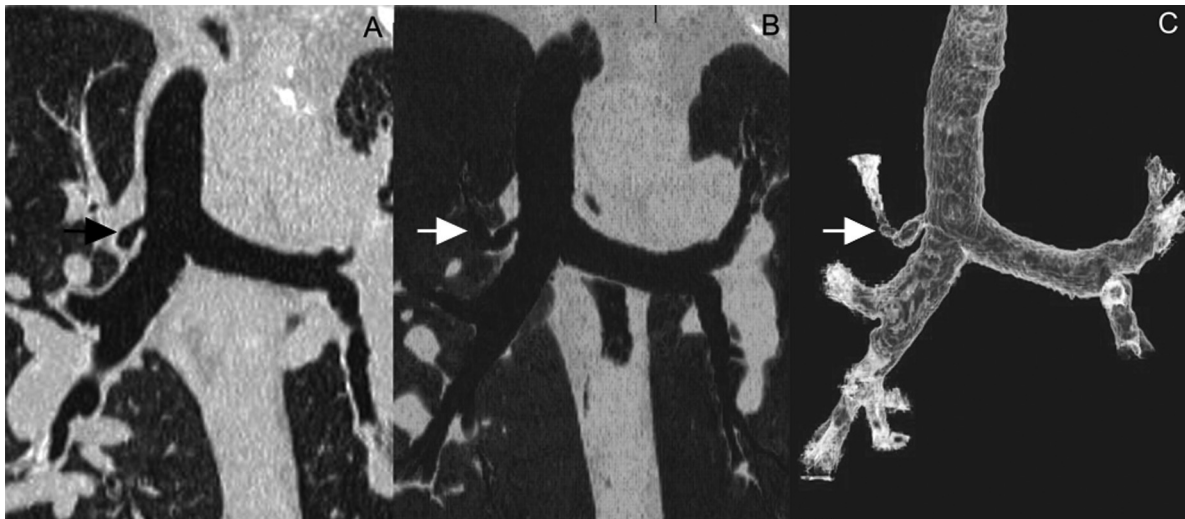


Fig. 1. High resolution MDCT images showing tracheal bronchus (bronchus suis; arrowheads), to the right upper lobe originating from the right side of trachea. (A) Coronal reconstruction in lung windows. (B) Coronal MinIP reconstruction. (C) 3D volume rendering reconstruction. MDCT: multi-detector computed tomography; MinIP: minimal intensity projection. 3D: 3-dimensional.

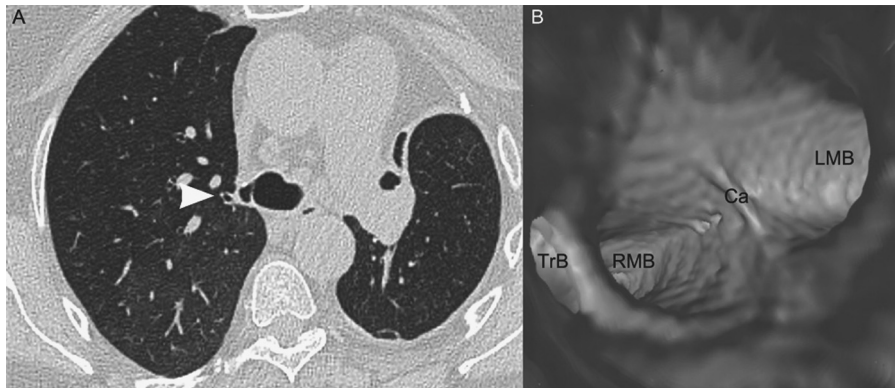


Fig. 2. High resolution MDCT images. (A) Axial CT shows the accessory bronchus origin from right tracheal wall (arrowhead). (B) 3D volume rendering virtual endoscopic reconstruction of trachea showing right (RMB) and left main bronchi (LMB) and the ostium of the Tracheal Bronchus (TrB), arising 2 cm proximal to the carina (Ca).

The use of volumetric HRCT allows multiplanar reconstructions to accurately evaluate the bronchus' path and calibre and to guide management (Video).

Supplementary Video 1 related to this article can be found, in the online version, at [doi:10.1016/j.ejro.2014.10.001](https://doi.org/10.1016/j.ejro.2014.10.001).

Recognition of a TrB before anaesthesia can guide airway management. In fact, special care is required during intubation: if TrB anomaly is not diagnosed, endotracheal tube could provoke the occlusion of the bronchus, which could lead to the collapse of the lobe [4–6].

Accessory bronchial resection may be indicated for severely symptomatic patients [7].

Conflict of interest

None declared.

Acknowledgment

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