

## An Astonishing Anomalous Branching: Accessory Cardiac Bronchus Presenting as Right Hilar Mass lesion

Dr. Nalini Ghanate<sup>1</sup>, Dr. K. Dayanand<sup>2</sup>, Dr. N. Ananthalakshmi<sup>3</sup>, Dr. Krishnaswamy<sup>4</sup>

<sup>1</sup>Civil Assistant Surgeon, ESI Hospital, Nacharam/GGCH

<sup>2</sup>Deputy Civil Surgeon, ESI Hospital, Nacharam/GGCH

<sup>3</sup>Civil Surgeon Specialist, ESI Hospital, Nacharam/GGCH

<sup>4</sup>Civil Assistant Surgeon, ESI Hospital, Nacharam

Department of Pulmonary Medicine, ESI Hospital, Nacharam, Hyderabad, Telangana

### \*Corresponding author

Dr. Nalini Ghanate

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**Abstract:** Anomalous branching patterns are well known and have varied presentations inclusive of coincidental finding. We report a rare case of accessory cardiac bronchus presenting as right hilar mass discovered during pre-operative evaluation of tympanoplasty.

**Keywords:** accessory cardiac bronchus, anomalous branching, hilar mass, congenital anomaly

### INTRODUCTION

An accessory cardiac bronchus, as fancy the name, so is the presentation and occurrence. It is a rare variant of the tracheobronchial branching pattern, arising from the medial aspect of the *bronchus intermedius* [1]. Here we report a case of such finding during pre-operative evaluation of a patient for tympanoplasty.

### CASE REPORT

A 43-year-old female was referred to our department as a part of pre-operative evaluation for tympanoplasty for tympanic perforation. Patient neither had present nor past respiratory symptoms or illnesses. There were no significant findings on physical examination. All routine investigations were found to be normal except for chest radiograph.

The frontal view of chest x-ray revealed a well-defined homogenous dense opacity in right mid zone silhouetting cardiac border. On further evaluation, CT scan showed mediastinal mass reported as lymphadenopathy.

Fibreoptic bronchoscopy was done which revealed three segmental bronchi in right middle lobe while other lobes and corresponding segments were normal [figure 1,2&3]. CT scan was reviewed and presence of accessory cardiac bronchus in right middle lobe leading to above described hilar mass, which happens to be rudimentary parenchyma was noted [figure 4&5].



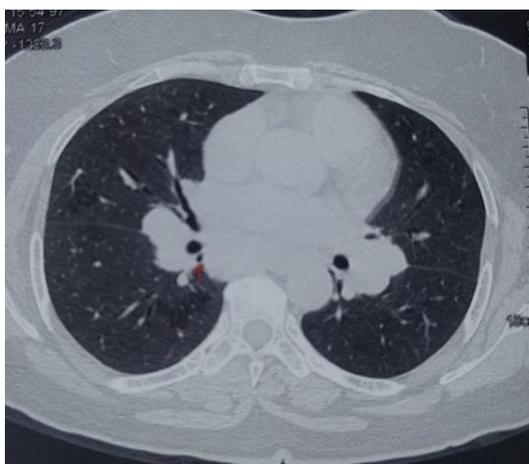
Fig-1: Right upper lobe bronchus with three segmental bronchi (apical, posterior and anterior)



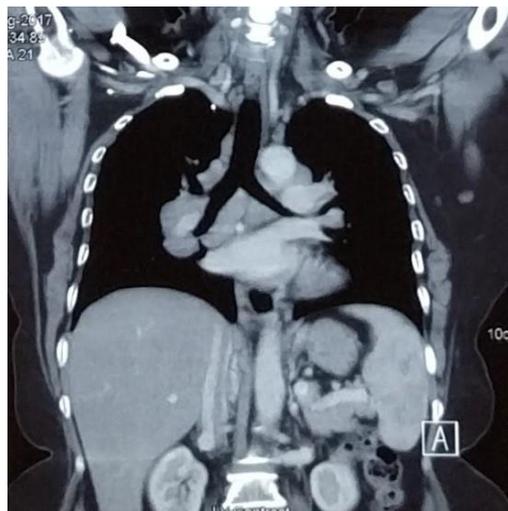
**Fig-2: Right middle lobe bronchus showing segmental bronchi and accessory cardiac bronchus**



**Fig-3: Right lower lobe bronchus with corresponding segmental bronchi**



**Fig-4: CT section showing accessory cardiac bronchus**



**Fig-5: CT section showing rudimentary parenchymal lobule**

## DISCUSSION

First described by Brock in 1946, an accessory cardiac bronchus (ACB) is a “true supernumerary bronchus arising from the inner wall of the right main bronchus or intermediate bronchus opposite to the origin of the right upper lobe bronchus” [1]. Incidence ranges from 0.08 to 0.5% in the general population. Predominantly occurs in men, with a male-to-female ratio of 2.8:1.

An accessory cardiac bronchus has a round orifice and is parallel to the intermediate bronchus, directed caudally toward the pericardium. It may be a short, blind-ending structure or may be a longer, branching bronchus but imaging and anatomic studies have demonstrated that some develop into a series of small bronchioles, which may end in vestigial or rudimentary bronchiolar parenchymal tissue, cystic degeneration, or ventilated lobules [3, 4].

Histology is that of normal airway which distinguishes it from an acquired fistula or diverticulum. This anomaly is anticipated to occur between the 4<sup>th</sup> and 6<sup>th</sup> weeks of gestation, during development of the tracheobronchial tree [2]. Some associated anomalies are reported in the literature, including right or left tracheal bronchus, coexistence of two accessory cardiac bronchus, and bronchiectasis [4, 5].

Most of the accessory cardiac bronchi are asymptomatic. In some patients, abnormal drainage predisposes to repeated chest infections [6]. Hemoptysis [7] and malignant [8-11] transformation have also been described.

A cardiac bronchus is almost always an incidental finding of computed tomography(CT).In few cases the dependent lung parenchyma may be collapsed and mimic a soft tissue mass[6] or mistaken for mediastinal lymphadenopathy. Bronchoscopy may be

indicated to differentiate the entity from a diverticula [11].

As these structures are usually asymptomatic, no treatment is required. In rare instances of recurrent infections that can be attributed to a cardiac bronchus, surgical resection may be indicated [2].

#### CONCLUSION

Though in small percentage of patients, owing to the possible complications mentioned above, patients with this rare anomaly should be under close follow-up.

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