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ACCESSORY CARDIAC BRONCHUS: A RARE CASE OF HEMOPTYSIS

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ABSTRACT
A 32-year-old female presented with hemoptysis due to an accessory cardiac bronchus. This accessory bronchus was unique in the sense that it had a patent communication with the contralateral bronchus. This kind of anomaly is a peculiarity of great rarity because no literature regarding the same was found in our search.

KEYWORDS: Accessory, Bronchus, Hemoptysis.

INTRODUCTION

Accessory Cardiac Bronchus is characterized by an anomalous bronchus originating from the intermediate bronchus opposite to the origin of the right upper lobe bronchus or originating from the medial wall of the right main bronchus. It is usually asymptomatic and as a consequence, is mostly discovered incidentally. Occasionally, however, patients become symptomatic showing recurrent episodes of infection or hemoptysis.[1, 2, 3]

In this paper, we present a case history of a patient with accessory cardiac bronchus that we encountered during bronchoscopy for evaluation of the cause of hemoptysis.

CASE HISTORY

A 32 years-old female referred to our hospital with a history of hemoptysis (50-75 ml of fresh bright red blood) for last two days. She also had a history of cough with expectoration (pale-yellow, mucoid) for the last one week. There was no history of fever, shortness of breath, seasonal or diurnal variation of symptoms or chest pain. Past history revealed similar episodes of occasional hemoptysis for last seven years, with two major episodes – one, eight years ago and another, three years ago. She gave a history of anti-tubercular treatment intake for a duration of six months that was prescribed by a general practitioner three years ago. However, the mild episodes of blood mixed expectoration and cough persisted which was treated symptomatically with antibiotics and cough syrups. There was no history of comorbidities like diabetes mellitus, hypertention, dyslipidemia etc. She was a housewife, vegetarian and nonsmoker without any addiction.

On admission, physical examination revealed that the patient had a pulse rate of 88/min, blood pressure of 110/78 mmHg, normal body temperature, a respiratory rate of 14/min, normal respiratory sounds with only crackles in the right hemithorax, no acute distress and a transcutaneous blood oxygen saturation of 99%.

Laboratory investigations included complete haemogram, platelet count, coagulation time, blood glucose, S. Urea, S. creatinine, and liver function tests and revealed nothing significant.

Digital Chest X-ray showed - Right paracardiac opacities. (Figure-1)

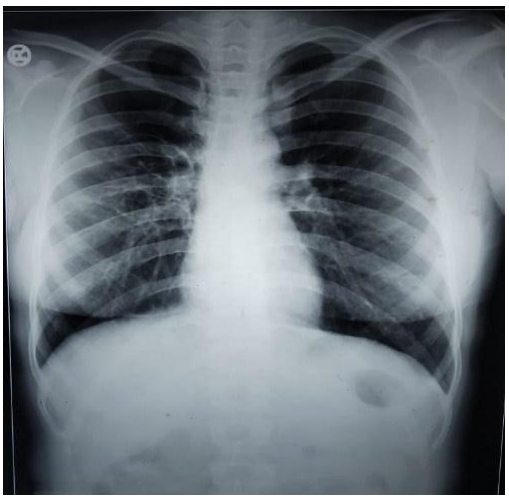

Figure 1: Digital CXR showing Rt. paracardiac opacities.

Fiberoptic bronchoscopy carried out on the next day of admission demonstrated presence of accessory cardiac bronchus, having cartilage rings, originating from right main bronchus, approximately 1 cm below carina, (Figure-2a), which was communicating with left main bronchus approximately 1cm below carina, visible as an ellipsoid opening (Figure-2b). The presence of patency of this communicating bronchus was confirmed by instilling methylene blue dye.

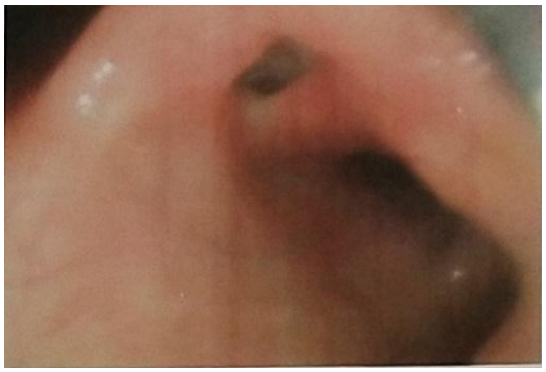

Figure 2a: Opening of accessory bronchus in Rt. main bronchus, visible beyond the carina.

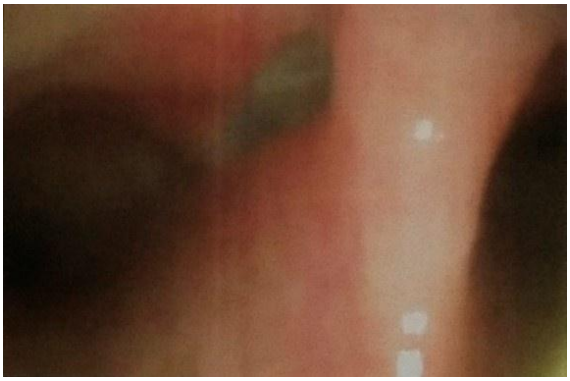

Figure 2b: Opening of accessory bronchus in left main bronchus, visible 1cm from the carina.

Bronchoalveolar lavage (BAL) fluid cytology was negative for malignant cells and showed respiratory epithelial cells and plenty of inflammatory cells with polymorphocytic predominance. BAL Gram staining showed no organisms. BAL cultures were negative for Mycobacterium spp. and fungi.

Contrast Enhanced CT Thorax confirmed the presence of a cardiac bronchus arising from medial aspect of the bronchus intermedius with associated subsegmental collapse and bronchiectasis. The bronchus was also showing communication with the medial aspect of left bronchus and demonstrated multiple thin walled irregular cavitatory lesions with fibroparenchymal bands, traction bronchiectasis involving right upper lobe, middle lobe and superior segment of lower lobe with few ill defined centrilobular nodules with surrounding ground glass opacification noted in superior segment of right lower lobe.(Figure-3a).

A reformatted coronal image showed an accessory cardiac bronchus arising from the medial wall of the bronchus intermedius and communicating on the left side. (Figure-3b).

Angiography of the bronchial and pulmonary arteries revealed normal structures and origin.

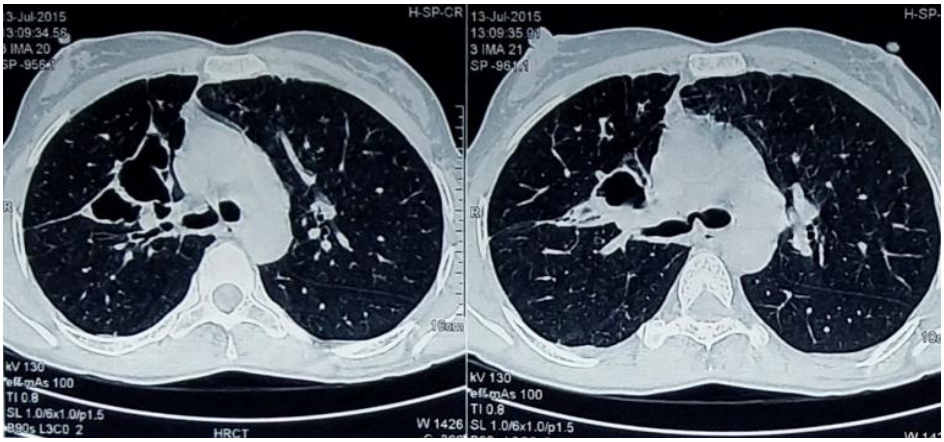

Figure 3a: CECT Thorax (axial section) showing presence of a cardiac bronchus arising from medial aspect of the bronchus intermedius with associated subsegmental collapse and bronchiectasis. The section is also showing communication with the medial aspect of left bronchus and multiple thin walled irregular cavitatory lesions with fibroparenchymal bands, traction bronchiectasis involving right upper lobe and middle lobe.

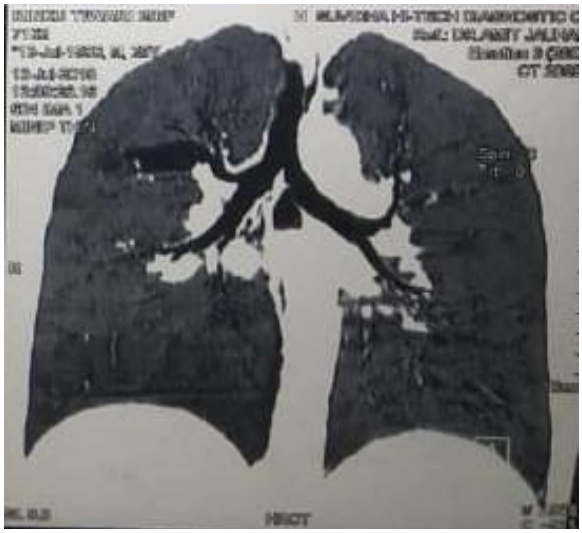

Figure 3b: CECT Thorax (coronal image) showing an accessory cardiac bronchus arising from the medial wall of the intermediate bronchus and communicating on the left side.

Diagnosis: The diagnosis of accessory cardiac bronchus (ACB) with communication to the contralateral side (Bridging bronchus) with bronchiectasis was made. The patient was briefed regarding the treatment option of surgery as a permanent cure but she did not consent for surgery. She is still on follow up and reports when symptomatic. She last visited about one month back when she was having blood streaked expectoration. She became symptom-free with one week of antibiotic treatment.

DISCUSSION

Accessory cardiac bronchus, first described by Brock in 1946, is the only true supernumery bronchus. ACB has an incidence rate of 0.07% to 0.5% in full-term births.[4] It occurs predominantly in men, with a male-to-female ratio of 2.8:1.[5] It results from abnormal development during the 4th to 6th weeks of embryonic life**.** The respiratory tract originates from the anterior division of the embryonic foregut at approximately 4 weeks of gestation. The tracheobronchial diverticulum has its origin in the pharynx and divides in two major bronchial branches that subsequently give rise to segmental bronchi, bronchioles, and alveoli.[6,7] The variations in the patterns of the bronchopulmonary tree arise mainly at the time when the segmental and subsegmental buds are being formed, between the fourth and the sixth week of embryogenesis, and are caused by their appearance at atypical sites on the respiratory tree.[6,8]

This type of accessory bronchus is unique in the sense that it had a patent communication with the contralateral bronchus. This kind of anomaly is a peculiarity of great rarity because no literature was found in our search regarding the same. In the literatures, usually these accessory bronchi end up into a blind extremity near their emergence[9] or are longer and aerate some amount of parenchyma with or without atelectasis.[10, 11]

Differential diagnoses include acquired bronchial fistula, traction diverticula, adenoid recess, and mucus strands in the bronchus intermedius.[12, 13] Hemoptysis was believed to originate from this abnormal and widened bronchus. No other possible cause of hemoptysis could be found on evaluation of the case.

CONCLUSION

Although an accessory cardiac bronchus is not pathological per se, it is occasionally associated with clinical symptoms and complications. The significance of the discovery of this anomaly is that it enables us to separate congenital variations from lesions of the bronchus intermedius and correct diagnosis is important, because it could be associated with pathologies that may require clinical, endobronchial, and in some instances surgical interventions.

REFERENCES

1. Dunnick NR. Image interpretation session: 1999. Accessory cardiac bronchus. Radiographics, 2000; 20(1): 264-5.
2. Bentala M, Grijm K, van der Zee JH, Kloek JJ. Cardiac bronchus: a rare cause of hemoptysis. Eur J Cardiothorac Surg, 2002; 22(4): 643-5.
3. Ghaye B, Kos X, Dondelinger RF. Accessory cardiac bronchus: 3D CT demonstration in nine cases. Eur Radiol, 1999; 9(1): 45-8.
4. Jackson GD, Littleton JT. Simultaneous occurrence of anomalous cardiac and tracheal bronchi: a case study. J Thorac Imag, 1988; 3: 59– 60.
5. Brock RC. The anatomy of the bronchial tree. Oxford: Oxford University Press, 1946.
6. Venkasterwarlu T, Turner CJ, Carter JD, et al. The tracheal bronchus: an unusual airway problem. Anesth Analg 1976; 55: 746–7.
7. Mehta AC, Ahmad M, Golish JA, et al. Congenital anomalies of the lung in the adult. Cleve Clin Q, 1983; 50: 401–16.
8. Wier JA. Congenital anomalies of the lung. Ann Intern Med, 1960; 52: 330–48.
9. The Ary Cardiac Bronchus Bronchologic Aspect and Review of the Literature Victor G. Alangiulea, Al.D.,o and Razvan V. Stinghe, M.D., DIS. CHEST, VOL. 54, NO.5, NOVEMBER 1968,35)
10. Ghaye B, Kos X, Dondelinger RF. Accessory cardiac bronchus: 3D CT demonstration in nine cases. Eur Radiol, 1999; 9: 45-48.
11. Benoit Ghaye, MD, David Szapiro, MD, Jean-Marc Fanchamps, MD and Robert F. Dondelinger, MD Congenital Bronchial Abnormalities Revisited. Radiographics, 2001; 21: 105-119.
12. Mata JM, Cáceres J, Lucaya J, et al. CT of congenital malformations of the lung. Radiographics, 1990; 10: 651–74.
13. Béguery P, Denies JL, De Voogd A. La bronche cardiaque accessoire. A propos d'un cas. Revue de la littérature. J Radiol, 1980; 61: 69–73.