Case report

**Cardiac bronchus: a rare cause of hemoptysis**

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Abstract

In this paper, we present a case history, involving a 70-year-old male patient with hemoptysis due to an accessory cardiac bronchus, which was treated successfully by resection. © 2002 Elsevier Science B.V. All rights reserved.

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1. Introduction

An accessory cardiac bronchus (ACB) is a rare congenital anomaly of the tracheobronchial tree, usually causing no symptoms and, as a consequence, mostly discovered incidentally. Occasionally, however, patients become symptomatic, showing recurrent episodes of infection or hemoptysis. In this paper, we present a case history that involves such a patient.

2. Case history

A 70-year-old male patient was referred to our hospital because of massive hemoptysis. During the 3 days preceding admission, he had expectorated small amounts of blood. The day of admission he expectorated 100–200 ml of bright red blood with clots. Persistent cough, dyspnea, fever, chest pain, weight loss, and flu-like symptoms were absent. Also, the patient had no history of pulmonary disease, although he had smoked ten cigarettes per day during the past 20 years.

In 1997, the patient suffered an ischemic cerebrovascular accident, which left him without neurological deficits. Since then he had been under anti-platelet therapy.

Physical examination on admission revealed a patient in no acute distress with a body temperature of 37.4°C, a heart rate of 90 beats/min, a blood pressure of 150/80 mmHg, a respiratory rate of 12/min, a transcutaneous blood oxygen saturation of 99%, normal respiratory sounds, with the presence of rhales in both basal lung fields, and a normal chest X-ray. Laboratory testing showed normal blood values, including normal platelet count and coagulation time.

Fiber optic bronchoscopy, carried out on the day of admission in another hospital, revealed the presence of blood in the right and left main bronchial system and in all peripheral segments. There appeared to be active bleeding from a small aberrant bronchus, originating medially from the right intermediate bronchus opposite the ostium of the right upper lobe bronchus.

Computed tomography of the thorax showed on both the transversal and the sagittal coupes the presence of an ACB located in the medial wall of the intermediate bronchus. The ACB had the appearance of a normal bronchus without associated lung tissue (Fig. 1).

Angiography of the bronchial and pulmonary arteries showed no abnormalities. A right thoracotomy was performed, revealing a short bronchus, arising from the right intermediate bronchus opposite the orifice of the right upper lobe bronchus. The ACB had a diameter of 9 mm, with an medial extension of 3 cm into the subcarinal area. The distal end appeared to consist of a stump with glasy tissue at its end. There was no lung tissue surrounding the ACB (Fig. 2). The ACB was resected, while attention was paid to the vagal nerve. The orifice of the ACB was closed using double-layer Vicryl sutures.

Pathological examination of the resected specimen revealed a blind-ending tubular structure with cartilage rings, inflammatory tissue, and hypermicrovascularization at the distal end. The hemoptysis was attributed to this distal tip of the ACB, which was fragile due to inflammation. At 9 months follow-up, the patient has not had any recurrence of the hemoptysis and is doing well.
3. Discussion

ACB is a rare congenital anomaly of the tracheobronchial tree, which was first described by Brock in 1946, and which is the only true supernumerary anomalous bronchus [1–5]. Its incidence ranges from 0.07 to 0.5% [2,3]. An ACB generally arises from the medial wall of the bronchus intermedius at its proximal third, but occasionally from the right main bronchus [2]. From there, it runs medially and caudally toward the heart, hence the cardiac appellation.

Mangiulea et al. defined three ACB types, based on the aspect of the ACB on bronchography: a diverticular type with a blind end, a type with terminal branches, ventilating a small underdeveloped lobulus, and an intermediate type with a long diverticulum but without terminal branches or lung tissue at the end [5].

An ACB is generally not visible on chest X-ray. It is commonly discovered incidentally on computer tomography and usually causes no symptoms [2,4]. Although rare, an ACB can become symptomatic through recurrent infections and hemoptysis [6–8]. These symptoms are due to the accumulation of secretions in the ACB, leading to inflammation, hypermicrovascularization, and hemoptysis. This is especially the case when the ACB is long or has an accessory lobe. In these cases, 3D-CT can be of importance in assessing the length of the ACB. However, due to the low incidence of

Fig. 1. Computed tomography showing on both the transversal (a) and the sagittal (b) coupes the presence of an ACB (black arrow) located in the medial wall of the intermediate bronchus. The ACB had the appearance of a normal bronchus without associated lung tissue.

Fig. 2. Operative field, the ABC is visible (white arrow) rising from the medial side of the right intermediate bronchus (•) before resection.
anatomical site, the medial wall of the bronchus intermedius of the right main bronchus, it should not be omitted in evaluation of hemoptysis or recurrent infection. These ACBs that are symptomatic should be surgically resected.

In our case, we were led to the diagnosis as we recognized an aberrant bronchus, containing blood in its lumen, on bronchoscopy. The diagnosis was later confirmed by computer tomography and surgery. In summary, this case report illustrates the possibility of the existence of an accessory cardiac bronchus as a cause of massive hemoptysis and its surgical treatment.

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References