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Bronchoscopic resection of bronchial angiolipoma: A rare case report

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Abstract. Angiolipoma is a rare benign tumor that most commonly occurs in the extremities and trunk. Angiolipomas originating in the bronchial tree are extremely rare. To the best of our knowledge, only one such case, confined to the bronchus intermedius, has been reported to date. The present study describes the case of an asymptomatic 74-year-old man with a yellowish round mass incidentally discovered at the orifice of the right lower bronchus during a routine health check. The tumor originated from the membranous part of the right inferior bronchus. Using a high-frequency electric snare and argon plasma coagulation under general anesthesia, successful bronchoscopic resection of the tumor was performed. At 15 months after the surgery, the patient remained recurrence- and symptom-free.

Introduction

Endobronchial lipomas are a rare benign tumors accounting for only 0.1% of all lung neoplasms (1). They are classified into lipoma, variants of lipoma, heterotopic lipomas, hamartomatous lesions, infiltrating or diffuse neoplastic or non-neoplastic proliferations of mature fat and hibernoma (2). Angiolipoma is a variant of lipoma accounting for 5-17% of all lipomas and predominantly presents in young adults as subcutaneous nodules, which are tender or painful on palpation, particularly during the initial growth period (1-4). Angiolipoma, however, arising in the bronchus, is extremely rare. To the best of our knowledge, only one such case has been reported to date, which was confined to the bronchus intermedius (5). The present study describes a rare case of a 74-year-old man with a yellowish round mass incidentally discovered at the orifice of the right lower bronchus during a routine health check. The mass was resected using a high-frequency electric snare and argon plasma coagulation through a flexible bronchoscope under general anesthesia and was proven on histopathological examination to be an angiolipoma.

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Case report

A 74-year-old man was referred to the Department of Thoracic Surgery of Lanzhou General Hospital (Lanzhou, China) for treatment of an endobronchial tumor that was incidentally discovered on chest radiography and computed tomography (CT) during a routine health check in another hospital, without symptoms. A chest CT revealed a round mass, sized ~15x12 mm, occluding the lumen of the right inferior bronchus, with low attenuation (Fig. 1). Partial postobstructive pneumonia in the right lower lobe was also found on the CT scan. The patient underwent flexible bronchoscopy that confirmed the presence of a yellowish round pedunculated mass at the orifice of the right inferior bronchus, which was mobile during breathing and nearly occluded the bronchial lumen (Fig. 2). As it was difficult to obtain bioptic specimens from the mass and due to the risk of bleeding, pathological examination was not performed preoperatively. The patient had undergone radical resection of gastric carcinoma ~10 years prior, had been diagnosed with diabetes mellitus 1 year prior, and he was a heavy smoker. Physical examination and laboratory test results revealed no significant abnormalities.

Bronchoscopic resection of the lesion was performed during flexible bronchoscopy using a high-frequency electric snare under general anesthesia. The tumor originated from the membranous part of the right inferior bronchus. Following removal of the mass, additional argon plasma coagulation was performed to remove the residual tumor base and to control the bleeding. Histologically, the tumor contained adipose tissue and proliferative blood vessels, and was diagnosed as angiolipoma (Fig. 3).

The patient's postoperative recovery was uneventful and he was discharged on the third postoperative day. The patient has

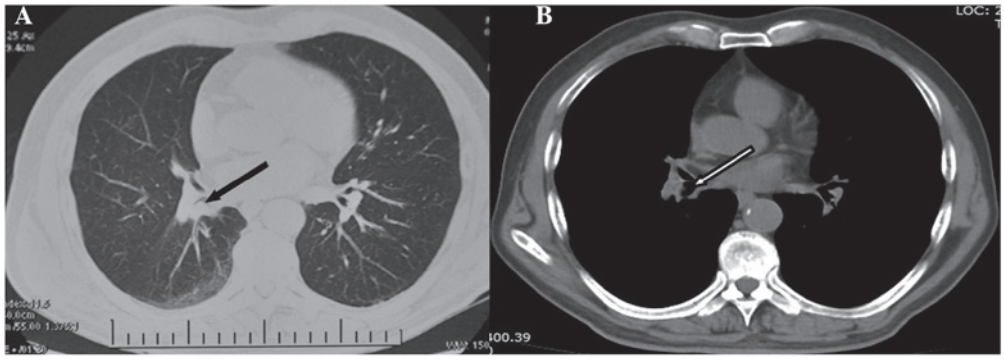

Figure 1. Chest computed tomography scan showing a round mass in the right inferior bronchus occluding the lumen (arrow). (A) Lung window and (B) mediastinal window.

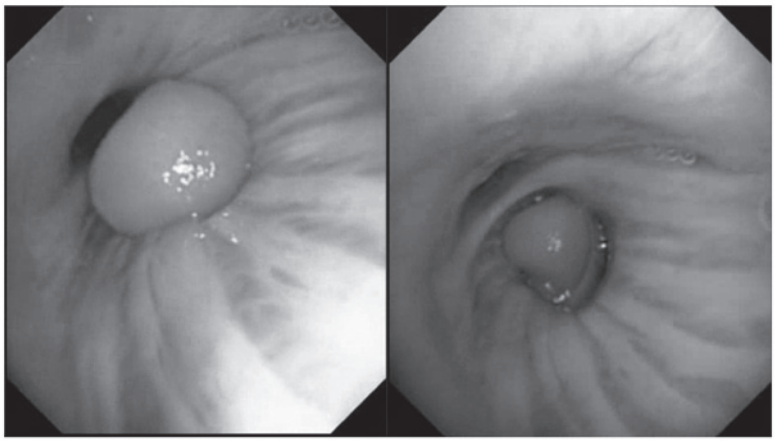

Figure 2. Bronchoscopy revealed a yellowish round pedunculated mass at the orifice of the right inferior bronchus, which was mobile during breathing and nearly occluded the bronchial lumen.

been followed up in the outpatient department for 15 months with no symptoms or recurrence.

Written informed consent was obtained from the patient and his family regarding the publication of the case details and associated images.

Discussion

Angiolipoma was first described as a multiple subcutaneous tumor and named by Bowen in 1912 (6). In 1960, Howard and Helwig (4) described the clinical and histological characteristics of angiolipomas that distinguish them from lipomas, thereby designating angiolipoma as a new entity. Through cytogenetic analysis, Sciot *et al* (7) demonstrated a normal karyotype of angiolipomas, in contrast to the various other types of benign lipomas, most of which exhibit rather characteristic clonal chromosomal aberrations, suggesting that the pathogenesis of angiolipoma differs from that of pure lipomas. Angiolipoma occurs most commonly in young patients in their second or third decades of life, and exhibits a male predominance (8). Gonzales-Crussi *et al* (9) recommended classifying angiolipomas into two subtypes, namely non-infiltrating and infiltrating. The non-infiltrating type is more common and is usually well-encapsulated, just as shown in the present case. The infiltrating tumors are partially or entirely unencapsulated, ill-defined and invade adjacent tissues (10).

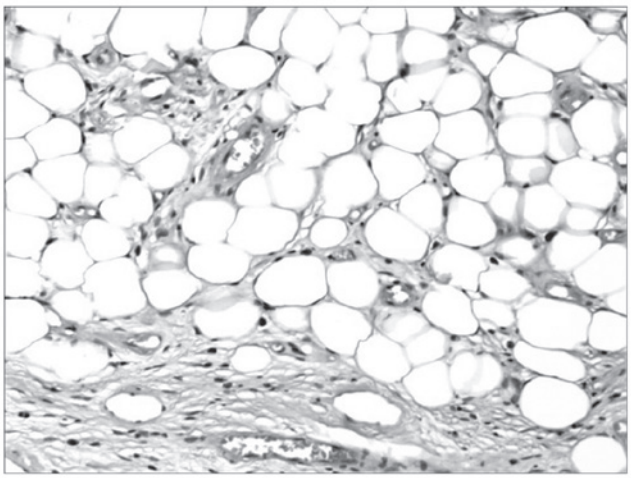

Figure 3. Histopathological examination of the resected tumor established the diagnosis of bronchial angiolipoma consisting of a combination of mature adipose tissue and multiple small blood vessels (hematoxylin and eosin staining; magnification, x100).

The pathogenesis of angiolipoma remains unclear. Trauma, smoking and obesity have been implicated as possible etiological factors (11,12). Angiolipoma may also be hamartomatous in nature (12). The patient in the present case had no history of trauma and was not corpulent, but was a heavy smoker.

Angiolipomas are mainly located in the subcutaneous tissues of the trunk and extremities, and are tender or painful on palpation. Unusual locations reported in the literature, however, include the brain, breast, intramedullary and epidural spine, foot, cheek, lip, mediastinum, mandible, ribs, palate, parotid gland and orbit (12-15). To the best of our knowledge, only one case of bronchial angiolipoma has been reported in the English literature to date (5). This neoplasm is usually slow-growing and presents with symptoms associated with bronchial obstruction. In our case, the patient was asymptomatic, as the mass was mobile and did not completely occlude the lumen.

In the present case, the lesion exhibited low attenuation in the bronchial lumen on CT examination. The differential diagnosis should include hamartoma and lipoma. Angiolipoma may be difficult to distinguish from hamartoma, unless calcifications are present in the hamartoma, or the ratio of dense vascular and stromal elements is significantly higher (16). The most characteristic diagnostic feature of angiolipoma is the presence of adipose tissue and angiomatous proliferation, as was the case in our patient.

Endobronchial angiolipoma may be resected by surgical or bronchoscopic methods. In the only previous report of bronchial angiolipoma, the authors performed successful localized resection of the lesion and suggested complete surgical resection was advisable if the patient was able to tolerate the procedure. However, some scholars consider bronchoscopic resection, which was employed in the present case, to be the preferred method, as rare benign tumors characterized by slow growth may carry a low risk of malignant transformation (11,17,18). Endoscopic resection includes laser ablation, electrocauterization, cryorecanalization and electrosurgical snaring (19). Electrosurgical snaring and argon plasma coagulation are convenient and safe to use for removal of the lesion by flexible bronchoscopy under general anesthesia, as described in our case. It was agreed that adjuvant radiation should not be administered for this benign pathological entity, even in the infiltrating group (20).

The prognosis of angiolipoma following complete resection appears to be satisfactory. The patient described in the present case remained recurrence- and symptom-free at the 15-month follow-up; however, long-term survival remains to be assessed.

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