Case Report

Endobronchial chondroma: a rare benign bronchial neoplasm

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SUMMARY. Endobronchial chondroma is a rare benign endobronchial tumour that may lead to obstruction, infection and destruction of lung tissue. Radical resection is curative, except when the chondroma is associated with other malignant neoplasms (Carney's triad). We describe a case of endobronchial chondroma in a young man which was successfully managed by segmentectomy. *Pneumon 2010, 23(2):172-175.*

INTRODUCTION

Endobronchial chondroma is a rare form of benign tumour of the respiratory system. A recent publication cites only 41 case reports in the medical literature[1]. It is not associated with any specific symptoms, but it may cause bronchial obstruction and recurrent respiratory infections[2], or it may be clinically suggestive of bronchial asthma[1,3,4], or raise radiological suspicions of malignancy[5]. Unless it is promptly diagnosed and managed, it may lead to destruction of lung parenchyma distal to the obstruction[6]. We report on a case of endobronchial chondroma that was successfully diagnosed and managed.

CASE DESCRIPTION

A 43 year-old man presented with cough and minimal sputum production, without fever apart from one transient episode. He was a smoker (25 pack-years) and worked as a cook in a restaurant. His symptoms had been present for some months, and had shown only transient improvement with antibiotics and various inhalers. He reported no dyspnoea, wheezing, weight loss, anorexia, malaise or symptoms of gastro-oesophageal reflux. He had been examined by an otolaryngologist who found no relevant abnormality. Clinical pulmonary examination was completely normal; pulse oximetry showed a saturation of 97% on room air. His FEV1 was 3.01L (90% predicted) and his FVC 3.71L (92% predicted), with an FEV1/FVC of 81% (normal).

A plain chest X-ray showed vague shadowing in the right mid-zone.

Chest computed tomography (CT) showed a radio-opaque lesion in the anterior segmental bronchus of the right upper lobe with associated distal consolidation/atelectasis, but the rest of the lung parenchyma was normal. There was borderline (~1 cm) enlargement of the pretracheal lymph nodes (Figure 1). Fiberoptic bronchoscopy revealed a smooth endobronchial lesion completely occluding the anterior segmental bronchus of the right upper lobe (Figure 2). There was minimal bleeding on biopsy, which was not a particularly difficult proceedure. The biopsy specimens showed no evidence of malignancy, but mild to moderate chronic inflammation of the mucosa and pieces of cartilage, which were thought to originate from the cartilaginous lamina of the bronchial wall.

As underlying malignant neoplasia could not be completely ruled out, the patient underwent routine staging CT scans of abdomen and brain which were completely normal. With a probable diagnosis of chondroma, right lateral thoracotomy was performed. Surgical exploration showed no extension of the lesion beyond the anterior segment, which showed areas of haemorrhagic infiltration, but expanded during inspiration under to the positive pressure generated by the ventilator. Examination of a frozen section of the lesion showed no evidence of malignancy and anterior segmentectomy was performed. Histopathological examination of the resected lesion (Figure 3) confirmed that this was an endobronchial chondroma; after demineralization, the nodule, which was 11 mm in diameter, was found to consist of mature hyaline cartilage with extensive calcification. Chronic non-specific inflammation of the bronchus and the surrounding lung parenchyma was observed, but there was no evidence of malignancy. The patient made an uneventful recovery and gave up smoking. Two months after surgery he was clinically well, with normal physical findings and only mild restriction on spirometry.

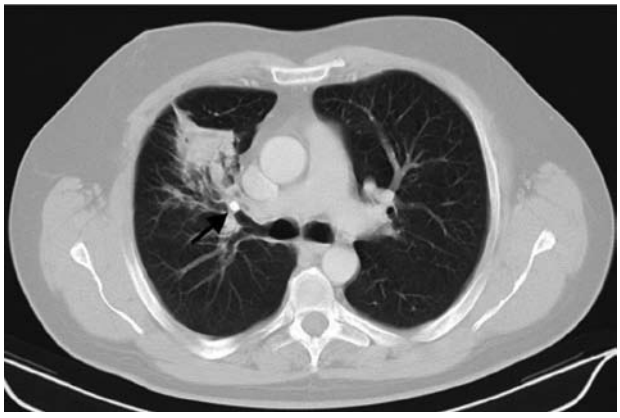

FIGURE 1. Chest CT: Endobronchial radio-opaque lesion in the anterior segmental bronchus of the right upper lobe (arrow) with accompanying consolidation/atelectasis.

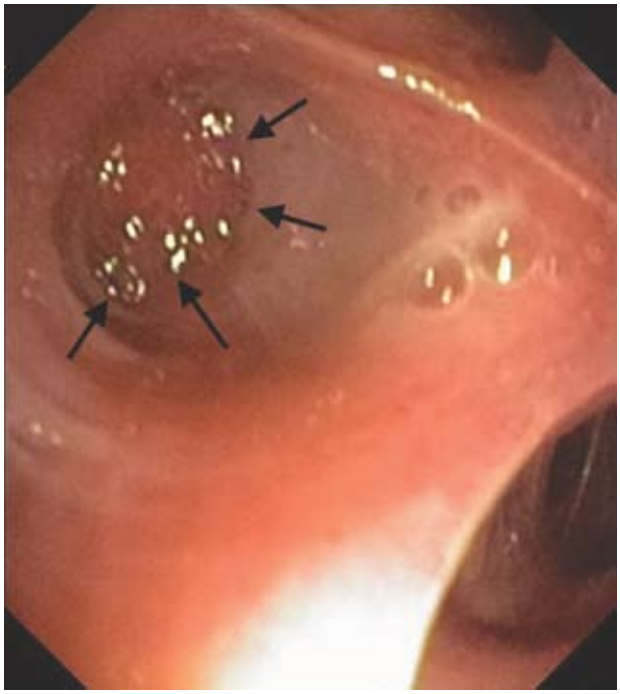

FIGURE 2. Fiberoptic bronchoscopy: Obstruction of the anterior segmental bronchus of the right upper lobe by endobronchial mass (arrows).

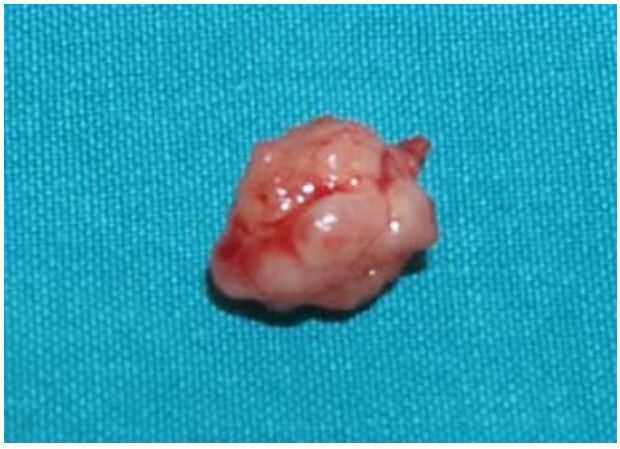

FIGURE 3. The endobronchial tumour, 1.1 cm in diameter, after resection.

DISCUSSION

Chondromas are benign tumours that most commonly involve the skeleton, but they may occur in the lungs. Pulmonary chondromas may be intraparenchymal or endobronchial. The former is usually discovered accidentally as a coin lesion on a chest film; the latter gives rise to obstructive phenomena (cough, localized wheezing, infection). A diameter of greater than 3-4 cm is rare. The tumour consists mainly of mature hyaloid cartilage. In some cases this contains cystic or slit-like spaces which may be lined by respiratory epithelium; in other cases there may be admixtures of fibrous tissue, fat and blood vessels, when the tumour is termed hamartoma (or hamartomatous chondroma) of the lung[7]. As already mentioned, there have been fewer than 50 cases have been reported of endobronchial chondroma[1]. Hamartomatous chondromas may be more common than pure chondromas[8].

Diagnosis of this rare tumour can only be made histopathologically as there are no pathognomonic clinical, radiological or bronchoscopic features. In this patient the radiology report of a radio-opaque lesion in the right upper lobe on CT was the original clue that led to its discovery. The pathological differential diagnosis should be mainly from hamartoma and chondrosarcoma.

An endobronchial chondroma is most often a solitary tumour, but there have been exceptional cases of multiple chondromas[9,10], one of which was diagnosed in a neonate[11] who developed respiratory distress due to a right-sided pneumothorax. A right upper lobectomy was performed and multiple chondromas were found in the resected lobe. Pulmonary chondromas may be part of Carney's triad, which also includes gastrointestinal stromal tumours (gastric epithelioid leiomyosarcoma, GIST) and extra-adrenal paragangliomas[12]. The syndrome is often incomplete, more commonly in young females, with two of the three kinds of tumour. As the lesions in the triad other than chondroma are potentially lethal, it is recommended that patients aged under 35 years diagnosed with one of these tumours should be periodically screened for development of the others[13]

Despite their benign nature, chondromas should be resected. Their presence leads to progressive obstruction and destruction of healthy lung parenchyma from post-obstructive pneumonia. A case has been reported of a patient who was diagnosed with chondroma in the left upper lobar bronchus; he refused treatment, and presented four years after the initial diagnosis with complete occlusion of the left mainstem bronchus and destruction of the left lung, which necessitated a left pneumonectomy[6].

The management of endobronchial chondroma consists of radical resection to prevent the theoretical risk of recurrence or sarcomatous transformation[1]. Resection can be achieved by various techniques[2], as reflected in the literature. Standard resection (segmentectomy, lobectomy), endobronchial resection by Nd-YAG laser[14] and/or forceps, and sleeve resection[15] have all been used. In theory, endobronchial resection should be the procedure of choice if technically feasible[16]. However, the selection of technique should take into account the availability of technical skill and equipment in each individual institution as well as the location and extent of the tumour. In the present case sleeve resection was not feasible due to the small calibre of the segmental bronchus. When diagnosed, an intrapulmonary chondroma is removed by simple enucleation without loss of lung tissue[8].

The prognosis is excellent for the patient with a promptly diagnosed and appropriately managed solitary endobronchial chondroma, as there has been no report of recurrence of this tumour. However, if a chondroma is part of Carney's triad, the prognosis is that of the other elements of the syndrome, which are malignant.

Despite its benign histological behaviour, an endobronchial chondroma may lead to destruction of lung parenchyma secondary to chronic bronchial obstruction. In a chronic smoker it may create a false impression of malignancy, with negative prognostic implications and undue anxiety for the patient. For these reasons every case of bronchial obstruction should be thoroughly investigated so that the patient should not be denied the benefits of exclusion of malignancy a curative resection.

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