

Case report

Haemoptysis with subtle computed tomography signs

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A 70-year-old woman was referred to the respiratory department with a 6-month history of dry cough and intermittent minor haemoptysis. This was associated with a sensation of chest discomfort and some shortness of breath on moderate exertion with no orthopnoea or paroxysmal nocturnal dyspnoea. She had a background of coronary artery disease treated by stenting two years previously. She also had a hiatus hernia, type 2 diabetes and cervical spondylosis.

She had had no significant childhood lung diseases and there was no family history of

any respiratory disease. She had stopped smoking 17 years previously but had smoked 20 cigarettes·day⁻¹ for 40 years. She had no nasal or laryngeal symptoms and did not have any symptoms of gastro-oesophageal reflux or aspiration.

Examination was normal with no stridor, wheeze or crackles. Spirometry was normal with a forced expiratory volume in one second (FEV₁) of 2.2 L (99% predicted), and vital capacity (VC) of 2.67 litres with FEV₁/VC ratio of 0.82. A chest radiograph (figure 1) appeared normal. A computed tomography scan was performed (figure 2).

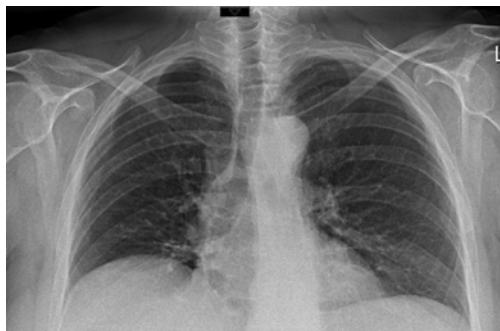


Figure 1 Chest radiograph.

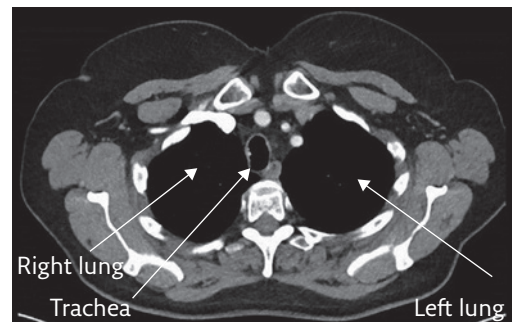


Figure 2 Computed tomography at the level of the trachea.

Task 1

Describe the computed tomography appearances on the image at the level of the trachea (figure 2) and what the next appropriate investigation to perform would be?



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Can you diagnose this 70-year-old woman with a 6-month history of dry cough and intermittent minor haemoptysis? <http://ow.ly/kIfE3OnAlhH>

Answer 1

The computed tomography shows nodularity and flecks of calcium in the trachea. Bronchoscopy would allow direct assessment of the trachea and bronchi.

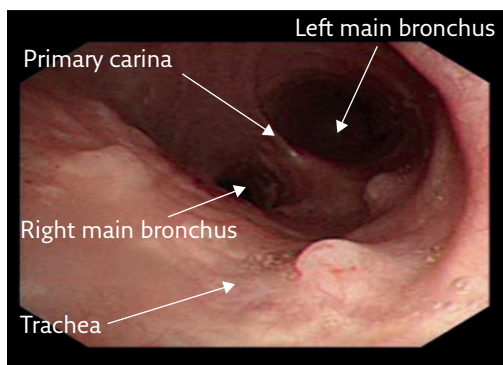


Figure 3 Bronchoscopy.

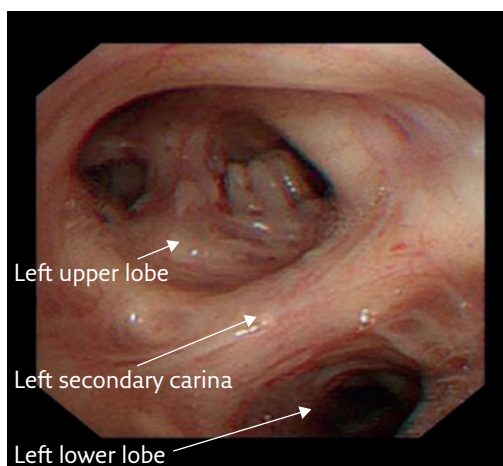


Figure 4 Bronchoscopy.

Task 2

Describe the appearances seen at bronchoscopy (figures 3 and 4). What is the diagnosis?

Answer 2

At bronchoscopy, “cobblestone nodules” were seen protruding into the lumen of trachea and main bronchi, sparing the posterior wall (figure 3), and a “stalactite grotto” appearance in the left upper lobe bronchus (figure 4). The appearances are characteristic of tracheobronchopathia osteochondroplastica.

Biopsy confirmed nodules of cartilage with focal ossification (figure 5). Sirius and Congo red stains for amyloid were negative.

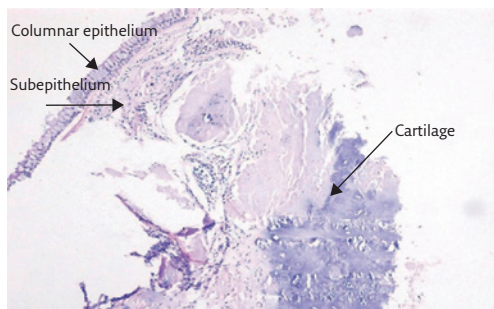


Figure 5 Histopathological slide.

Discussion

Tracheobronchopathia osteochondroplastica is a benign condition characterised by abnormal outgrowths of cartilaginous tissue into the lumen of the trachea, central bronchi and larynx [1]. The nodules may undergo ossification with calcification giving rise to nodules and flecks of calcification visible on computed tomography imaging [2]. The bronchoscopic appearances are often dramatic with hard nodules of tissue in the submucosa of the trachea and central airways, variously described as “cobblestone nodules” or “stalactite grotto” appearances. Typically, the nodules affect the anterior and lateral walls, but spare the posterior membranous portion of the trachea. The differential diagnosis includes calcified amyloidosis, endobronchial sarcoidosis, calcified tuberculosis, papillomatosis and tracheobronchial calcinosis.

The aetiology and pathogenesis are unknown but the nodules seem to arise from the cartilage of the airways, thus sparing the posterior tracheal membrane. Immunohistochemical studies have detected bone morphogenetic protein 2 and transforming growth factor beta 1 in the nodules, but provoking factors are not understood [3]. The usual age at diagnosis is about 65 years, but cases have been described in children and in families with a mother and daughter affected [4]. Laryngeal involvement may occur, resulting in hoarseness and stridor. Often tracheobronchopathia osteochondroplastica is a co-incidental finding

at bronchoscopy or at autopsy. It usually follows a benign course over many years and doesn't necessarily cause symptoms. Cough, sputum, haemoptysis and sometimes chest discomfort may occur. Lung function tests are usually normal. Occasionally the nodules are sufficiently

widespread as to cause obstruction on spirometry or flow-volume loops. If the nodules occlude a lobar bronchus then distal infection may occur. Treatment is often not needed. Bronchoscopic removal of obstructing lesions or stenting of the trachea has rarely been performed [5].

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Conflict of interest

None declared.

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