Bronchogenic cyst mimicking an isolated paratracheal lymph node

Introduction

A patient with a cough had an incidental finding of an isolated enlarged paratracheal lymph node on computed tomography of her chest. However, given the isolated nature of the 'node' with a density on review near that of fluid and the lack of red flag symptoms (the cough had resolved at this point), magnetic resonance imaging was undertaken with the clinical suspicion of a bronchogenic cyst. The importance of surveillance of bronchogenic cysts is discussed but magnetic resonance imaging can avoid more invasive mediastinal sampling techniques when there is high clinical suspicion: an isolated lesion with similar density on computed tomography to fluid in a patient with no red flag symptoms.

Discussion

Mediastinal lymphadenopathy has protean causes. Endobronchial ultrasound-guided transbronchial needle aspiration has significantly reduced the need for mediastinoscopy. It is relatively safe (Jeyabalan and Medford, 2014), minimally invasive, as sensitive as mediastinoscopy (Medford et al, 2009) and can also be used for therapeutic drainage of mediastinal cysts. Nevertheless, mediastinal infection can still occur (Medford et al, 2009).

Magnetic resonance imaging has become an important tool in assessment of diseases of the heart, mediastinum, pleura and chest wall. Strengths include excellent tissue contrast, multiplanar imaging capability, sensitivity to blood flow, and lack of ionizing radiation. Magnetic resonance imaging is particularly good at demonstrating fluid-filled mediastinal structures and differentiating mediastinal cysts from lymph nodes when computed tomography is equivocal.

Mediastinal cysts are a group of cystic structures associated with a developmental abnormality of the primitive foregut or the precursors of the pericardium or pleura. They include bronchogenic, oesophageal, gastric and pleuropericardial cysts (Comoglio et al, 2000). Bronchogenic cysts are congenital anomalies of the bronchial tree that are

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Figure 1. Computed tomography scan of chest (mediastinal settings) indicating an apparent large 1.5 cm right paratracheal lymph node (arrow).

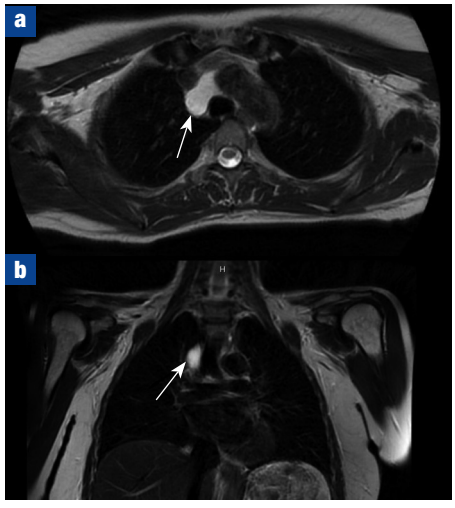
CASE REPORT

A 41-year-old woman was referred to the respiratory clinic with a 9-week history of cough, breathlessness and lethargy. She had no significant past medical history, including no relevant occupational or infectious factors, with a 5 pack year smoking history. A chest radiograph and routine blood tests including lactate dehydrogenase and serum angiotensin converting enzyme levels were normal, but a computed tomography scan of the chest was reported as showing an isolated but enlarged 1.5 cm right paratracheal lymph node with a differential diagnosis including lymphoma and tuberculosis in particular (*Figure 1*). At this point she had recovered clinically after receiving several courses of antibiotics.

Nevertheless, in view of the apparent mediastinal lymphadenopathy she underwent tuberculosis screening and computed tomography scanning of the abdomen and pelvis to look for nodal disease elsewhere, in particular with a view to sampling the node via endobronchial ultrasound-guided transbronchial needle aspiration. Tuberculosis screening and computed tomography scanning of the abdomen and pelvis were normal with no evidence of nodal disease elsewhere. The computed tomography chest images were reviewed again with clinico-radiological discussion and on further review of the computed tomography scan of the chest, the possibility of a cyst was considered given the 'node' had a density nearer to fluid and was localized in the chest with no other apparent abnormalities in a patient who was clinically now very well. Instead of confirming or aspirating a cyst via endobronchial ultrasound-guided transbronchial needle aspiration, which is a well-tolerated (Jeyabalan and Medford, 2014) but minimally invasive procedure, magnetic resonance imaging of the thorax was undertaken as the most suited modality to confirm a cyst and avoid endoscopic or other mediastinal procedures (Medford et al, 2009). Moreover, the cyst was not thought to be causing symptoms and was of only a modest size, and so therapeutic drainage via endobronchial ultrasound-guided transbronchial needle aspiration or mediastinoscopy would not be required (Medford et al, 2009).

The magnetic resonance imaging scan showed a well-defined area of fluid signal intensity in the right paratracheal region corresponding to the abnormality on the computed tomography scan. There was no soft tissue component and the fluid appeared to mould to the adjacent vascular structures. It extended inferiorly to at least the level of the superior pericardial recess. There was no fluid of significance elsewhere in the pericardium and there was no further mediastinal abnormality (*Figures 2a* and *b*). Following combined clinico-radiological discussion, a bronchogenic cyst was diagnosed and the patient was reassured. A further magnetic resonance imaging scan was booked for 6 months as occasionally the cysts can progress and in a very small number of cases undergo malignant transformation.

Figure 2. Magnetic resonance imaging scan (T2 weighting) of thorax, showing well-defined area of fluid signal intensity corresponding to the abnormality seen on computed tomography (arrow). **a.** Transverse view. **b.** Coronal view.



often asymptomatic at presentation but can on occasion cause discomfort because of their size and position, become infected and rarely undergo malignant transformation. Surgical resection should be considered when causing symptoms or if there is significant progression in size on serial imaging (Mouroux et al, 2003; Esme et al, 2011). There is currently no consensus on the duration required for monitoring (Jeon et al, 2014). In adults bronchogenic cysts are usually an incidental finding, and differentiating them from other pathological conditions is important (Patel et al, 1994; Kirmani et al, 2010; Jeon et al, 2014; Jeyabalan et al, 2014).

Computed tomography scan findings of these cysts are characteristic when the lesion demonstrates water density. If the lesion demonstrates soft tissue density, differentiating from lymph nodes or other solid lesions is difficult. Magnetic resonance imaging findings are usually diagnostic for mediastinal cysts (the other rare differential being cystic hygroma in the mediastinum, another benign condition). Differences in attenuation result from the amount of proteinaceous fluid within the cysts. They are usually bright on T2-weighted images and dark on T1-weighted images (Cardinale et al, 2008). Magnetic resonance imaging can therefore potentially avoid more invasive procedures in asymptomatic patients. **BJHM**

LEARNING POINTS

- Assessment of mediastinal lymphadenopathy requires careful work up and may turn out to be something else entirely.
- Bronchogenic cysts can mimic an enlarged lymph node radiologically on computed tomography scans especially when they demonstrate tissue density. Clues to a bronchogenic cyst might be an isolated 'node' on computed tomography without apparent pathology in an otherwise well patient as an incidental finding and so this diagnosis should be considered by clinicians.
- Endobronchial ultrasound-guided transbronchial needle aspiration can be used to drain cysts if causing symptoms.
- Surgical resection may be needed in asymptomatic cysts if they enlarge over time on serial imaging in view of possible malignant transformation. Small cysts should be followed up with serial imaging.
- There is currently no consensus how frequently or for how long follow up is required.

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