Self-assessment corner

Shadowy dilemma

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A 32-year-old man with Down’s syndrome presented to his general practitioner complaining of a persistent cough for the previous seven weeks. The cough was non-productive and worse in the mornings. No abnormality was found on examination, and he was referred for a chest radiograph. A postero-anterior and a lateral film were performed.

Figure 1 Postero-anterior X-ray

Figure 2 Lateral X-ray

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Question

What is the diagnosis?

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Answer

The postero-anterior X-ray (figure 1) demonstrates a large right-sided mediastinal mass. Causes of a right-sided mediastinal mass include:

- A diaphragmatic hump or localised eventration. This is most often seen antero-medially on the right hemi-diaphragm. A portion of liver lies within this and can be confirmed by an ultrasound or radio-isotope study.
- An epicardial fat pad/lipoma, especially common in the obese. A triangular opacity is seen in the cardiophrenic angle on the postero-anterior view. It is less dense than expected because of the fat content. Computed tomography is diagnostic.
- Pericardial cyst, either a true pericardial cyst, 'spring water' cyst or a pericardial diverticulum. The cyst is usually situated in the right cardiophrenic angle and is oval or spherical. CT confirms the liquid nature of the cyst.
- Diaphragmatic hernia, eg, Morgagni hernia. This occurs between a defect in the septum transversum and the costal portion of the diaphragm. This is usually on the right but may be bilateral. It usually contains a knuckle of colon, but may contain stomach as well. It may appear solid if it contains omentum or liver. CT or barium studies confirm the diagnosis.
- Other causes include aneurysm, dilated right atrium, diaphragmatic nodes (especially in Hodgkin's lymphoma, and in patients with breast cancer), primary lung mass, anterior mediastinal mass, a subpulmonary effusion and abscess/empyema.

The lateral radiograph (figure 2) shows this abnormality to lie in the anterior mediastinum. The commonest cause for masses in this area is the 'four T's':

- thymoma,
- teratoma,
- thyroid tumour,
- terrible lymphoma.

Further causes include cysts, mediastinal lipomatosis, Morgagni hernias and abscesses.

CT (figure 3) will demonstrate the extent and nature of this mass, and is the radiological investigation of choice. Ultrasound may demonstrate fluid in the case of an effusion, or abnormalities of the diaphragm. The CT scan

CT in mediastinal masses
<ul style="list-style-type: none">● the radiological examination of choice● provides information on the site and nature of the lesion● allows planning for percutaneous biopsy

Figure 3 CT scan

of the thorax was performed following oral contrast to opacify the proximal bowel. A large high-density mass can be seen within the right hemithorax, and within this lies a loop of large bowel containing gas. This confirms the diagnosis of a Morgagni hernia.

Summary points
<ul style="list-style-type: none">● one in three mediastinal tumours can be seen on a chest radiograph● usually they are symptomatic (pain, cough, shortness of breath)● 75% of all mediastinal tumours are benign in all age groups

Final diagnosis

Morgagni hernia

Keywords: Morgagni hernia, mediastinal mass

1 Danbert W. *Radiology review manual*, 2nd edn. USA: Williams and Wilkins, 1993; pp 274–9.