

An unexpected posterior mediastinal mass

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Section: Chest imaging

Area of Interest: Lung Mediastinum Abdomen

Procedure: Diagnostic procedure

Procedure: Contrast agent-intravenous

Imaging Technique: Ultrasound

Imaging Technique: CT

Special Focus: Neoplasia Infection Case Type: Clinical Cases

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Patient: 67 years, male

Clinical History:

An elderly male patient complained of intermittent right flank and upper quadrant pain accompanied by anorexia and dyspnoea on exertion for three months. There was no febrile episode or jaundice. The patient is currently undergoing treatment for pulmonary tuberculosis. He has a chronic smoking history and was a previous alcoholic beverage drinker.

Imaging Findings:

The chest radiograph shows nodular and hazed infiltrates with a honeycombed pattern in both upper lobes, likely tuberculous changes, with possible bronchiectasis and volume loss in the right upper lobe. There is also scalloping of the right hemidiaphragm.

On ultrasound, a heterogeneous iso- to hyperechoic lesion is noted above the right hemidiaphragm, showing no increased vascularity.

The patient subsequently underwent a CT examination wherein a large, lobulated mass was identified at the right side of the posterior mediastinum, from T8 down to L3, showing heterogeneous enhancement. On an unenhanced study, the mass was almost isodense to the liver with no definite calcification. Non-enhancing regions were demonstrated within, which may represent necrosis or haemorrhage. Due to its size, mass effects to the adjacent structures were appreciated.

A CT-guided percutaneous fine needle aspiration biopsy of the mass showed anaplastic malignancy, positive for vimentin and negative for cytokeratin. These findings are consistent with poorly-differentiated sarcoma.

Discussion:

Posterior mediastinal tumours can come from different organs but most often are neurogenic in nature. As illustrated

above, we encountered the uncommon sarcoma as a large posterior mediastinal mass. And because they are rare, few literature is available regarding the nature of these tumours and how they are managed. [1]

Primary mesenchymal tumours of the mediastinum are extremely uncommon and can arise from any structure in the chest. [2] They are usually located in the anterior mediastinum, commonly sporadic and are often asymptomatic until they reach a considerable size, causing symptoms of compression or invasion of the surrounding structures. [3]

The role of imaging is huge in the proper assessment of the characteristics, extent of involvement, potential resectability and probable response to treatment of these lesions. [2] Radiography is usually the first step and the most helpful one in identifying the presence of a mediastinal mass. However, in this case, the discrete location of the posterior mediastinal mass at the level of the diaphragm and its unique growth inferiorly made CT a key in the evaluation.

Regardless of location and type, sarcoma should be included as a major differential diagnosis in an intrathoracic mass that is large in size (>70 mm), showing well-defined smooth or lobulated margins, associated pleural effusion, and no significant lymphadenopathy. [2] They also show large areas of low-density suggestive of necrosis, and exhibit variable heterogeneous enhancement. [2] Calcifications as well as pleural tags or ground glass opacities are not commonly seen. Some that have calcifications are possibly teratoma, osteosarcoma or chondrosarcoma. [4] Presence of bone, vessels, or muscle invasion, or intrathoracic extension may be a clue to the malignant nature of a chest wall sarcoma. [5] In MRI, sarcomas show heterogeneous but predominantly T1 hypointense and T2 hyperintense signals with areas of haemorrhage and necrosis as well as some with neovascularity. [3] However, benign and malignant features are often overlapping. Hence, histopathologic analysis is necessary.

Complete surgical resection is the only curative treatment for soft-tissue sarcomas. [1, 6] Local recurrence is high and this signifies short survival (median of 3 months). [4] Chemotherapy and radiotherapy are being looked into as potential adjunct treatments to help improve prognosis and survival.

This rare tumour poses a diagnostic challenge to the clinicians, making imaging a vital part in the proper recognition and characterisation of these lesions, together with tissue analysis.

Differential Diagnosis List: Poorly-differentiated sarcoma of the posterior mediastinum., Malignant peripheral nerve sheath tumours, Neurogenic tumours

Final Diagnosis: Poorly-differentiated sarcoma of the posterior mediastinum.

References:

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Figure 1

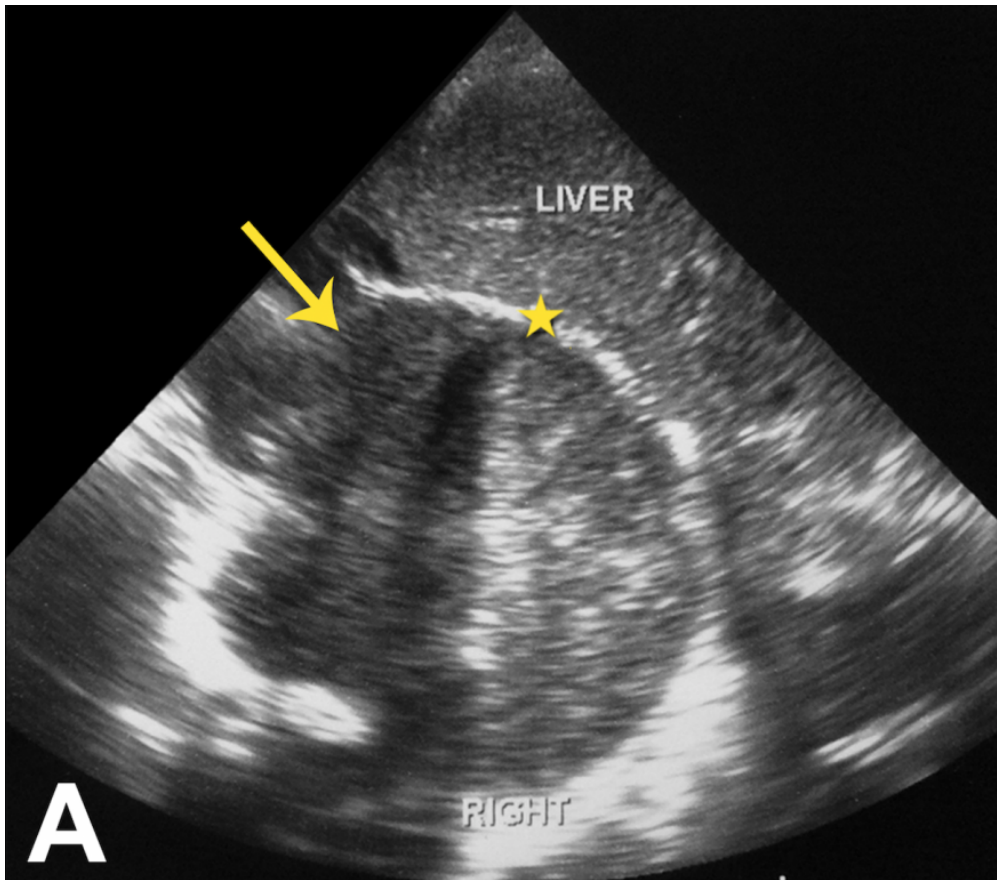
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Description: PA view shows nodular and hazed infiltrates with honeycombed changes in both upper lobes, likely tuberculous changes, with possible bronchiectasis and volume loss in the right upper lobe. The right hemidiaphragm is scalloped. **Origin:** Department of Radiological Sciences, University of Santo Tomas Hospital, Manila, Philippines

Figure 2

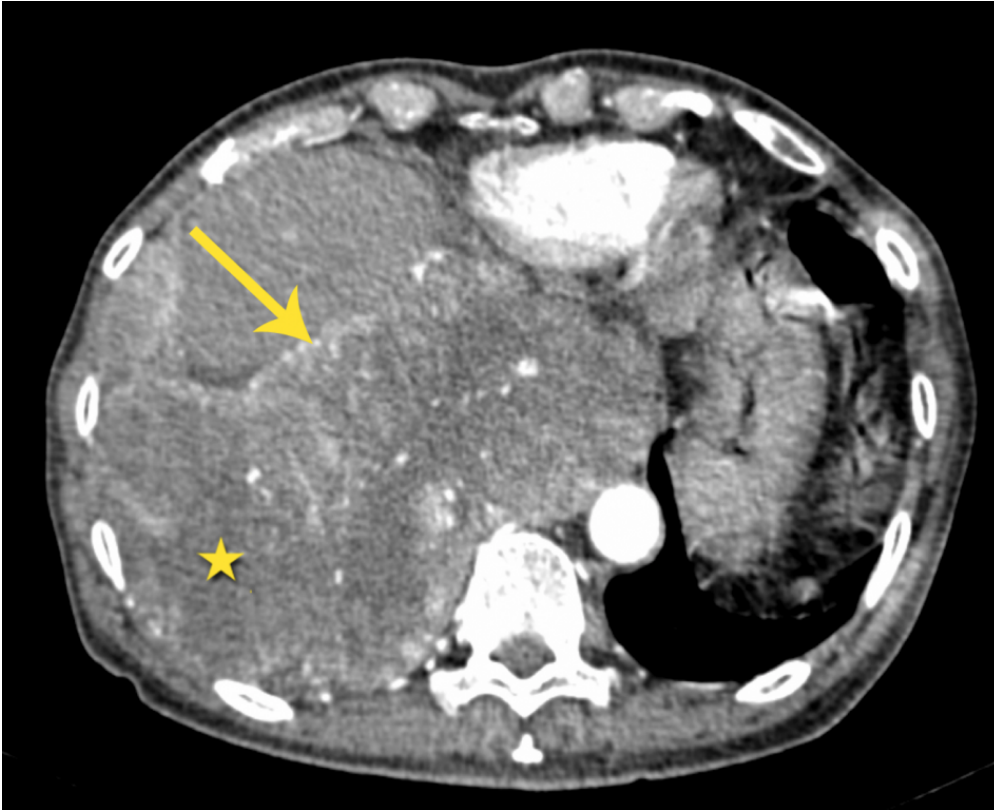
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Description: Sonogram of the hepatic region shows a large heterogeneous iso- to hyperechoic lesion (arrow) above the right hemidiaphragm (*). Color Doppler study shows no increased vascularity. **Origin:** Department of Radiological Sciences, University of Santo Tomas Hospital, Manila, Philippines

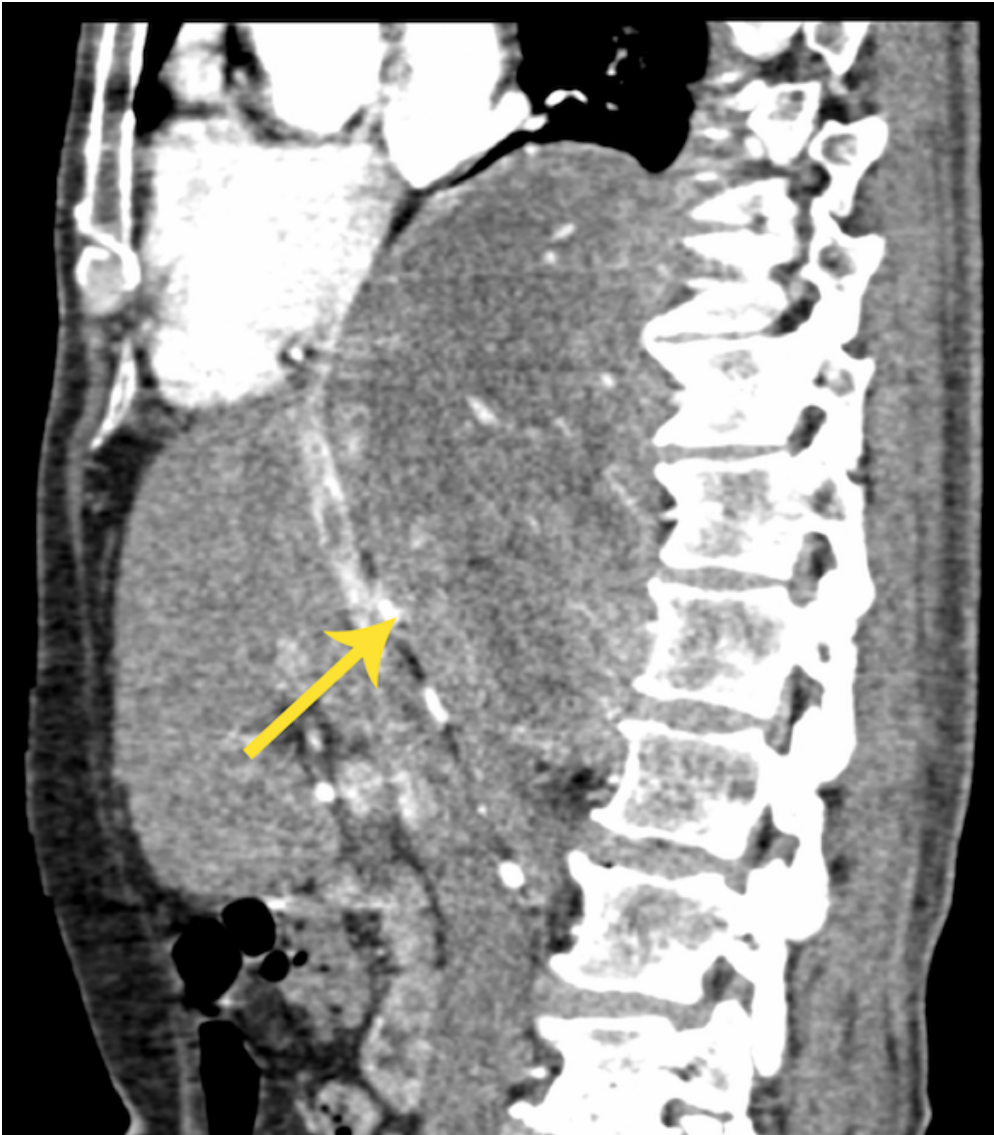
Figure 3

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Description: Axial image shows a large, heterogeneously-enhancing lobulated mass (arrow) at the right side of the posterior mediastinum. Non-enhancing areas are appreciated within which may represent necrosis or haemorrhage. No calcification is noted. **Origin:** Department of Radiological Sciences, University of Santo Tomas Hospital, Manila, Philippines

b



Description: This large mass from the level of T8 to L3 causes significant mass effect seen as inferior displacement of the right hemidiaphragm (arrow), kidney, adrenal gland and bowel segments. **Origin:** Department of Radiological Sciences, University of Santo Tomas Hospital, Manila, Philippines