

# Thoracic splenosis: correct imaging diagnosis prevents invasive procedures like biopsy and thoracoscopy

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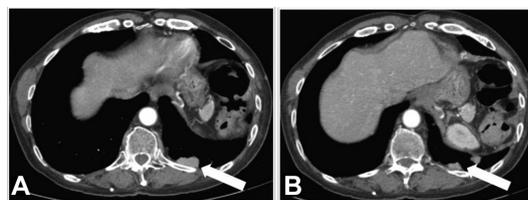
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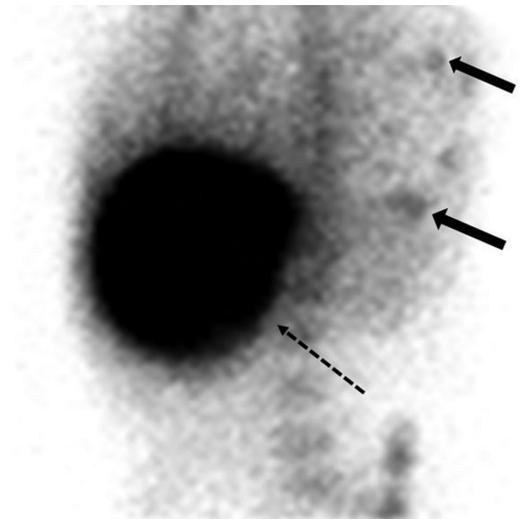
## DESCRIPTION

A 48-year-old woman presented to the emergency department with acute shooting type of left-sided chest pain. There was no radiation of the pain to the arm, no aggravating or relieving factors. The patient denied cough, haemoptysis or weight loss. Medical history was significant for stage 2 breast carcinoma treated with radical mastectomy and radiotherapy 5 years ago. Since then she was on hormone therapy with tamoxifen. Investigations including routine blood counts, ECG and cardiac enzymes were normal. Chest radiograph did not reveal any abnormalities. CT scan of the chest with intravenous contrast revealed three enhancing pleural based masses in the left hemithorax, measuring up to 2.6 cm in size. Initial diagnosis was pleural metastases from breast carcinoma and biopsy was considered. But the images also revealed bullet fragment in the thoracic spine and postsurgical changes of splenectomy. This raised the suspicion that the pleural masses could be due to splenic tissue which got auto implanted in the chest during splenic and diaphragmatic injury. On detailed history taking, the patient confirmed history of abdominal surgery for gunshot injury 20 years ago. To confirm that it is splenic tissue, a technetium 99m sulfur colloid scan was done, which showed tracer uptake in the left hemithorax corresponding to the masses detected on CT scan, thus confirming that it was splenic tissue. The chest pain was relieved by nonsteroidal anti-inflammatory drugs and the patient was discharged. Although exact cause of the patient's chest pain is unclear, it is unlikely due to splenosis since there were no inflammatory changes surrounding the masses and splenosis had been present since the surgery 20 years ago. The pain could have been secondary to radiotherapy.

Splenosis is defined as heterotopic auto transplantation and implantation of splenic tissue after trauma. It can occur anywhere in the peritoneal cavity. But to produce intrathoracic splenosis simultaneous diaphragmatic and splenic injury or surgery



**Figure 1** Contrast-enhanced axial CT images of the thorax shows three enhancing pleural based masses (white arrows in A and B) in the posterior left hemithorax.



**Figure 2** Sagittal oblique view of technetium 99m sulfur colloid scan shows nodular uptake representing splenic tissue (black solid arrows) in the left hemithorax and normal uptake in the liver (dashed black arrows).

is required. It is usually asymptomatic and incidentally detected during workup for different reasons. There are a few reports of thoracic splenosis presenting with symptoms such as pleuritic chest pain and haemoptysis.<sup>1</sup> It may be misdiagnosed as pleural malignancy or metastases especially if found during workup of malignancy and subjected to unnecessary invasive procedures such as biopsy or thoracoscopy for histopathological confirmation. The best clue that can lead to the correct diagnosis is the history of splenic and/or diaphragmatic trauma.

Splenosis is usually too small to be detected on chest radiograph. On CT/MRI, solitary or multiple pleural-based masses are typically detected (figure 1). CT/MRI finding of enhancing pleural masses is non-specific with a wide differential diagnosis including mesothelioma, primary lung cancer, lymphoma, thymoma, neurological tumour and metastasis. MRI would help in tissue characterisation, especially diffusion-weighted imaging. Normal as well as accessory spleen has the greatest non-pathological restricted diffusion among solid abdominal organs.<sup>2</sup> Thus, splenic tissue in the thorax will produce a high signal mass on a background of low signal on the diffusion-weighted images. Nuclear medicine studies can confirm the diagnosis. Technetium 99m sulfur colloid is sequestered in the reticuloendothelial system and thus, in any splenic tissue. Any focal uptake in the left hemithorax corresponding to the CT abnormality confirms the diagnosis (figure 2).<sup>3</sup>



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## Learning points

- ▶ Thoracic splenosis should be considered in the differential diagnosis of enhancing pleural masses in the thorax.
- ▶ It should be suspected in patients with history of splenic and/or diaphragmatic trauma.
- ▶ Diagnosis can be confirmed by nuclear medicine studies, thereby avoiding inadvertent invasive procedures like biopsy or thoracoscopy.

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