Case 14923

Eurorad

Giant solitary fibrous tumour of the pleura

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ISSN: 1563-4086
Section: Chest imaging
Area of Interest: Thorax Thoracic wall
Procedure: Diagnostic procedure
Imaging Technique: Conventional radiography
Imaging Technique: CT
Imaging Technique: MR
Special Focus: Neoplasia Case Type: Clinical Cases
Authors: Campos Correia. D, Saldanha. T, Fernandes. F
Patient: 35 years, female

Clinical History:

A 35-year-old asymptomatic woman was referred for a Chest Radiograph (CR) due to a suspected anomaly found incidentally in a previous CR while abroad.
Imaging Findings:

Contrast-enhanced CT was performed revealing a large and lobulated solid soft-tissue mass, occupying almost two thirds of the right hemithorax, with arterial phase heterogeneous enhancement and progressively more intense centripetal enhancement in the venous phase (Fig. 2). The mass displaced the diaphragm inferiorly and the mediastinum to the left, maintaining strict contact with the latter. Because infiltrative growth into mediastinal structures could not be discarded, MRI was performed (Fig. 3), showing low overall signal in both T1 and T2, suggestive of fibrous component. Diffusion-weighed MRI showed little diffusion restriction, indicative of a probably benign lesion. There were no signs of invasion of mediastinal structures.
Discussion:

Solitary Fibrous Tumours of the Pleura (SFTP) are rare mesenchymal tumours accounting for <5% of all pleural tumours [1], usually discovered incidentally and with generally benign behaviour. Only around 12% are malignant [2]. Around 800 cases of such tumour types have been reported [2].
Affecting males and females equally, the highest incidence is between 60 and 70 years of age [2].
Recent findings have suggested that SFPT may arise from perivascular multipotent mesenchymal elements displaying features akin to pericytes and submesothelial fibroblasts [3].
SFTP most commonly develop in the lower part of the pleural cavity, specifically from the visceral pleura in around 80% [2]. Even though there is no specific size threshold for a SFTP to be considered "giant", existing literature is consistent with this terminology when describing tumours larger than 10cm [2, 4].
Initially they are usually asymptomatic but may cause chest pain, cough and dyspnoea as they grow due to increased pressure on surrounding structures. Rarely may they compress mediastinal structures.
Diagnostic radiology plays an important role in the study of SFTP since many are found incidentally in routine chest radiographs. A CT scan can provide further valuable information regarding the location of SFTP, its relation to surrounding structures, tumour homogeneity/heterogeneity or potential bleeding or necrotic areas [2]. Nevertheless, CT alone cannot differentiate between a benign and a malignant SFTP. As the tumour grows, the likelihood of malignancy also increases, as does its heterogeneity, with increasingly undefined cleavage planes with surrounding

structures. MRI or angiography are often performed to evaluate tumour infiltration into mediastinal structures and to evaluate feeding arteries, respectively.
Resection is generally considered curative [2].
Neoadjuvant therapy is not indicated since the biological potential of SFTP is rarely histologically confirmed preoperatively [2]. After tumour resection, in histologically proven tumours adjuvant therapy may be indicated [2].
Differential Diagnosis List: The mass was resected and pathologic examination revealed a solitary fibrous tumour of the pleura., Sarcomatoid mesothelioma, Primary/metastatic spindle cell carcinoma, Spindle cell melanoma, Other primary/metastatic soft tissue noeplasms

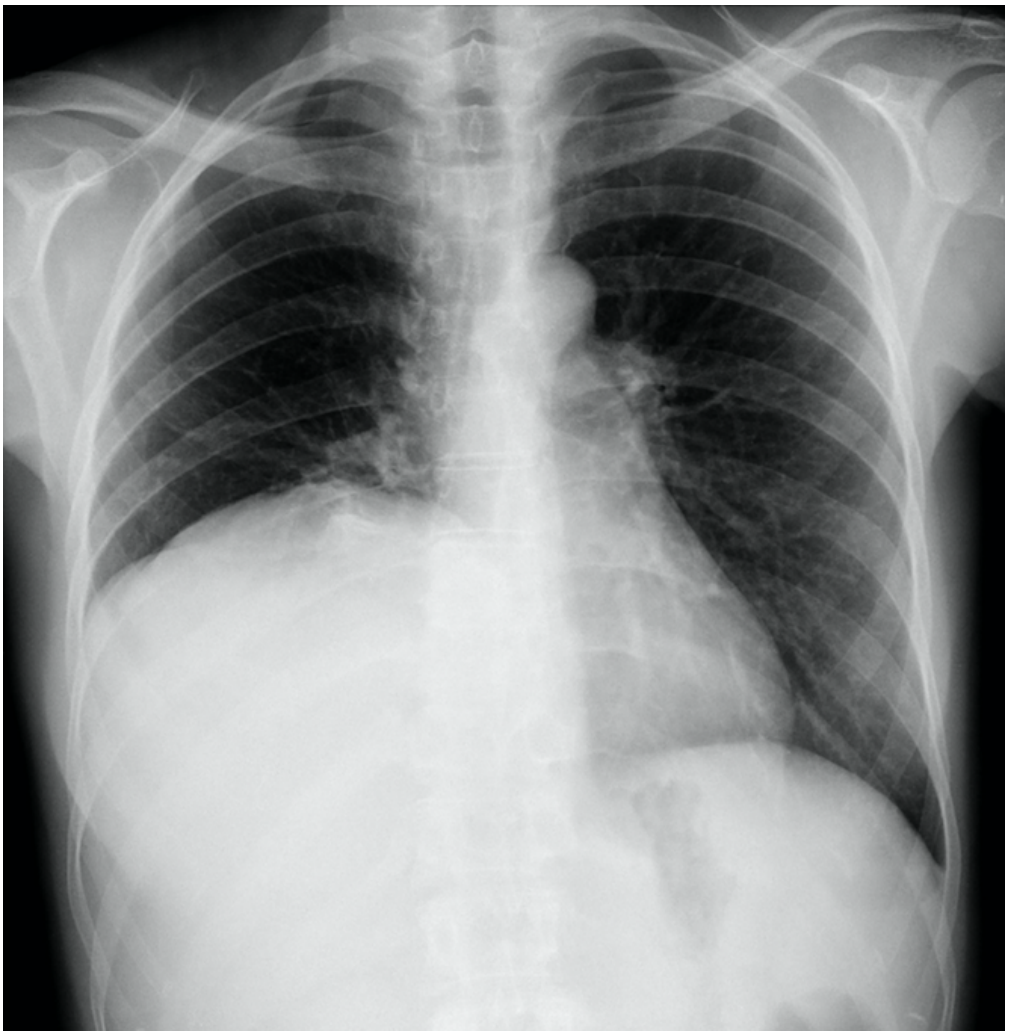
Final Diagnosis: The mass was resected and pathologic examination revealed a solitary fibrous tumour of the pleura.

References:

Magdeleinat P, Alifano M, Petino A, Le Rochais JP, Dulmet E, Gaalateau F (2002) Solitary fibrous tumor of pleura: clinical charateristic, surgical treatment and outcome. Eur J Cardiothorac Surg 21:1087–93 (PMID:12048090)
Crnjac A, Veingerl B, Vidovic D, Kavalar R, Hojski A (2015) Giant solitary fibrous tumour of the pleura. Case report and review of the literature. Radiology and Oncology 49(4):395-401 (PMID:26273386)
Ide F, Obara K, Mishima K (2005) Ultrasructural spectrum of solitary fibrous tomor: a unique perivascular, tumor with alternative lines of differentation. Virchows Arch 446:646–52 (PMID:15909170)
Elisabeta B, Cristina G, Ana M. D, Emma ?, (2014) Ordinary symptom for a serious pathology – giant solitary. Rom J Morphol Embryol 55(3 Suppl):1185–1189 (PMID:25607404)

Figure 1

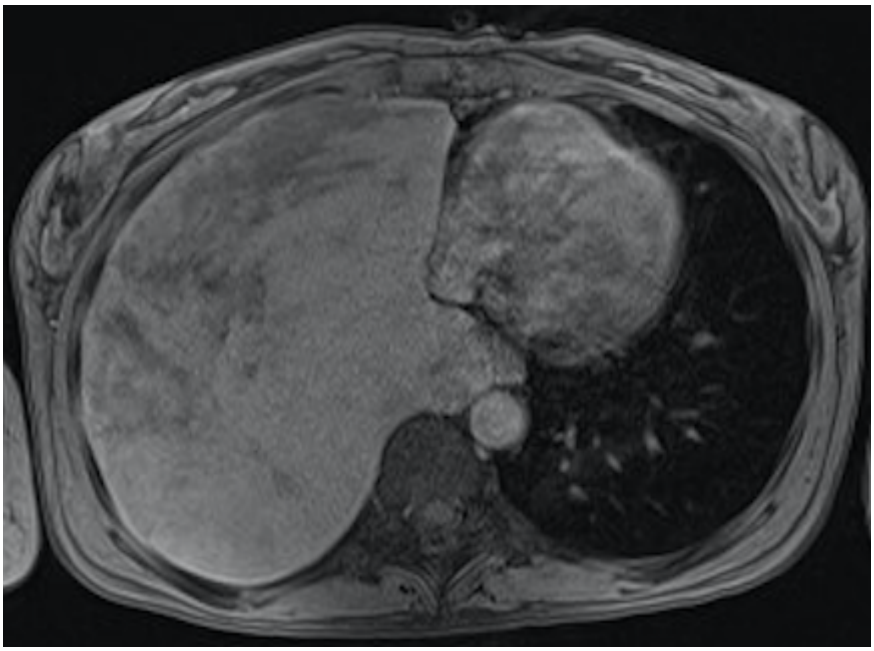
a



Description: Chest Radiograph (CR) PA view showing a well-defined, rounded mass occupying the lower half of the right hemithorax. **Origin:** Campos Correia D, Radiology Department, Centro Hospitalar de Lisboa Ocidental, Lisbon, Portugal

Figure 2

a



Description: A. Axial view T1 and B. Coronal view T2-weighed MR showing overall low signal with areas of high signal in T2 suggestive of areas of necrosis/myxoid degeneration. **Origin:** Campos Correia D, Radiology Department, Centro Hospitalar de Lisboa Ocidental, Lisbon, Portugal

b

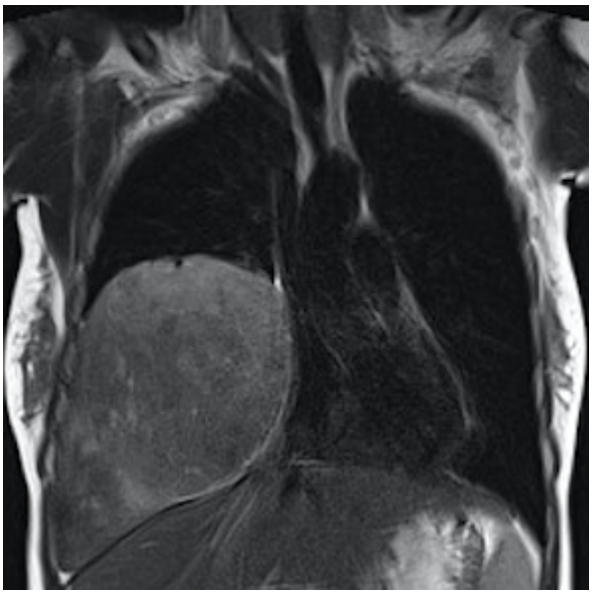


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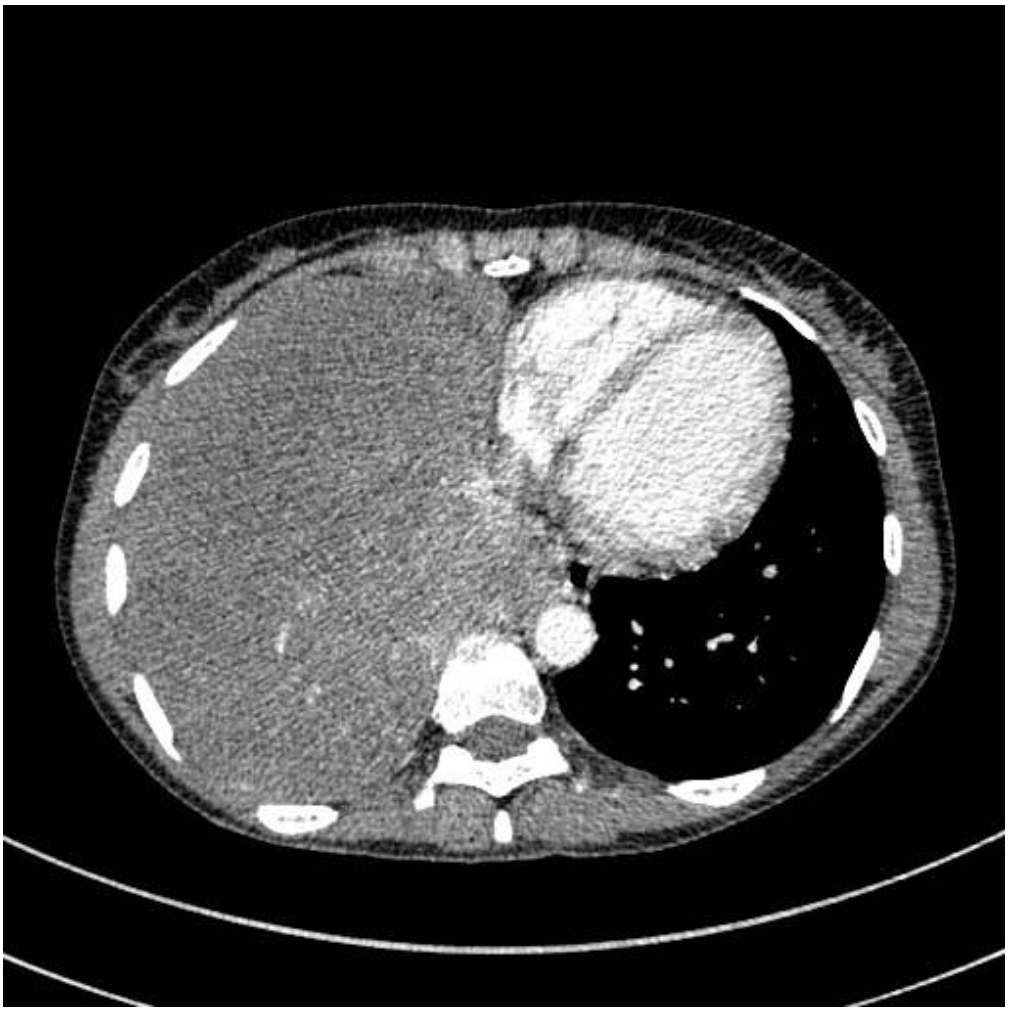
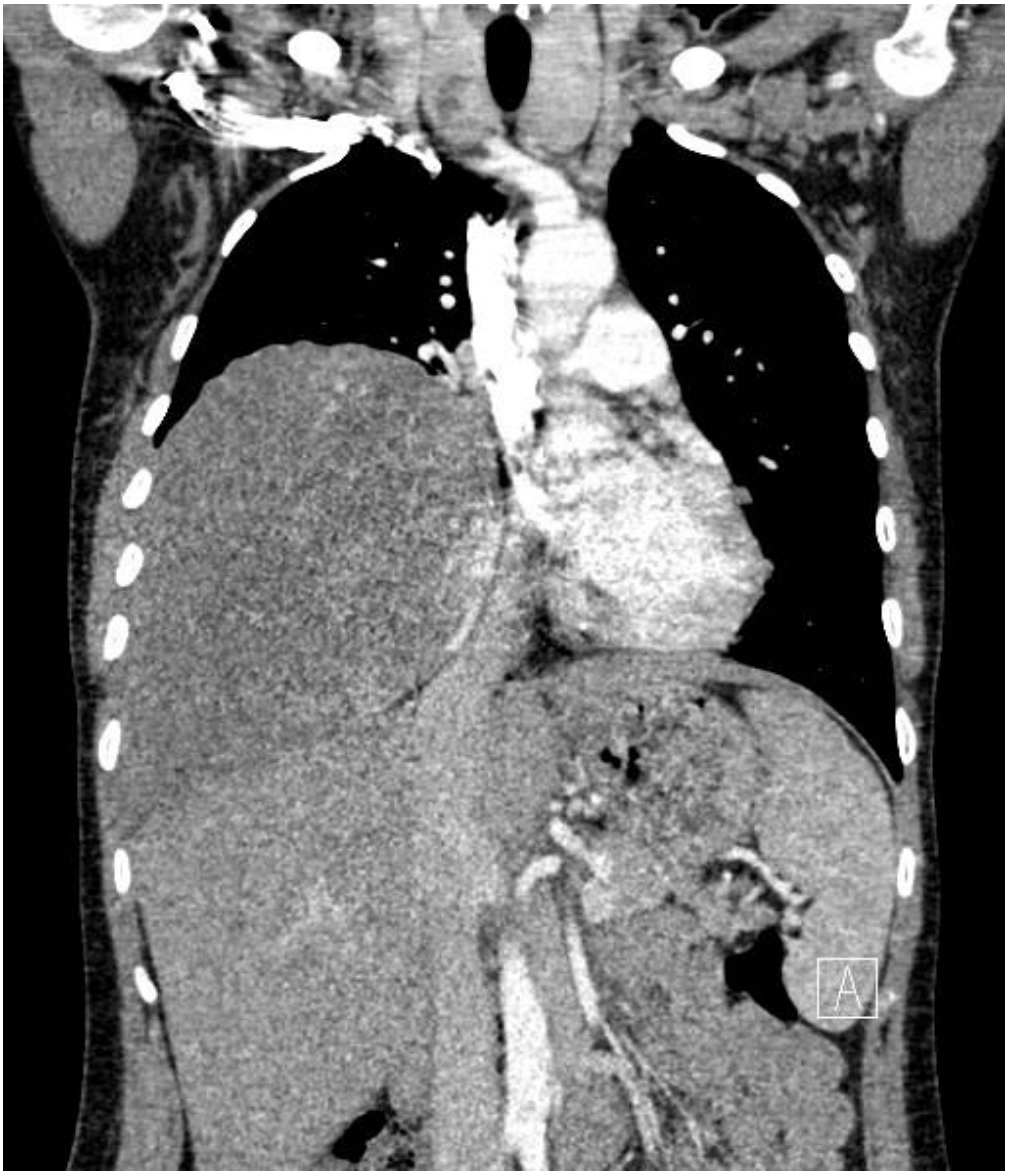
Figure 3

a



Description: Arterial phase contrast-enhanced CT (axial view) **Origin:** Campos Correia D, Radiology Department, Centro Hospitalar de Lisboa Ocidental, Lisbon, Portugal

b



Description: Venous phase contrast-enhanced CT (coronal view) **Origin:** Campos Correia D, Radiology Department, Centro Hospitalar de Lisboa Ocidental, Lisbon, Portugal