A primary liposarcoma of the posterior mediastinum

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Section: Chest imaging
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Case Type: Clinical Cases
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Patient: 60 years, female

Clinical History:

Adult woman with dyspnoea on exertion but no previous pulmonary disease.

Imaging Findings:

The patient presented with a 2-month history of dyspnoea and mild pain in the entire right hemithorax. There was no history of smoking or of any other previous pulmonary pathology.

Chest X-ray showed, on the right, a large lobulated posterior mediastinal mass with relatively well-defined borders. A CT scan confirmed a posterior capsulated mediastinal mass, 110mm in diameter, adjacent to the hilar region and the parietal pleura, of heterogeneous density with microcalcifications, little ipsilateral pleural effusion and no lymph node involvement. Cerebral and abdominal CT, and scintigraphy, were negative.

Surgical excision of the mass showed that the lung was compressed and shifted to the left in the anterior mediastinum without infiltration. The vascular peduncle arose from the posterior mediastinum near the 5th vertebral rib joint. Histological diagnosis: pleomorphic liposarcoma. The post-surgical course was good.

Discussion:

Liposarcoma of the mediastinum is a rare tumour accounting for only 1% of all tumours in this location and 15-20% of sarcomas; it occurs most commonly in men between the 2nd and 7th decades; the thigh and the retroperitoneum are the most frequent locations.

It is a neoplasia in which cells tend to differentiate into lipoblasts and lipocytes and it may be divided into 4 types, differing in grade, stage, treatment and prognosis: 1) well-differentiated; 2) myxoid; 3) round-cell; 4) pleomorphic.

Primary mediastinal pleomorphic liposarcomas are extremely rare malignancies that remain asymptomatic until they have reached a large size and, even then, initial symptoms are not specific.

Plain x-ray does not usually show a uniformly translucent and sharply defined mass (as is typical of a lipoma).

CT clearly delineates the anatomical origin of the lesion and its fatty composition (from -50HU to 100HU). Lipomas have a uniform fatty density, although linear soft tissue strands due to fibrous stroma may be present; when the tumour is heterogeneous and has an attenuation greater than -50 HU, a liposarcoma should be suspected. The CT diagnosis of malignant fatty neoplasms may be extremely difficult. The CT findings suggestive of liposarcomas include: inhomogeneous attenuation with evidence of a significant amount of soft tissue within the fatty mass, poor
definition of adjacent structures and evidence of infiltration or invasion of mediastinum or chest wall structures.

MR is the primary imaging modality after chest radiograph for attempting characterisation (percentage of fat composition) and for assessing the extent of mediastinal masses localised in the posterior mediastinum, because of its superior ability in evaluating the relationship with the adjacent spine. In any case, a tissue biopsy is needed for final diagnosis.

The differential diagnosis of pleomorphic liposarcoma is with malignant fibrous histiocytoma and pleomorphic rhabdomyosarcoma. Local recurrences are frequent within the first 2 years after excision, as are metastases, which occur by the haematogenous route to the lungs, skeleton, etc.

The long-term survival at 5 years depends on histological type: the range is between 70% for the well-differentiated to 33% for the pleomorphic liposarcoma.

**Differential Diagnosis List:** Pleomorphic liposarcoma of the mediastinum

**Final Diagnosis:** Pleomorphic liposarcoma of the mediastinum

**References:**


Figure 1

**a**

**Description:** Postero-anterior chest film: lobulated and homogeneous opacity involving the upper half of the right lung. The heart and the trachea are not displaced. **Origin:**

**b**

**Description:** Lateral chest film: large posterior mass adjacent to the parietal pleura. **Origin:**
Description: Postero-anterior chest film: the re-expansion of the lung is evident after the excision of the mass. Origin:
**Figure 2**

**a**

**Description:** Unenhanced CT scan confirms the presence of a posterior mediastinal mass with microcalcifications. **Origin:**

**b**

**Description:** Contrast-enhanced CT scan shows the capsulated mass with heterogeneous density. Minimal pleural effusion is also present. Normal-sized lymph nodes. **Origin:**
Description: Contrast-enhanced CT scan: the density of the tumour is primarily solid (+18.9HU to +60.2HU). Origin: