

Patient With Slow-Growing Mediastinal Mass Presents With Chest Pain and Dyspnea



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A 52-year-old white woman presented with severe pain over the right upper abdomen and nonpleuritic, right-sided, lower chest-wall pain. Her pain had progressively gotten more frequent and severe over the last 5 months. It was also associated with a nonexertional, pressure-like sensation in the central chest. The patient denied any shortness of breath, fevers, cough, or any sputum production. She was taking levothyroxine for hypothyroidism and was a 30-pack-year current smoker; there was no history of drug abuse or occupational exposure. Previous chest radiographs dating back to 5 years consistently showed an elevated right-sided hemidiaphragm without any infiltrates or effusions; cardiomeastinal structures were unremarkable. She had not had a previous workup for these abnormal findings.

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KEY WORDS: liposarcoma; mediastinum; pericardium; sarcoma

Case Presentation

Physical examination revealed a mildly overweight, hemodynamically stable woman in no apparent distress. The patient was afebrile, with BP of 135/91 mm Hg, pulse rate of 76/min, respiratory rate of 17/min, and oxygen saturation of 98% on room air. Her physical examination was remarkable for reduced breath sounds on the right-side middle and lower zones on the anterior, lateral, and posterior aspects of the chest, with dullness on percussion in these areas. No adventitious sounds were audible over both lungs. Blood tests revealed a hemoglobin concentration of 13.8 g/dL, hematocrit of 42.3%, and WBC count of 10.8×10^9 cells/L with a normal differential. She had normal kidney and liver function profiles.

Chest radiographs (Figs 1, 2) demonstrated an elevated right-side hemidiaphragm without any evidence of pleural or parenchymal opacities. A CT scan of her chest

(Figs 3-5) revealed a large ($11 \times 14 \times 11$ cm) mass within the right-side hemithorax. It appeared to contain soft tissue and fat, and had features suggesting intralesional hemorrhage. The inferior and lateral part of the mass demonstrated coarse calcifications (Fig 5). The mass appeared to be contained between two layers of the pleura and compressed the inferior vena cava as it entered the thorax, but did not invade the thoracic cage. The mass demonstrated low fluorodeoxyglucose avidity with a maximum standardized uptake value of 3.26 on PET scan, along with nonspecific uptake in a few nonenlarged mediastinal nodes. The patient underwent “clamshell thoracotomy” with complete resection of the mass, which measured $22.0 \times 15.0 \times 14.0$ cm and weighed 1,510 g (Fig 6). Mobilization was difficult because the mass was strongly adherent to the pericardium, a strip of which had to be removed. The tumor did not invade the lung or pleura.

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Figure 1 – Chest radiograph. Posteroanterior view at the time of surgery demonstrates an elevated right-side hemidiaphragm with clear costophrenic angles. The lungs appear clear and the heart size appears normal.

A cut section revealed a heterogeneous yellowish-tan to tan-white, solid to myxoid, and gelatinous mass with scattered areas of calcification. Microscopically, two



Figure 2 – Lateral view of the chest again demonstrates the elevated right-side hemidiaphragm with some fullness in the right posterior costodiaphragmatic recess, indicating the possibility of a small pleural effusion.

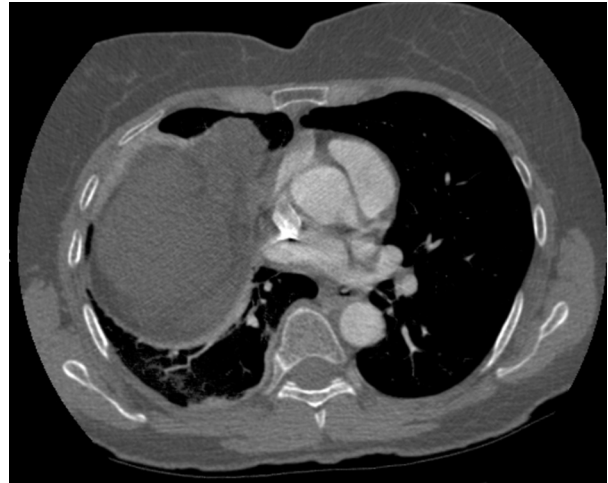


Figure 3 – CT scan of the chest at the level of the ventricles shows an inhomogeneous tumor arising from the right side of the heart and occupying more than one-half of the right side of the thoracic cavity.

separate morphologies were noted. There were areas with mature-appearing fat cells with hyperchromatic nuclei and multivacuolated lipoblasts (Figs 7, 8). Other areas demonstrated a myxoid matrix with hyperchromatic fat cells, lipoblasts, and a delicate capillary vascular network, all of which appeared to be suspended in the matrix (Fig 9). Extensive areas of necrosis (> 50%) were noted without any hemorrhage. Cytologic atypia was frequently noted with scant mitoses. Immunohistochemistry demonstrated tumor positivity for S-100, focal positivity for CD34, and weak positivity for CD117 (c-kit); the cells were negative for HMB-45 and calretinin expression. Fluorescence in situ hybridization (FISH) was negative



Figure 4 – CT scan of the chest (mediastinal window) displays near obliteration of the right side of the thoracic cavity at a lower level than the previous image.

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