



Anterior mediastinal mass

Edson Marchiori^{1,a}, Bruno Hochegger^{2,b}, Gláucia Zanetti^{1,c}

A 61-year-old asymptomatic male patient sought medical attention. A chest X-ray revealed an opacity in the anterior mediastinum. A CT scan showed a round, anterior mediastinal mass with a heterogeneous content. The density of the most hypodense central area was -61 Hounsfield units (Figure 1).

Most mediastinal tumors are asymptomatic and are detected incidentally on a chest X-ray performed for another reason. Occasionally, mediastinal tumors cause nonspecific symptoms related to the compression/invasion of adjacent anatomical structures (chest pain, cough, dyspnea, dysphagia, superior vena cava syndrome, etc.). With regard to anterior mediastinal tumors, only a minority causes specific symptoms, such as myasthenia gravis, which is found in approximately 40% of patients with thymoma. The major etiologies of anterior mediastinal masses are thymomas, lymphomas, germ cell tumors

(particularly teratomas), thyroid masses, and aortic aneurysms.

A useful CT criterion for narrowing the differential diagnosis is tumor density. On CT, fat is characterized by negative densities, ranging from -30 to -150 Hounsfield units. The finding of fat narrows the diagnosis substantially. Major anterior mediastinal masses that can exhibit fat include lipomas, liposarcomas, mediastinal lipomatosis, and teratomas. In addition, fat can also be found in herniation of abdominal contents into the chest cavity, such as in Morgagni hernia.

Lipomas are benign encapsulated tumors that originate from adipose tissue and resemble normal fat. Liposarcomas are malignant tumors with fatty differentiation. They usually present as masses with heterogeneous density showing areas of fat and soft tissue. Mediastinal lipomatosis refers to excessive deposition of unencapsulated fat in the mediastinum, usually associated with corticosteroid therapy, obesity, or Cushing's disease. Thymolipomas are rare benign encapsulated tumors composed of adipose and thymic tissue in variable proportion. Morgagni hernias, despite not being mediastinal tumors, enter the differential diagnosis because they exert a mass effect and can contain omental fat. Teratomas are tumors containing tissues originating from one or more germ cell layers (ectoderm, mesoderm, or endoderm). They are almost always benign but have a potential for malignancy. Approximately 75% of teratomas contain fat, and 50% contain calcifications. Macroscopically, they can contain a large variety of materials, such as fat, hair, bones, and teeth. Expectoration of hair (trichoptysis) is a quite rare but pathognomonic sign of teratoma.

In our patient, the finding of focal fat within the mass was highly suggestive of teratoma. The diagnosis was confirmed by surgical resection of the mass.

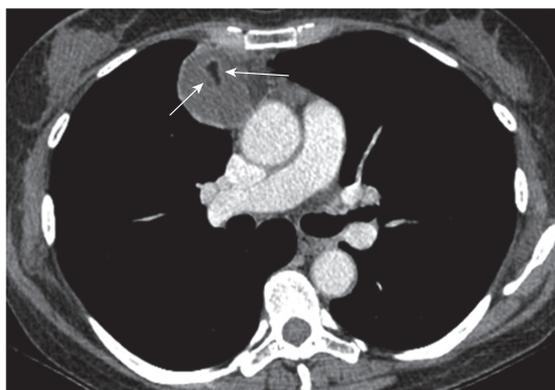


Figure 1. Axial contrast-enhanced CT image at the level of the pulmonary artery trunk shows a round, anterior mediastinal mass with a heterogeneous content and a focal hypodense area, with a density of -61 Hounsfield units, corresponding to fat (arrows).

RECOMMENDED READING

1. Muller NL, Silva CI, editors. Imaging of the Chest. Philadelphia: Saunders Elsevier; 2008.

1. Universidade Federal do Rio de Janeiro, Rio de Janeiro (RJ) Brasil.

2. Universidade Federal de Ciências da Saúde de Porto Alegre, Porto Alegre (RS) Brasil.

a. <http://orcid.org/0000-0001-8797-7380>; b. <http://orcid.org/0000-0003-1984-4636>; c. <http://orcid.org/0000-0003-0261-1860>