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Pleural thymoma: Radiological and histological findings

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1. Introduction

Epithelial thymic tumors (thymoma and thymic carcinoma) are rare neoplasms. The incidence of thymomas is estimated to be 0.15 cases per 100.000 persons/year in the USA [1] and it represents less than 1% of primary malignancies in adults. However, it remains the most common primary neoplasm of the anterior mediastinum, accounting for 20% of tumors in this location [2]. Ectopic thymomas have been described in the neck, middle mediastinum, posterior mediastinum, lung and pleura; few reports have described giant intrathoracic tumors, but they account only 4% of all thymomas [3,4]. Usually, about 70% of patients with thymomas remains asymptomatic; the rest of patients may present local symptoms related to tumor encroaching on surrounding structures like cough, chest pain, superior vena cava syndrome, dysphagia, and hoarseness of voice. Only 30% of patients with thymoma has clinic related to myasthenia gravis. An additional 5% of patients have other systemic syndromes including red cell aplasia, dermatomyositis, systemic lupus erythematous, Cushing syndrome and syndrome of inappropriate antidiuretic hormone secretion (SIHAD) [5].

The aim of this report is to describe the main radiological finding on X-ray, computed tomography (CT) and positron emission tomography (PET), in a case of pleural thymoma. We also report how perform radiological thymoma staging.

2. Case discussion

A 49-years old Caucasian woman was admitted at our Emergency Department with shortness of breath and mild respiratory discomfort. She has no significant past medical history and she has never smoked. No history of cough, fever, weight loss or night sweat had been detected. There were no allergies, no exposure to active tuberculosis, but she reported a history of exposure to asbestos. Cardiovascular examination was normal. There was no significant lymphadenopathy or thyromegaly. Respiratory sounds were impaired on the right lung. No abnormalities were detected in blood chemistry.

A first chest X-Ray (Fig. 1) executed in posterior-anterior (PA) and lateral projection, showed multiple nodules, hilar-mediastinal enlargement and nodular radiopacity at right hilum; also, pleural effusion on the right lung and obliteration of ipsilateral costophrenic angle was detected.

Abdomen Ultrasound (US) has been performed in order to exclude any pathological masses, primary neoplasm or metastatic disease. As collateral findings, US confirmed the pleural effusion with multiple solid rounded masses at pulmonary bases (Fig. 2).

Total-body CT scan was performed using a Lightspeed VCT 64-slice (General Electric, Boston, Massachusetts USA), with a pre-contrast phase, and a parenchymal phase, 70 s after administration of 120 mL of non-ionic contrast agent injection (350 mg l/ml, 2,5 mL/s.). The CT (Fig. 3), revealed a large mediastinal mass overrunning the right

Abbreviations: CT, computed tomography; PET, positron emission tomography; PA, posterior-anterior; CECT, contrast enhanced computed tomography; ^{18}[F]-FDG, 18[F]-fluorodeoxyglucose; ROI, region of interest; MRI, magnetic resonance imaging; RECIST, response evaluation criteria in solid tumors; ITMIG, International Thymic Malignancy Interest Group

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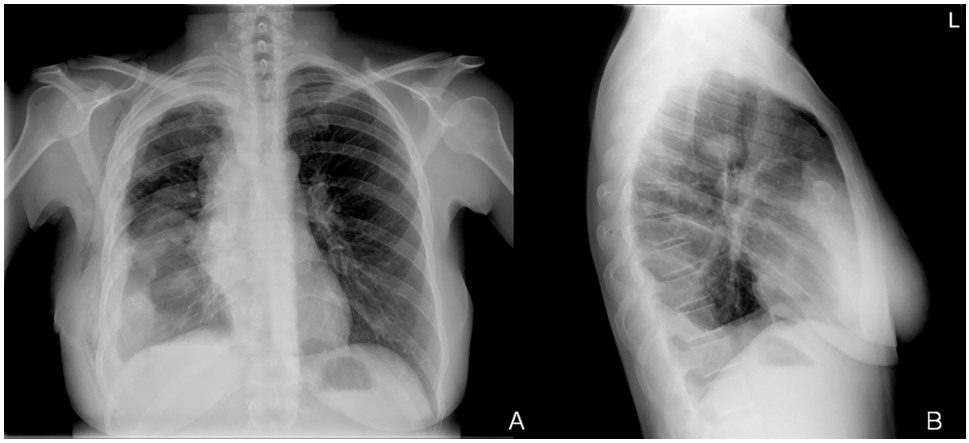

Fig. 1. Chest X-ray, on posterior-anterior (A) and lateral (B) views, demonstrates hilar-mediastinal enlargement with multiple nodular radiopacities in right hemithorax and pleural effusion on the same side.

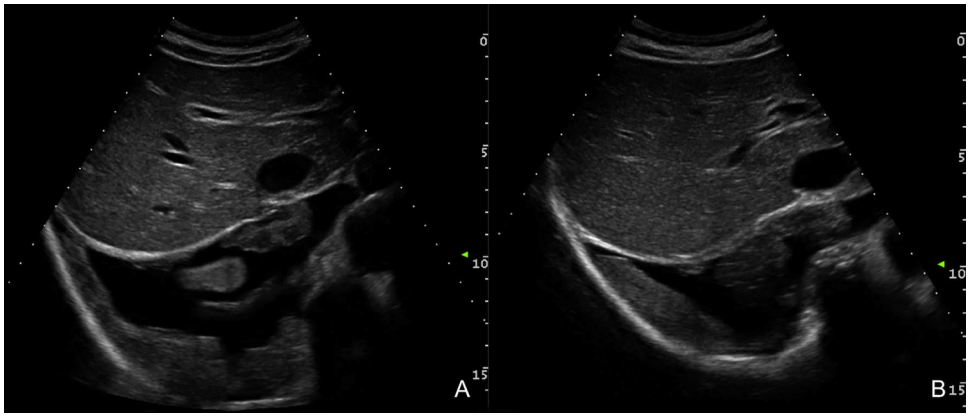

Fig. 2. Abdomen Ultrasound (A and B) showed lobular and inhomogeneous masses in the right hemithorax with pleural effusion.

Fig. 3. Chest Computed Tomography (CT) axial plane, on mediastinal windows, showing multiple masses in mediastinum and right pleura, with pleural free fluid, without displacement of mediastinal structures (A–B). No bronchial compression or atelectasis of lung is noted on lung window (C). After injection of iodinated contrast, the lesion appears hypo-vascular, with enhancing margins, internal lobulation and septation, and few calcific spots (D).