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Pietro Candela *

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Research Article

Thymoma Presenting as Right-Side Heart Failure in a Healthy Patient: A Case Report

P. Candela *, D Picone, L Ajello, MCE. Valerio, P. Camarda, V Mineo, EV Castelluccio, D Lo Sasso, G Salerno, V Stallone, A Lo Cicero, E. Rebulla

Cardiology department, Candela Nursing Home – Palermo

***Corresponding Author:** Pietro Candela, Cardiology department, Candela Nursing Home – Palermo.

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Abstract

Thymoma is a rare tumor yet the most common neoplasm of the anterior mediastinum, accounting for 20-25% of all mediastinal tumors. Its incidence peaks in the fourth and fifth decades of life. Usually thymoma is diagnosed incidentally on chest imaging, or when investigating patients with myasthenia gravis, or with chest symptoms such as cough, chest pain, or dyspnea. We report here an unusual case of recidivant thymoma presenting with right heart failure in a 69 years old man.

Keywords: anterior mediastinal mass; thymoma; heart failure; right ventricle

Introduction

Thymoma is an uncommon tumor originating from the epithelial cells of the thymus [1]. It is best known for its association with myasthenia gravis (MG) which occurs in about 50% of patients with thymoma. Most cases occur between the ages of 40 and 60 years [2] with a mean age at presentation being 52 years. Thymoma may present in three main different ways: 30-50% of patients present with an asymptomatic anterior mediastinal mass on chest roentgenogram. Around one-third of patients are diagnosed during the evaluation of MG or other paraneoplastic syndromes such as pure red cell aplasia or acquired hypogammaglobulinemia [3], and one-third of cases present with local symptoms such as cough, superior vena cava syndrome, chest pain, or dysphagia among others [1]. This report describes a case of thymoma in a male patient who presented with a picture of right-side heart failure with ascites and lower limbs edema.[4]

Case Report

In January 2024, a 69 year old man was hospitalized in our department for anasarcatic state and reduced exercise tolerance. The patient had been living in USA for several years, and came back to Italy few months before.

He had an history of thymoma (45 year ago) reported spontaneous regression (associated with a diet with prolonged fasting). The last CT scan of 2019 didn't show any sign of thymoma

Since the end of 2021 you have noticed initial signs of salt and water congestion but all the test performed to at Chicago hospital were negative.

For about a year and a half he has been reporting episodes of edema in the lower limbs and in the scrotal and abdominal areas, associated with exertional dyspnea and bendopnea. He denies angina. For this reason, in June 2022 he performed a physical stress echocardiogram in America: good functional capacity (10.1 METS), left ventricle of normal size and wall thickness, EF 65%, right sections within limits; no valvular disease; no evidence of inducible ischemia; hospitalization was proposed, refused.

In November 2023 he performed a chest-abdomen CT scan with contrast medium which showed subtle pleural effusion on the right, in the early contrastographic phase opacification of the right suprahepatic vein, the inferior cava, the renal, the iliac and the lumbar veins which appeared enlarged of caliber as per probable cardiac deficiency.

In January, he had a cardiology consult in our institution and, seen the anasarcatic state, he was hospitalized.

The patient presented into NYHA class III, with clinical and echocardiographic signs of congestion (anasarcatic state with massive edema of the lower limbs up to the root of the thighs, abdominal congestion, presacral edema, jugular swelling)

- Body weight at admission 88 kg → discharge 80 kg
- NT pro BNP 325 pg/ml → discharge 278 pg/ml
- Blood gas analysis: pH 7.45, pCO2 45 mmHg, pO2 81 mmHg, Na 135 mmol/L, K 4.1 mmol/L, Lat 0.7 mmol/L, SatO2 in aa 98%, BE 6.4 mmol/ L, HCO3- 29.9 mmol/L

- Renal function: presence of stage II chronic kidney disease, stable during the patient's decongestion (creatinine at discharge 0.89 mg/dl)
- ECG: sinus rhythm (76 bpm), diffuse ST-T alterations
- Electrocardiographic monitoring: sinus rhythm with heart rate trend of 65-70 bpm
- On the echocardiogram: Left ventricle of normal size (VTD 29 ml/m2); thicknesses within limits (SIV 8 and PP 6); no obvious segmental kinesis anomalies; systolic function normal (EF 57%). Aorta of regular size where explorable. Tricuspid aortic valve, sclerotic, regular opening and antegrade flowmetry. Left atrium of normal size (area 21 cm2, volume 27 ml/m2). Normal diastolic pattern with estimated normal filling pressures (average E/e' 6). Mild MI. Right atrium of normal size; right ventricle of normal size with reduced longitudinal systolic function indices (TAPSE 14 mm, S' at TDI 9 cm/sec) and FAC 30%; apical hypertrabeculation; Moderate IT with Vmax 1.98 m/sec, from which a PAPs of 31 mmHg is estimated (assuming DBP 15 mmHg) - triangular Doppler profile, possible underestimation of the gradient. Pericardium undamaged. Absence of pleural effusion. **(see figure 1-2)**

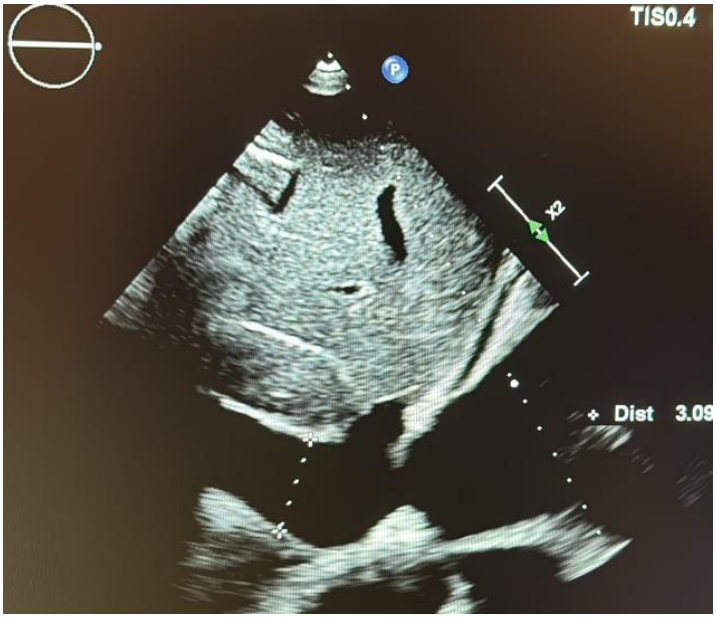

Figure 1: dilated inferior vena cava

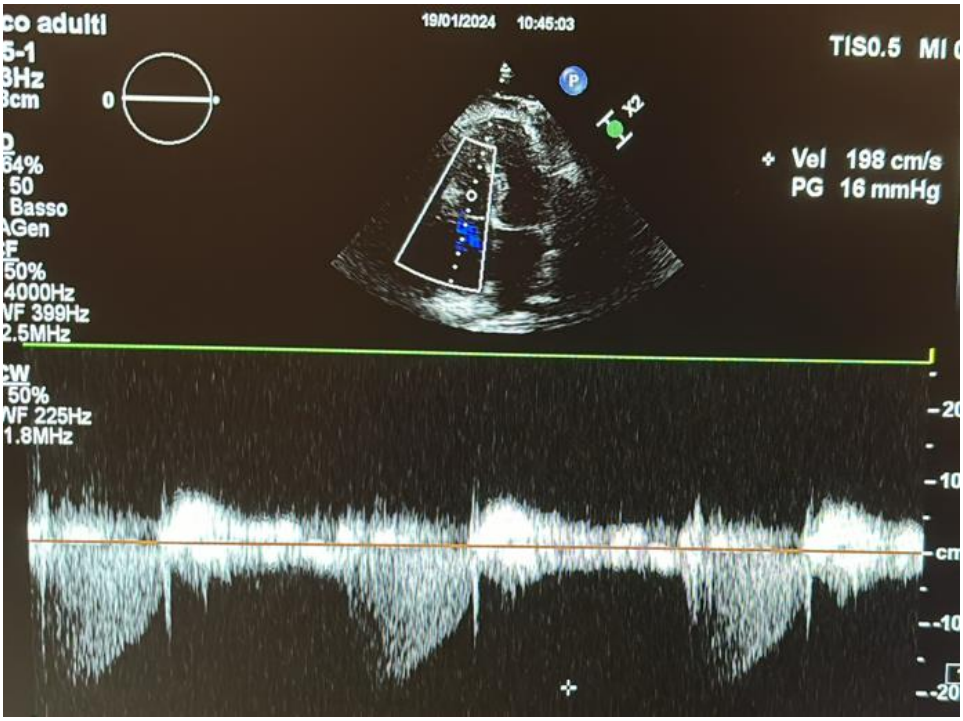

Figure 2: Tricuspid regurgitation; triangle shape of CW, demonstrating high atrial pressure

We also performed a contrast-enhanced chest CT performed during this hospitalization: No evidence of signs of pulmonary embolism. Compared to the previous control, a neoformation was detected in correspondence with the thymic lodge, measuring 7.4cm x 6.6cm vs 6.3cm x 5.2cm, with gross calcifications in the context, with lobed margins and with offshoots that extend into the anterior segment of the lobe. superior, and which rests partly on the superior wall of the right ventricle and on the common trunk of the pulmonary artery. **(figure 3)**

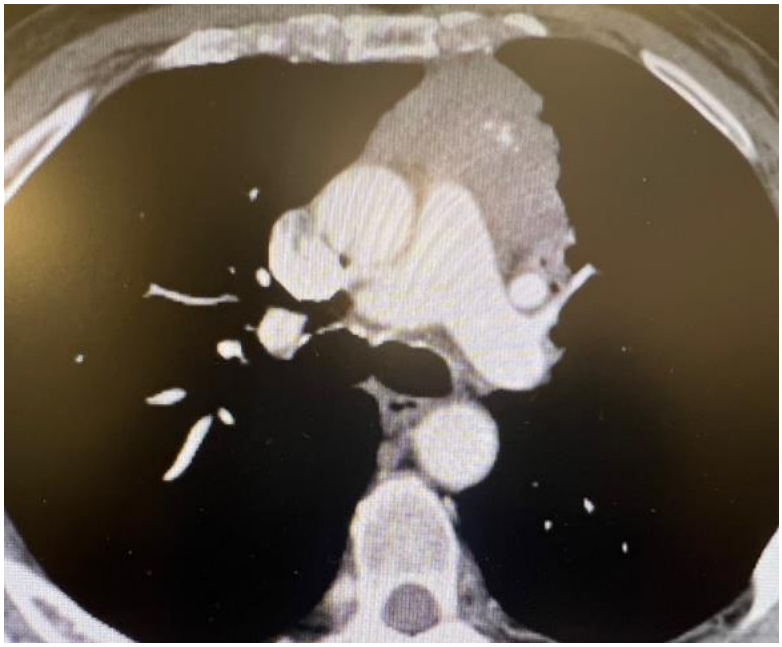

Figure 3: CT scan showing thymoma extension and contiguity with pulmonary arthery

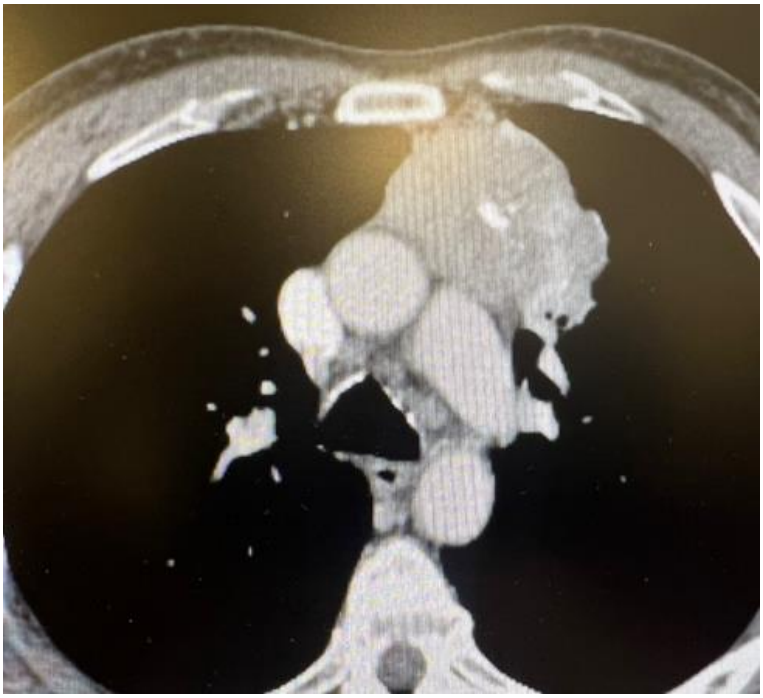

Figure 4: Calcificated thymoma – other CT scan

Good conditions of haemodynamic compensation were restored during diuretic therapy with venous furosemide in bolus (40 mg) and infusion (80 mg/24 hours).

On the discharge echocardiogram: the presence of the D shape of the SIV is confirmed. FE VS biplane 57.4%. Paradoxical movement of the SIV associated with the D shape, suggestive of pulmonary hypertension. Compared to the previous VD reduced in basal dimensions (34mm). Reduced TAPSE remains (14mm); 's TDI in normal operation (11). RFVFAC 38%. IT is better evaluated which, in a valve with a redundant aspect, presents two jets, overall it is of a moderate-severe degree. The PAPs for the triangular profile indicative of rapid equalization (in progress with V max 2.6m/s) cannot be estimated. VCI 24mm with no excursions (it was 32mm at entry). Coronary sinus 1 mm (compared to 1.5 mm inlet). No pleural effusion.

The initial optimization of the therapy was carried out by inserting sartan, antialdosterone and SGLT 2 inhibitor.

Daily dose of furosemide at discharge 125 mg. (before current hospitalization daily dose of 25 mg of torasemide)

Discussion

The patient we present show an unusual case of recidivant thymoma presenting with pulmonary hypertension complicated by cardiomyopathy, heart failure predominantly affecting the right sections, with signs of mild impairment of renal function (cardio-renal syndrome).

Echocardiographic data show presence of pulmonary hypertension. We have sent the images of the thoracoabdominal CT to thoracic surgeon. A We are concluding the diagnostic process by performing cardiac MRI, right catheterization. After that, the cardiothoracic team will evaluate indication to surgical removal of thymoma.

This case remembers us that a patient with history of thymoma should always be carefully evaluated for the possible development of right heart failure.

Early recognition and diagnosis with timely and complete resection are essential for a better prognosis and higher survival rate.

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