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Thymoma invading the right atrium - multimodality imaging and its importance for managing and therapeutics

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Introduction: Thymoma is the most common primary neoplasm of the anterior mediastinum. Most invasive thymomas are limited to the pericardium. Only few cases of transcaval extension with intracardiac involvement have been reported.

Case report: We present the case of a 15-year-old boy with previous history of infectious cerebellitis without neurologic sequelae. He presented with interscapular pain for 6 weeks (not improving with symptomatic therapy) and fever for 3 days. On admission, chest radiograph exhibited an opacification in the right hilum (Figure A). He was discharged with antibiotic prescription for presumptive pneumonia. Due to persistence of complaints he was reevaluated after 5 days. Signs of superior vena cava (SVC) syndrome were noted. A computerized tomography showed a large soft tissue mass of the anterior mediastinum, in right antero-lateral topography, measuring 12.5x10x9.5 cm with central calcification and extension to the right lung (Figure B). Transthoracic and transoesophageal echocardiography showed an anterior mass compressing the pulmonary artery branch (PA) and SVC with marginal invasion of the right atrium (RA) (Figure C and D). Cardiac MRI confirmed a large mass of the anterior mediastinum with extension and invasion of the right superior lobe, invasion of the superior vena cava with extension into the RA (Figure E). Transthoracic core-needle biopsy was performed and histopathological diagnosis confirmed an invasive thymoma. The case was discussed at joint cardiothoracic surgery and oncology multidisciplinary meeting and it was agreed to neoadjuvant chemotherapy regimen followed by surgery. Intraoperatively, a large tumor invading the SVC and proximal RA was found, in accordance with the echocardiographic and MRI findings. Due to unforeseen metastatic implants on the adventitia of the main PA and ascending aorta, resection of the tumor was not performed. Palliative decompression of the venous system was performed with interposition of a ringed vascular prosthesis between the left brachiocephalic vein and the right atrial appendage. (Figure F). The patient received postoperative radiotherapy and is asymptomatic without signs of SVC syndrome for 3 months.

Discussion and conclusion: This report illustrates a rare case of an invasive thymoma with extension to cardiac structures. Multimodality imaging for quality decision-making was imperative in the management and for surgical planning of this case. Transthoracic and transoesophageal echocardiography remain the exams of choice for the diagnosis of intracardiac disease. As demonstrated, a high index of suspicion is needed because clinical symptoms are unspecific and late diagnosis of potentially resectable tumors are associated with a poor prognosis.

Abstract P1250 Figure. Multimodality imaging

