Intra-atrial Manifestation of Invasive Thymoma

-A Case Report-

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Introduction

Invasive thymoma may invade cardiovascular structures and also can compress the heart and superior vena cava (SVC) \(^1\)\(^{-8}\). But intracardiac manifestation of major portion of the tumor is quite unusual raising difficulties in differentiation between mediastinal tumor extending to the heart and cardiac tumor extending to the mediastinum. To the best of our knowledge, there has been no report of invasive thymoma primarily manifesting as an intra-atrial mass causing SVC syndrome.

Case Report

A 48-year-old woman was admitted complaining of dependent edema in the lower and upper extremities for several years which has been aggravated since one year prior to admission. Physical examination revealed puffy face and pitting edema. CT scans showed mild to moderate cardiomegaly with prominent aorta and a right pleural effusion. Computed tomography showed a right pleural effusion and an anterior mediastinal mass and another large mass which occupied the right atrium and the SVC (Fig. 1-a, b). Upper extremity venography showed complete obstruction of the
left innominate vein and nearly complete occlusion of the SVC(Fig. 2-a).

Inferior vena cavaogram revealed a large intra-atrial mass(Fig. 2-b).

At surgery, a 6X3X2 cm sized hard mass was found in the anterior mediastinum which was connected with a mass occupying the SVC and right

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Fig. 1. a: CT scan at the level of carina. Contiguous anterior mediastinal (M) and intracaval tumor mass (T) is seen. Right pleural effusion. A=Ascending aorta. b: Lower section demonstrates tumor mass(T) within the dilated right atrium. Note pleural extension of the mass(white arrow).

Fig. 2. Venacavogram a: Both upper arm venography shows nearly complete occlusion of the SVC with collateral drainage via the azygos and hemiazygos vein(black arrows). A thin layer of contrast media is noted between the tumor mass and right atrial wall(white arrows). b: Inferior vena cavo gram. Large, lobulated filling defect in the right atrium(arrowheads).
atrium through the extrapericardial portion of the SVC. Histologically, the resected anterior mediastinal tumor was a thymoma of mixed type.

Discussion

The growth behavior and extent of the tumor is known to be the most important prognostic factor in a patient with thymoma. Thymoma has malignant potential which is presented by local invasion, infiltration to adjacent thoracic organs by direct extension, discontinuous pleural seeding, transdiaphragmatic extrathoracic extension and even distant metastasis in rare cases. Zerhouni et al. documented the ability of CT to provide the information essential for accurate staging and treatment planning.

Metastatic pathways taken by tumors reaching the heart are usually listed as the blood stream, lymphatics, and direct extension, the last being unusual since the pericardium is a strong barrier. Invasion to the SVC and intraluminal extension of the tumor to the right atrium is thought to be the mechanism of spread in our case and it may occur in lung cancer and other malignancies. Our case is also of interest in that secondary involvement of the heart mimicked a primary cardiac tumor.

Even though CT does not currently play a major role in the diagnosis of intracardiac tumors, conventional CT scanners can also demonstrate mass within the cardiac chambers.

Reports of echocardiographic features of cardiovascular involvement by invasive thymoma suggest echocardiography as an initial diagnostic modality when the diagnosis of cardiac tumor is considered. However, in cases of mediastinal tumor invading to cardiovascular structure, CT has advantage over echocardiography as it shows the extracardiac portion of the mass.

REFERENCES