Case 3185

Cardiac tamponade originating from a right atrial angiosarcoma
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Patient: 45 years, male

Clinical History:

A 45-year-old man presented himself in the emergency service of our hospital with complaints of dispnea, syncope and thoracic pain. Echocardiography and contrast enhanced thoracic CT revealed a mass in the right atrium and pericardial effusion with signs of cardiac tamponade.

Imaging Findings:

A 45-year-old man presented in the Emergency Service of our hospital with complaints of dyspnea and occasionally syncope. In addition, he also complained of having thoracic pain. On physical examination, edema of the lower limbs, face and neck such as jugular ingurgitation was evidenced. The chest radiograph, postero-anterior and lateral (Figs. 1a and b), revealed cardiomegaly with obliteration of the right costophrenic sinus. An echocardiography was performed which revealed a solid mass of a 7 x 5 cm size located in the right atrium (Fig. 2) and global pericardic effusion (predominantly anterior) which was the cause for cardiac tamponade. A contrast enhanced thoracic CT showed an isodense mass with irregular margin in the right atrium in relation to the thoracic muscle that seemed to be derived from the lateral part of the right atrium (Fig. 3). Pericardial and bilateral pleural effusion were also evidenced. There was an intense enhancement of the inferior vena cava such as the collateral branches which revealed a serious hemodynamic compromise (Fig. 4). Based on all the above findings, an emergency cardiovascular surgery was performed.

Discussion:

Primary malignant cardiac tumors occur extremely rarely, the angiosarcoma being the most frequently occurring of them all. It is more common in men aged around 41 years, and is found to be infrequent in infants and children. Dyspnea is believed to be the most common symptom of presentation. Because 80% of the angiosarcomas are located in the right atrium and involve the pericardium, symptoms of the right-side heart failure or cardiac tamponade are common. In addition, these patients can present with pulmonary embolism, thoracic pain, syncope, pneumonia, fever, arrhythmia, periferic edema and sudden death. Metastasis, can not only be overall in the lungs, but also in the lymphatic nodes, bone, liver, brain, bowel, spleen, adrenal glands, pleura, diaphragm, kidneys, thyroid and skin. The diagnosis of angiosarcoma is often based on the biopsy of the metastase which are found in 66%–89% of the patients at the time of presentation of the disease. The most common radiographic finding is cardiac enlargement. Other findings are radiographic signs of cardiac arrest, pleural effusion, cardiac mass, pulmonary consolidation and pericardial effusion. A CT scan is useful as it reveals broad-based tumor attachment, myocardial, pericardium and mediastinum invasion such as the extension to big vessels and the existence of
pulmonary metastases. For the complete evaluation of an angiosarcoma, an MR imaging must be performed, which typically shows a big heterogeneous mass in the right atrium frequently associated with pericardiac spreading and hemorrhagic pericardial effusion. The signal amplitude of these tumors is heterogeneous with an intermediate amplitude of signals in T1-weighted images and with a high amplitude of signals in T2-weighted images. Some authors describe nodular areas of a high amplitude, between the intermediate amplitude of signal areas in T1 such as in T2-weighted, being described as “a cauliflower”. Some characteristics, such as location in the right atrium, and broad attachment, help in differential diagnosis from the left atrial myxoma. The prognosis is poor, the mean survival time of affected patients is from 3 months to 1 year, although there have been cases described in which the survival period was more than 4 years. A palliative surgery diminishes the symptoms, thereby improving the survival period. A cardiac transplant is performed in patients with unresectable angiosarcoma. Chemotherapy and radiotherapy are not found to be useful for the treatment of affected patients. Death in these cases usually occurs because of the complications arising from the surgery, such as, cardiopulmonary failure due to the progressive growing of the tumor and to metastases.

**Differential Diagnosis List:** Cardiac angiosarcoma with pericardiac spreading.

**Final Diagnosis:** Cardiac angiosarcoma with pericardiac spreading.

**References:**


Kaminaga T, Takeshita T, Kimura I. Role of magnetic resonance imaging for evaluation of tumors in the cardiac region. Euro Radiol 2003Dec;13suppl4:L1-10.

Description: A conventional anterior-posterior chest radiographs showing light cardiomegaly. Origin:
Description: A convectional lateral chest radiograph showing pleural effusion as indicated by the arrows. Origin:
Figure 2

Description: An echocardiograph demonstrating a solid mass located in the right atrium as indicated by the arrow. Origin:
Description: A contrast-enhanced CT scan of the chest demonstrating a large, soft-tissue mass of irregular margins and broad-based attachment in the right atrium (arrow). The presence of pericardial (arrowheads) and pleural effusion (curved arrows). Origin:
Description: A contrast-enhanced CT scan of the lower thorax revealing an intense enhancement of the inferior vena cava (arrow) and the presence of collateral branches (arrowhead). Origin: