A comprehensive diagnostic approach to primary cardiac tumors: a case report

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Introduction: Primary cardiac tumors are a rare entity, accounting for 0.3-0.7% of all cardiac tumors. Only 25% of primary cardiac tumors are malignant, and of these, 75% are sarcomas. Malignant primary cardiac tumors typically affect young patients and have poor prognosis, with a one-year survival rate of around 10%[1,2].

Case report: 35-year-old female, without any known previous comorbidities, was admitted with suspected pericarditis. The patient had experienced flu-like symptoms one month prior to admission, and her symptoms of fever (up to 38.1°C) and chest pain with inspiration began a few days before admission. Initial laboratory work-up revealed anemia (hemoglobin 99 g/L), slightly elevated leukocytes (11.3x10^9/L), and elevated CRP (249 ng/L), with normal troponin levels. Chest X-ray revealed an enlarged heart silhouette, suggestive of pericardial effusion, and small bilateral pleural effusions. Initial echocardiography showed a large circumferential pericardial effusion (maximum of 3 cm) and a large mass infiltrating the right ventricle (67x23 mm), along with a smaller mass infiltrating the left ventricle (**Figure 1**). Given the suspicion of a cardiac tumor, detailed radiological diagnostics were performed. Multislice spiral computed tomography (MSCT) showed a hypovascular tumor infiltrating the right ventricle with characteristics suggestive of sarcoma (**Figure 2**). One of the branches of the right coronary artery was infiltrated by the tumor. Magnetic resonance imaging revealed a large (7.3x5.3x7.5 cm) expansive, inhomogeneous mass between the pericardial layers, infiltrating the right ventricular wall, and showing radiological characteristics of sarcoma. The pericardium was thickened, with dense pericardial effusion (**Figure 3**). Multiple intracardiac echocardiography and MSCT-guided biopsies were performed. The final histopathological diagnosis was myxoid pleomorphic liposarcoma, an extremely rare and aggressive subtype of liposarcoma with a predilection for the mediastinum, particularly affecting young adults[2]. Staging with positron emission tomography did not show signs of

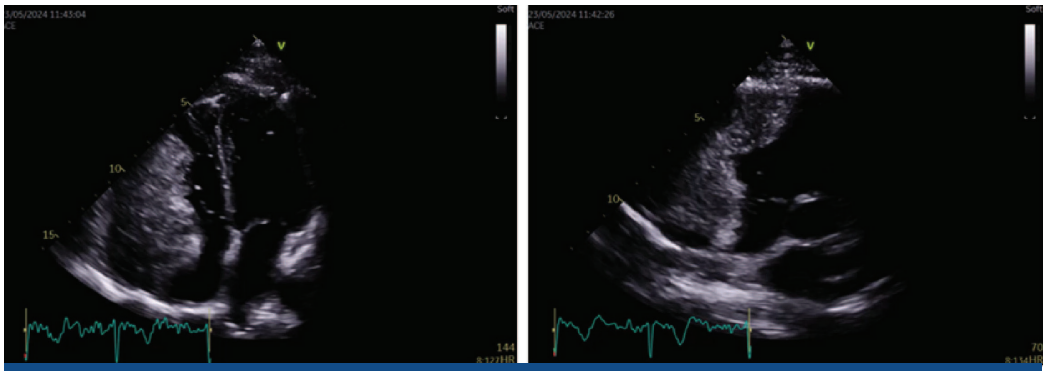

FIGURE 1. Echocardiography showing a large mass infiltrating the right ventricular wall.

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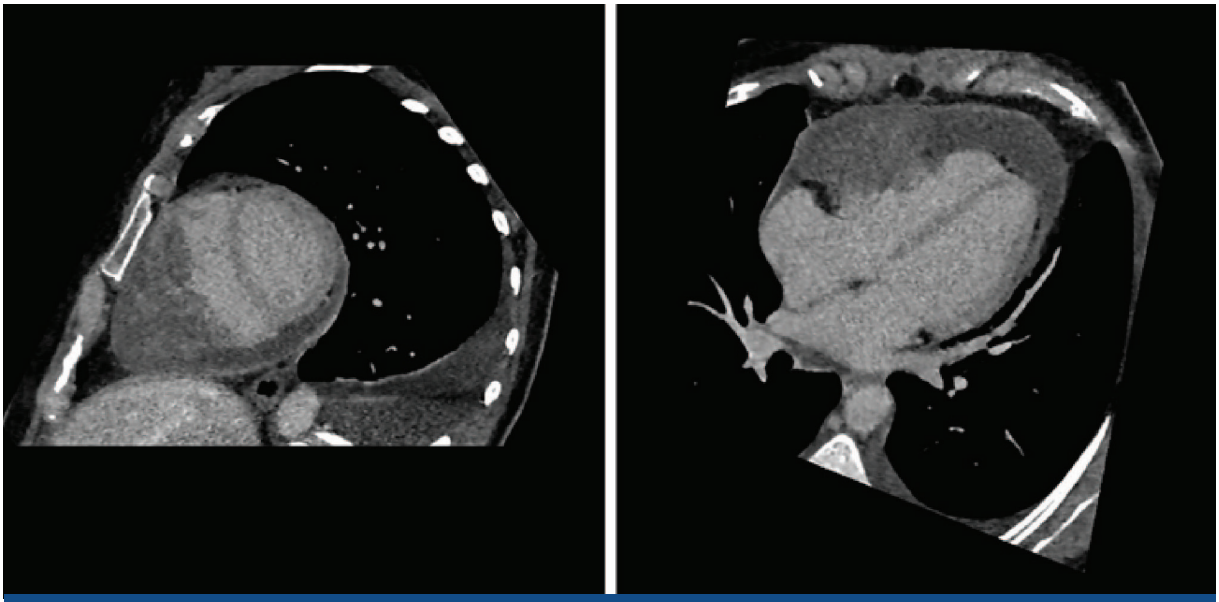

FIGURE 2. Multislice spiral computed tomography of the tumor.

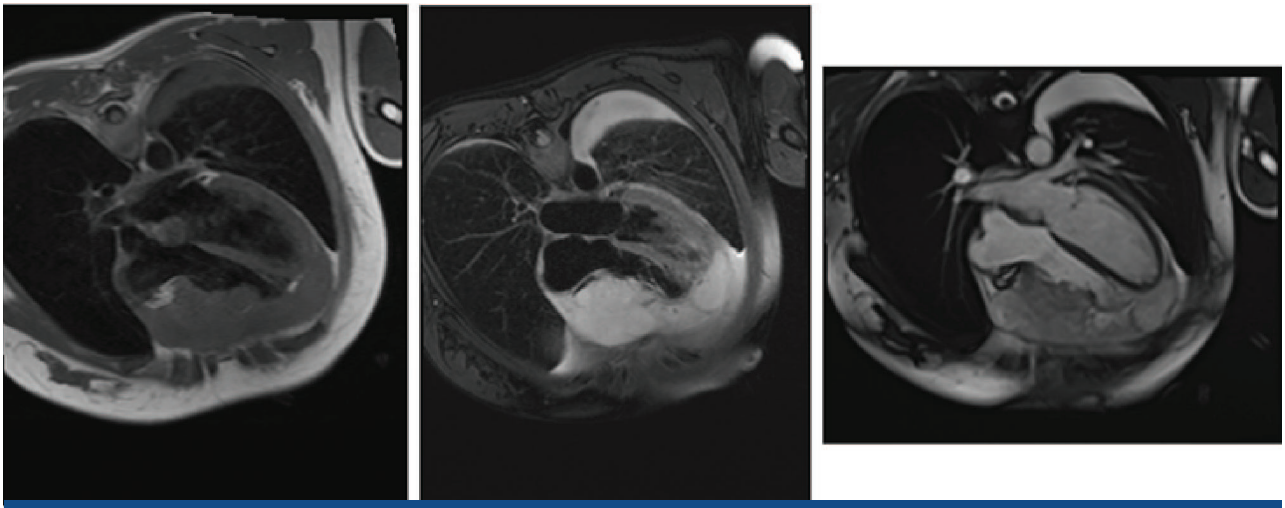

FIGURE 3. Magnetic resonance imaging of the tumor.

metastatic dissemination. Given the high surgical risk, the multidisciplinary team recommended chemotherapy with Adriamycin and Ifosfamide as the first-line treatment but later cardiectomy and implantation of two HeartMate3 ventricular assist devices as form of total artificial heart was performed.

Conclusion: Although primary cardiac tumors are extremely rare, a comprehensive diagnostic approach using multiple imaging modalities is essential in cases of suspicion.

LITERATURE

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