Timely diagnosis of primary pericardial mesothelioma

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April 28, 2020

Abstract

A 66-year-old male referred to our hospital with dyspnea and bilateral lower-extremity edema. Chest radiography (CXR) showed pleural effusions and cardiomegaly. Transthoracic echocardiography revealed large pericardial effusion with a heterogeneous hyperechoic mass in the right ventricular pericardial wall. Histopathological examination confirmed the diagnosis of epithelioid mesothelioma. Primary pericardial mesothelioma is an extremely rare and poorly diagnosed malignancy with a historically poor prognosis. Thus, a timely diagnosis and treatment are crucial for the management of primary pericardial mesothelioma.

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We present a case of a 66-year-old male with dyspnea and bilateral lower-extremity edema. The patient was a nonsmoker and denied history of prior asbestos exposure. Chest radiography (CXR) revealed bilateral pleural effusions and moderate cardiomegaly. Transthoracic echocardiography demonstrated an irregular, thickened pericardium with heterogeneous echogenicity tumor mass concomitant with large circumferential pericardial effusion, thus ruling out infiltration pericardium. (Fig 1); upon hospitalization, Non-contrast Computed tomography (CT) scan of the chest and abdomen showed pericardial effusion encasing the heart with small bilateral pleural effusions. Pericardiocentesis with pigtail drainage was immediately performed and sent for cytology testing, and the report suspected malignant. Consequently, pericardiotomy and biopsy were performed and reported malignant mesothelioma. The micro showed pericardial tissue with epithelioid type mesothelioma. The tumor cells revealed positivity for Calretinin, GATA-3 and CK, and focal positivity for D2-40.The immunostatin for BAP-1 showed loss of nuclear positivity in the tumor cells that, coupled with morphology, accord with a primary pericardial mesothelioma diagnosis. (Fig 2) We continued with PET for further evaluation which showed increased FDG uptake of the entire pericardium, confirming the diagnosis of previous examinations. (Fig 3) Primary pericardial mesothelioma is poorly diagnosed, has unfavorable prognosis, and is extremely rare, even among heart tumors, with an incidence of <0.002% and

accounting for less than 5% of all mesotheliomas. [1] Patients often show nonspecific but typical symptoms like constrictive pericarditis, cardiac tamponade, and heart failure. [2] From the limited literature, up to 75 percent of cases were diagnosed postmortem [3] and cytologic analysis of pericardial fluid were often negative [4]. Echocardiography is the most commonly used investigative tool but is low in the identification of pericardial mesotheliomas. In our case, despite the large amount of pericardial effusion of the first echocardiography, the infiltrated like pericardium was still detected. In addition, cytology after pericardiocentesis reported suspicion of malignancy, which followed by pericardiotomy and biopsy, lead to our timely diagnosis. Echocardiography after the drainage of pericardial effusion displayed a notable heterogenous echogenicity mass (Fig 4). Surgical resection could be curative for localized cases, but our patient refused surgical treatment and is currently receiving chemotherapy.

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