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Cardiac

Intracardiac extension of intravenous leiomyoma, a rare phenomenon: A case report

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ABSTRACT

Leiomyoma of uterine origin is a common histologically benign neoplasm in women; however, growth intravenously with intracardiac extension is a rare phenomenon. This is a diagnostic challenge that can present with varied clinical manifestations and multiple differential diagnosis. This is a case of a 45-year-old female patient with chest heaviness and an intracardiac mass on 2-dimensional (2D) echocardiogram. Previous history of hysterectomy was likewise noted. Imaging workup, including 2D echocardiogram and contrast-enhanced chest and abdomen computed tomography scans, was performed which demonstrated a large, heterogeneous, elongated filling defect in the right atrium and right ventricle extending to the inferior vena cava, left renal vein, and left gonadal vein. The diagnosis was made after resection of the tumor in a single-stage operation. The histopathologic and immunoprofile of the resected tumor were consistent with leiomyoma. The use of multiple imaging modalities such as 2D echocardiogram and computed tomography are essential in the investigation of the intracaval masses with intracardiac extension. Although intravenous leiomyoma with intracardiac extension is a rare phenomenon, radiologists and clinicians alike should be mindful of this differential diagnosis.

Introduction

The most frequent neoplasm in the female genital tract is leiomyoma characterized by histologically benign-looking smooth muscle cells. Intravenous leiomyoma is a rare manifestation and even more so with intracardiac extension [1,2]. Only 300 cases of intravenous leiomyoma have been reported in the English literature [3]. Although it is histologically benign, it can take multiple patterns of venous spread [4]. The symptom of intravenous leiomyoma is nonspecific and is dependent on the extent of the tumor [5]. Intravenous leiomyoma has been

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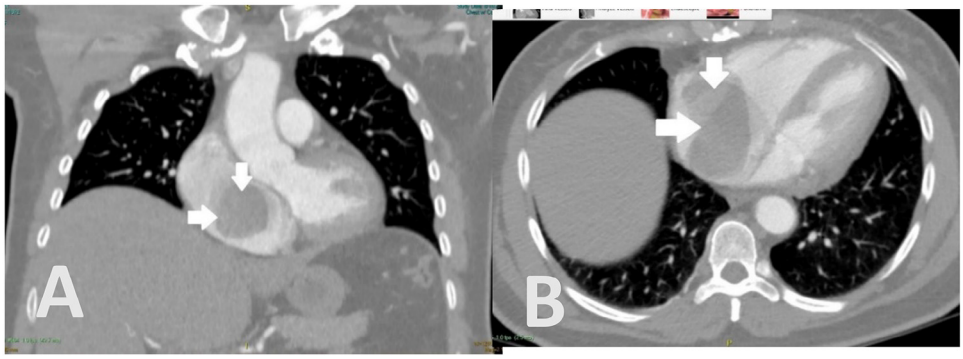

Fig. 1 – (A, B) Coronal and axial views showing the right atrial mass (white arrows).

reported in women with concurrent leiomyoma and/or with a history of hysterectomy [6,7]. Multiple imaging modalities such as echocardiography, computed tomography (CT), and magnetic resonance (MR) imaging can be used to establish the diagnosis and the operative plan [2,8]. In this case report, an intravenous leiomyoma with intracardiac extension was treated with a single-stage operation.

Case report

A 45-year-old female patient was admitted due to chest heaviness and was initially managed as a case of acute coronary syndrome. The patient also had occasional palpitations and syncopal attacks for the past 3 months. Troponin I and echocardiographic findings were normal. Physical examination revealed a grade 2/6 systolic murmur, which was audible along the right upper sternal border along with a widely split second heart sound. Other physical findings were unremarkable. Upon investigation, it was found that the patient previously underwent total abdominal hysterectomy with left salpingo-oophorectomy secondary to myoma uteri with cystic degeneration and left ovary with corpus luteum. The operation was done 2 years before the onset of the cardiac symptoms.

Echocardiography showed a right atrial mass, which prolapses into the right ventricle during diastole. There was resultant dilation of the right atrium and right ventricle, and moderate tricuspid regurgitation with dilated tricuspid valve annulus.

Enhanced CT scan of the chest and abdomen demonstrated a large, heterogeneous, elongated filling defect in the right atrium and right ventricle (Fig. 1) extending to the inferior vena cava (IVC), left renal vein, and left gonadal vein (Fig. 2). Liver is normal in size with heterogeneous parenchyma in venous phase, likely due to congestion caused by the filling defect within the IVC.

The patient was started on enoxaparin on an initial presumption of hypercoagulability. Laboratory workup for hypercoagulability, thrombosis, and myeloproliferative disorder, and metastatic workup for ovarian cancer were done; findings were within normal limits.

The patient underwent excision of the IVC and right atrial mass via a midline sternotomy incision. Cardiopulmonary bypass was instituted with cannulations at the aorta, right atrium-superior vena cava, and IVC.

The excised mass consisted of 2 pieces of elongated and tan-cream mass, with glistening and smooth surface, each measuring $7.5 \times 4.0 \times 3.5$ cm and $7.5 \times 3.0 \times 2.5$ cm. Each piece of mass has a resection end measuring 3.8 and 2.9 cm, respectively. Histomorphologic features and immunoprofile were consis-

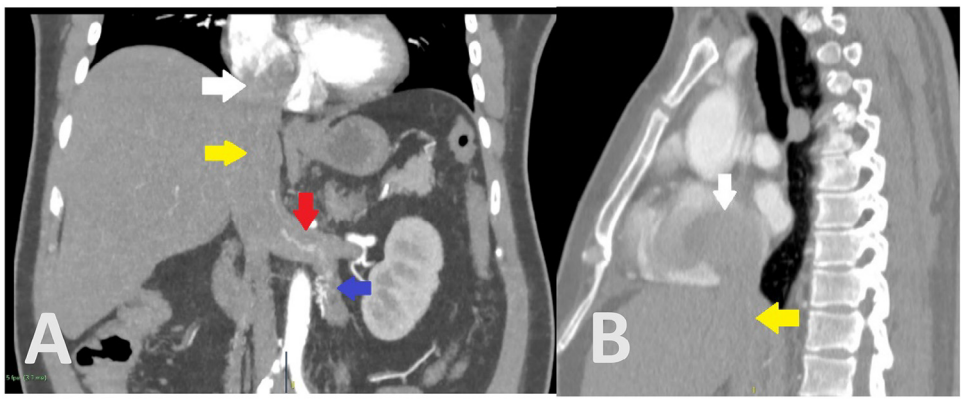

Fig. 2 – (A, B) Coronal and sagittal views showing the extent of the filling defect, from the right atrium (white arrow) to the inferior vena cava (yellow arrow), left renal vein (red arrow), and left gonadal vein (blue arrow).