Left atrial metastasis of a Wilms’ tumor: A rare occurrence

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ABSTRACT

Isolated involvement of the left atrium by metastasis of malignant tumors is extremely rare. Here, we report a rare case of a 6-year-old male child with left atrial metastasis of Wilms’ tumor detected in transthoracic 2D echocardiography 3 years after nephrectomy. Intraatrial extension of Wilms’ tumor occurs in only about 1–3% cases and its isolated metastasis to left heart in the absence of vena cava extension is extremely rare, so we present a unique case.

Keywords: Left atrium, metastasis, Wilms’ tumor

Introduction

Wilms’ tumor or nephroblastoma most commonly occur between the age of 2 and 5 years and are the second most common abdominal tumor in children secondary to neuroblastoma.¹

Intravascular extension of Wilms’ tumor is a well-recognized phenomenon. Vena caval extension occurs in 4–8% of cases and occasionally reach to the right atrium in about 1 to 3% of cases.²,³

To the best of our knowledge, only a few reported cases of metastatic extension of Wilms’ tumor in the left atrium are known. Here, we report a rare case of metastasis of Wilms’ tumor to left atrium in a 6-year-old male child in absence of vena cava extension.

Case History

A 6-year-old male child presented with complaints of gradually progressive dyspnea and easy fatigability since last month. The patient had a past history of right nephrectomy 3 years back for removal of Wilms’ tumor. He received multiple cycles of radiotherapy and chemotherapy.

On examination, his vitals were stable. Bilateral breath sounds were normal and his heart sounds were normal with a low pitched early diastolic murmur heard. Per abdomen examination revealed no organomegaly. Laboratory investigations showed normal hemogram, renal, and liver functions. Chest X-ray, ultrasonogram (USG) abdomen, and inferior vena cava Doppler showed no abnormality.

Transthoracic 2D echocardiography (TTE) revealed a large 48 × 32 mm homogenous mass attached to left lateral wall of left atrium via a narrow stalk and protruding into left ventricle through the mitral valve during each diastole [Figures 1 and 2]. Tricuspid valve showed moderate regurgitation with severe pulmonary hypertension. TEE showed a large 50 × 24 mm homogenous mass extending from the left lateral wall of the left atrium with a narrow stalk of about 10 mm. No interatrial septal defect was seen.

The patient was referred to a cardio thoracic surgery department for further management. The team of cardiac surgeons removed the left atrial mass by median sternotomy and mass biopsy was taken.

Histopathological examination of resected mass was found to be consistent with the histology of Wilms’

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tumor. Microscopic examination [Figure 3] showed malignant small round cells (blastomatous cells) with immunohistochemical positivity for WT 1 and vimentin and negative for myogenin.

**Discussion**

Wilms’ tumor is curable in the majority of patients. More than 90% of patients survive 4 years after the diagnosis. Metastatic tumors of the heart are 20 to 40 times more common than primary tumors. Melanoma, leukemia, lymphoma lung, and breast cancers metastasize to heart with the highest frequency.

Metastasis to heart involves the pericardium, myocardium, and endocardium in decreasing frequency. Metastatic tumors can reach the heart or its chambers by various routes including hematogenous, lymphatic spread, or by direct invasion. Wilms’ tumor metastasis to heart mainly occurs through the lumen of inferior vena cava and occasionally involves the right atrium.

The involvement of the heart in the absence of direct caval extension is extremely rare. Isolated left atrial involvement is exceedingly rare and that is what makes this case unique.

**Conclusion**

Patients of post-operative Wilm’s tumor who presented with dyspnea, primary physician have to evaluate for any possibility of cardiac extension. Isolated left atrial metastasis of Wilms’ tumor in the absence of inferior vena cava extension is exceedingly rare phenomenon. TTE is a simple imaging modality to detect space-occupying lesions of the heart.

**Key Messages:** Isolated left atrial metastasis of Wilms’ tumor in the absence of inferior vena cava extension is exceedingly rare phenomenon. Transthoracic echocardiography is a simple imaging modality to detect space-occupying lesions of the heart.

**Declaration of patient consent**

The authors certify that they have obtained all appropriate patient consent forms. In the form the patient(s) has/have given his/her/their consent for his/her/their images and other clinical information to be reported in the journal. The patients understand that their names and initials will not be published and due efforts will be made to conceal their identity, but anonymity cannot be guaranteed.

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**Conflicts of interest**

There are no conflicts of interest.

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