

<h1>IMAGES</h1>	in PAEDIATRIC CARDIOLOGY
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Tachyarrhythmia: Presenting symptom of cardiac tumour

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Abstract

Background

Cardiac arrhythmia in an apparently healthy heart needs a detailed anatomical investigation to detect any unsuspected anomalies such as cardiomyopathy and cardiac tumours.

Results

We report cardiac tumours as a cause of tachyarrhythmias.

Conclusion

Cardiac tumours are rare in childhood and should be considered as part of the differential diagnosis in a child presenting with cardiac signs and symptoms and treatment should be individualised for each patient.

MeSH: Heart Neoplasms, Tachycardia

Introduction

Primary cardiac tumours are extremely rare in the paediatric population. They should be considered in the differential diagnosis of cardiac cases presenting with an arrhythmia. We report two children in whom the presenting features of their cardiac tumours were apparent supraventricular tachycardia.

Case 1:

5 year old previously well, presented with palpitations to a local Accident & Emergency department and the electrocardiogram (ECG) was thought to be supraventricular tachycardia (SVT). He received adenosine and appeared to respond. He subsequently re-presented to our institution and the ECG was noted to be broad complex in nature with little response to adenosine but his tachycardia did convert to sinus rhythm with intravenous flecainide (Figure 1). An echocardiogram suggested a 3cm by 2cm mass adherent to the left ventricle free wall (figure 2) and further magnetic resonance imaging (MRI) suggested the mass to be a fibroma (figure 3). Conservative therapy rather than surgical intervention has been pursued and eighteen months post presentation he remains well on oral flecainide.

Figure 1 Presenting broad complex tachycardia



Figure 2 Echocardiogram showing mass adherent to the free wall of the left ventricle

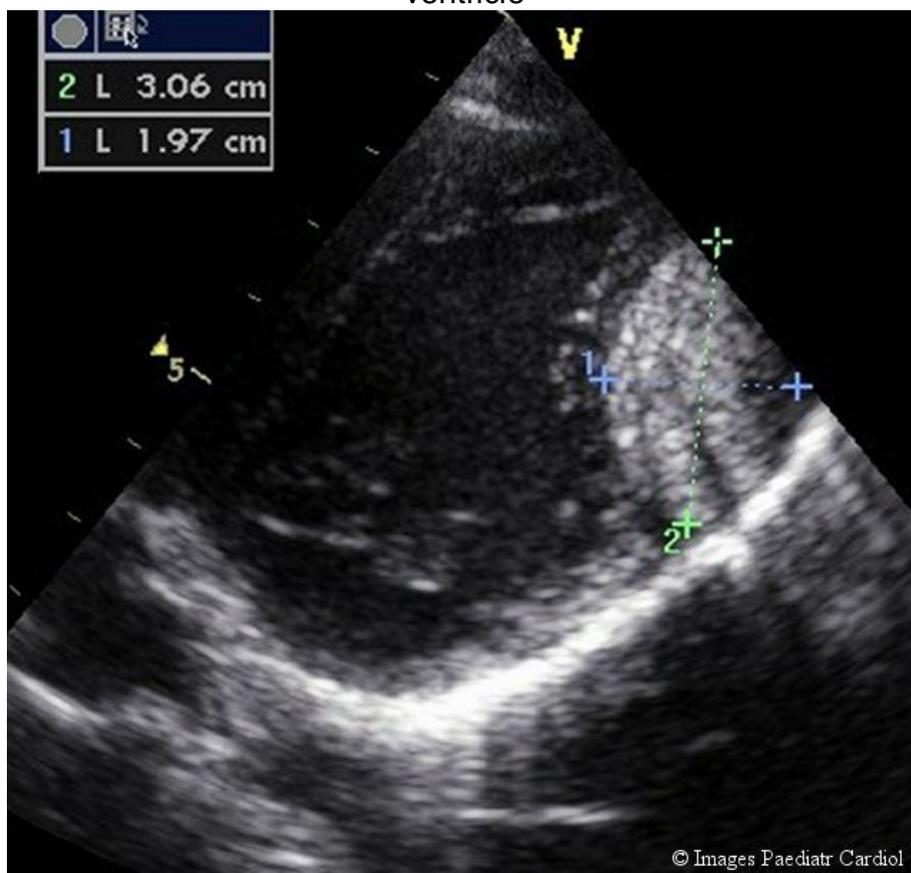
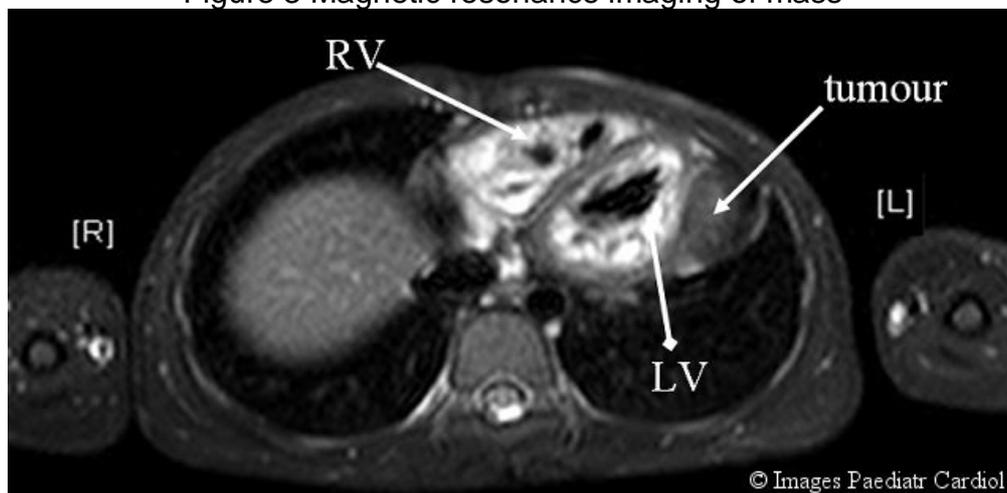


Figure 3 Magnetic resonance imaging of mass



Case 2:

14-year-old fit and healthy boy presented with broad complex tachycardia with haemodynamic compromise. Cardioversion restored sinus rhythm briefly but he soon reverted to his broad complex tachycardia. Amiodarone infusion was commenced and his ECG varied between broad and narrow complex tachycardia (figure 4). An echocardiogram revealed poor ventricular function

with a pericardial effusion and a mass adjacent to the left atrium (figure 5). Further imaging with computerised tomography (CT) scan (figure 6) confirmed a mass suspected to be a myxoma based on the imaging studies. However, an open biopsy under cardiopulmonary bypass confirmed a synovial sarcoma. He was transferred to the oncology team for further care and sadly magnetic resonance imaging (MRI) of his brain revealed metastatic spread.

Figure 4 Electrocardiogram showing narrow complex tachycardia (figure 4).

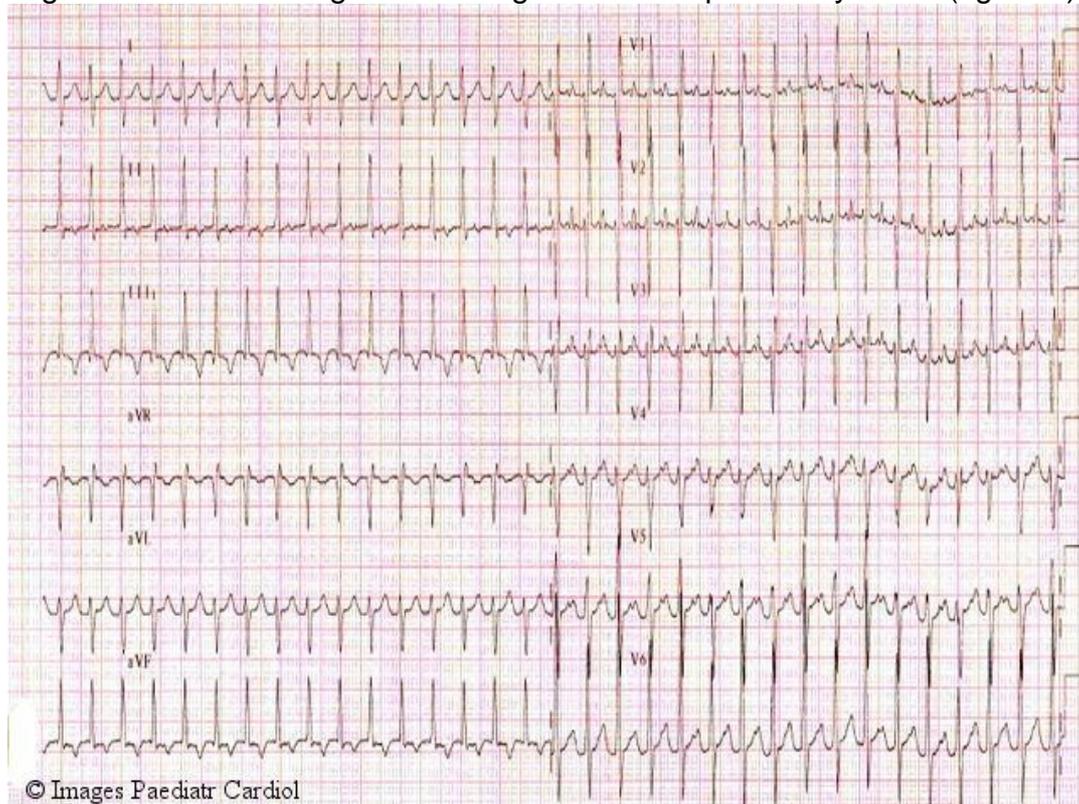


Figure 5 Echocardiogram showing poor ventricular function with a pericardial effusion and a mass adjacent to the left atrium.

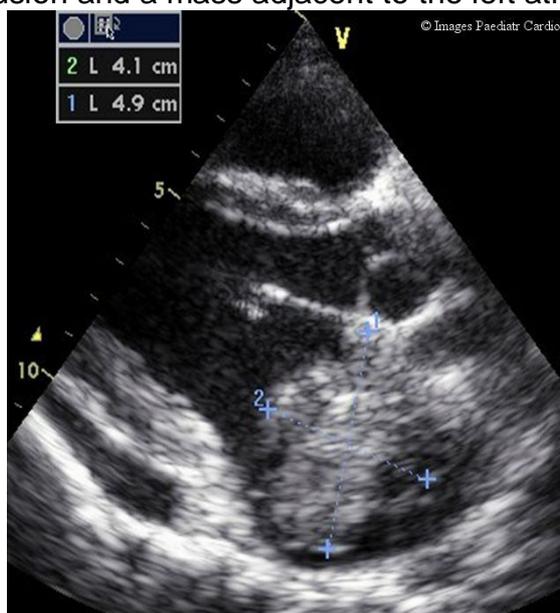
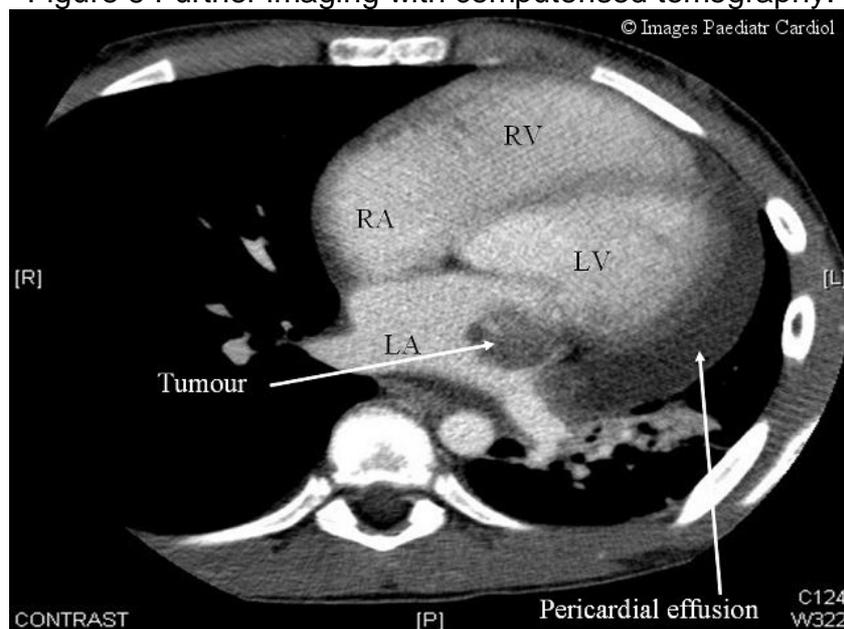


Figure 6 Further imaging with computerised tomography.



Discussion

Cardiac tumours are rare in the paediatric population. Nadas and Ellison reported an incidence of 0.027% in 11,000 paediatric autopsies.¹ Most paediatric cardiac tumours are histologically benign. In the paediatric population primary cardiac tumours are found much more commonly than in adults, where metastatic spread to the heart from a distant focus accounts for a higher proportion of cases.²

Rhabdomyomas are the commonest tumour observed in childhood, followed by fibromas, teratomas, lipomas and hamartomas. Myxomas are the commonest tumour seen in adults. Sarcomas and angiomas are rare. Although the association of multiple cardiac rhabdomyomas with tuberous sclerosis has long been recognised, the association with a single rhabdomyoma is not clear. However, in the case of a solitary tumour a careful examination of cardiac chambers should be made in order not to miss smaller lesions elsewhere.

Symptoms and signs include heart murmurs, arrhythmias, heart failure and exercise intolerance and are largely related to the size and location of the tumour rather than to the tumour type.^{3,4}

In the past 15 years due to considerable change in the imaging methods including magnetic resonance imaging (MRI) more and more cases are being identified.⁵

Spontaneous regression of rhabdomyomas is well described. If symptoms cannot be controlled then several surgical procedures can be undertaken for fibromas and complete resection is preferable. Transplant is another option. For Myxomas complete excision is the treatment of choice if this can be accomplished. With the exception of hemangiomas, teratomas are associated with the highest survival rate after surgical excision.⁶

Patients with few symptoms require close follow up with imaging and ambulatory electrocardiography.

Conclusion

Cardiac tumours are rare in childhood and the majority are benign. They may be life threatening in their presentation. They can mimic structural heart diseases, dysrhythmias and intermittent cyanosis. They should be considered as part of the differential diagnosis in a child presenting with cardiac signs and symptoms and treatment should be individualised for each patient.

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