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A Case of Ventricular Tachycardia Revealing a Myocardial Fibroma at the Albert Royer National Children's Hospital in Dakar

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Abstract

Cardiac fibroma is a rare benign tumor that mainly affects children. It is the second most common cardiac tumor in children after rhabdomyoma. We report the case of a 3-year-old child admitted to the Albert Royer University Hospital in Dakar for cardiac arrhythmia, in whom imaging revealed an intracardiac mass suggestive of fibroma. The diagnosis is based on the appearance of the tumor in the imaging. The patient is awaiting surgery. A review of the literature was conducted to clarify the clinical, diagnostic and therapeutic characteristics of this tumor.

Keywords

Tumor, Child, Fibroma, Ventricular Tachycardia

1. Introduction

Cardiac tumors are benign or malignant neoplasms that mainly appear in the inner wall, muscle layer or pericardium surrounding the heart [1]. They are rare in pediatric practice, with a prevalence of 0.0017% to 0.28% in autopsy series, while their incidence during foetal life is estimated to be around 0.14% [2]. The majority of primary cardiac tumors in children are benign, while only around 10% are malignant. Cardiac fibroma is the second most common cardiac tumor in children after rhabdomyoma [3]-[5]. The most common symptoms are arrhythmias and congestive heart failure [3] [6]. Few cases have been reported in Africa, particularly in Senegal. We report the case of a cardiac fibroma diagnosed in a 3-year-old child following ventricular tachycardia.

2. Observation

This is a 3-year-old boy with no reported antenatal or perinatal history and good psychomotor development, who was admitted with chest pain and excessive sweating that had been developing for several hours prior to admission. Clinical examination revealed a weight of 15 kg (50 - 75th percentile), height of 105 cm (75 - 90th percentile), blood pressure of 92/62 (74) mmHg, normal for his age, irregular tachycardia at 275 bpm, and profuse sweating. There were no other signs of heart failure. The electrocardiogram showed ventricular tachycardia (Figure 1).

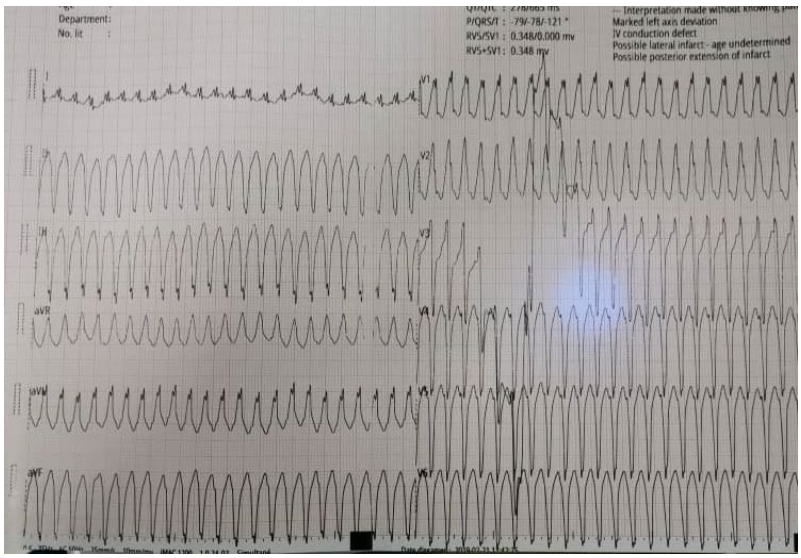

Figure 1. Ventricular tachycardia on ECG.

The indication for electrical cardioversion at 1 joule/kg was made and the patient underwent the procedure, which allowed us to restore sinus rhythm (Figure 2).

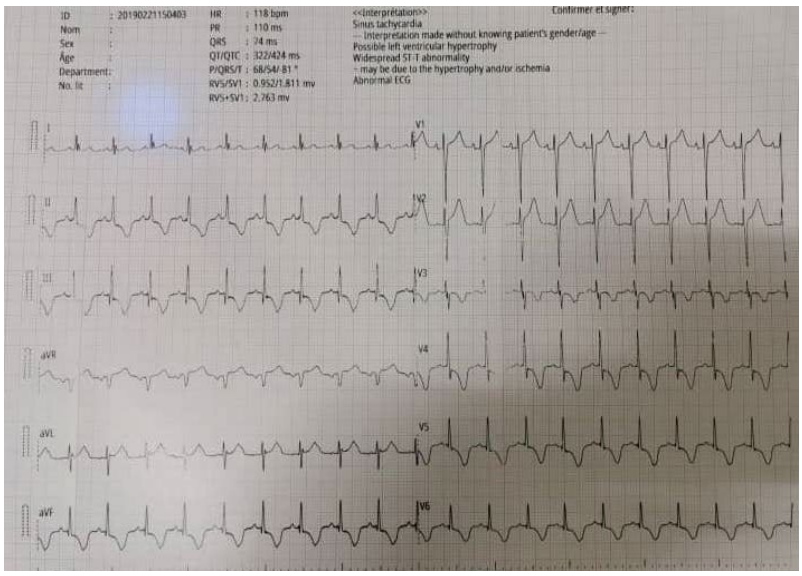

Figure 2. Sinus rhythm.

In searching for an aetiology, we ruled out an ionic disorder with the blood ionogram, which had returned to normal with a sodium level of 136 mmol/l, a potassium level of 5 mmol/l, and a calcium level of 83 mg/l. Thyroid dysfunction was ruled out by measuring thyroid hormones, which had returned to normal: TSH = 2.5 mIU/L (N: 0.15 - 5 mIU/L), T4 = 17 pmol/L (N: 10 - 22 pmol), T3 = 3.2 pmol/L (N: 2.6 - 6.8 pmol/L). The cardiac ultrasound showed anteroseptal hypokinesia with dilatation of the left chambers and apico-medial hyperechoic hypertrophy suggestive of a cardiac tumor. Cardiac MRI showed a left intraventricular tissue mass with a muscular appearance, consistent with a myocardial fibroma (Figure 3), while cerebral MRI was normal.

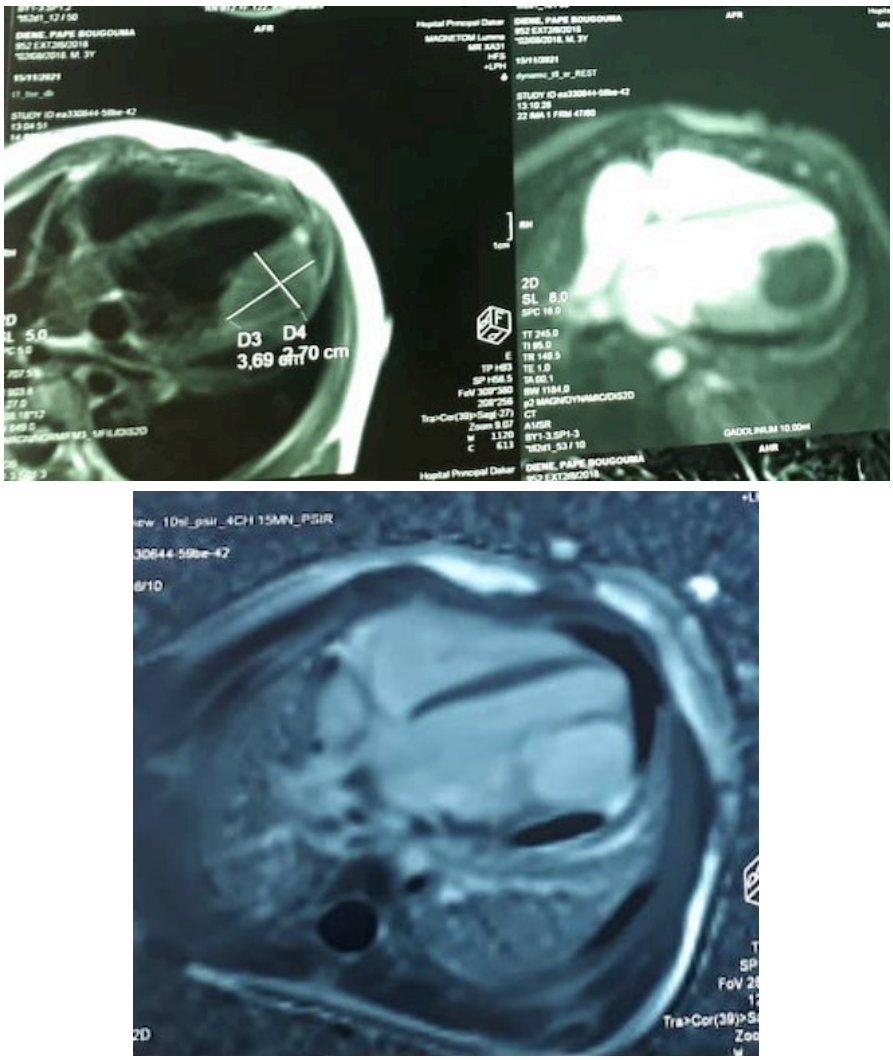

Figure 3. Cardiac MRI showing a left intraventricular mass.

The patient was placed on Cordarone 500 mg/m^2 as a loading dose, followed by 250 mg/m^2. The short-term prognosis was favourable. There has been no recurrence of ventricular tachycardia; the patient is currently asymptomatic and is awaiting possible surgery.

3. Discussion

Cardiac fibroma is a benign tumor of mesenchymal origin, consisting of fibroblasts embedded in a matrix rich in collagen fibres. Although histologically benign, this lesion can have a major functional impact depending on its location, size and interaction with neighbouring cardiac structures [1].

In children, fibroma is the second most common cardiac tumor after rhabdomyoma, accounting for approximately 6% to 25% of primary cardiac tumors in pediatrics [2]. It occurs mainly in infants and young children, with cases described as early as the foetal period [3]. To date, there have been few cases reported in Africa and none in Senegal. Fibromas affecting the interventricular septum often cause conduction disorders and arrhythmias. Unlike cardiac rhabdomyoma, cardiac fibroids rarely regress spontaneously and often present with arrhythmias (32%), mainly ventricular tachycardia (with a risk greater than 50%), ventricular fibrillation, murmurs (20%) and abnormal chest X-rays (20%) [7].

The clinical presentation is highly variable. It can range from asymptomatic (incidental discovery on echocardiography) to severe manifestations such as: congestive heart failure (21% of cases), ventricular or supraventricular arrhythmias (13%), often linked to damage to the intracardiac conduction tissue, chest pain or discomfort (approximately 3.5%) [4] [7].

Diagnosis is based primarily on cardiac imaging. Transthoracic echocardiography is the first-line examination. In addition, cardiac MRI allows for better characterisation of the tissues, confirmation of the benign nature of the tumor, and clarification of its relationship with neighbouring structures [5] [6].

The prognosis depends on the mechanical and electrical impact of the tumor. Unlike rhabdomyoma, fibromas do not regress spontaneously and can lead to serious complications such as intracardiac obstruction, coronary compression, and even sudden death, as has been reported in some pediatric cases [7].

Surgical treatment is indicated in cases of significant symptoms or life-threatening conditions. Although technically difficult due to the absence of a tumor capsule, surgical excision generally offers a good prognosis if complete [3].

In our observation, the diagnosis was made at a relatively early age (3 years), which allowed for rapid management and rigorous follow-up. This case highlights the importance of early ultrasound screening for any atypical cardiac symptoms and the value of multidisciplinary follow-up in pediatric cardiology and surgery [8].

4. Conclusion

Cardiac fibroma in children is a rare but potentially serious condition. Diagnosis is based on non-invasive imaging, and management depends on the clinical impact. Cardiac surgery is the treatment of choice, but access to it remains limited in developing countries. Our case illustrates the importance of early screening and rigorous monitoring, particularly in developing countries where access to pediatric cardiac surgery remains limited.

Conflicts of Interest

The authors declare no conflicts of interest regarding the publication of this paper.

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