Case Report

International Journal of Medical Case Report

Left Ventricular Myxoma causing Dyspnoea in Paediatric Patient: A Rare Case Report.

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Abstract

Cardiac tumours are a relatively rare entity in clinical practice, with an estimated prevalence of 0.0017-0.19% among the general population. Among these, myxomas represent the most common primary cardiac tumours, accounting for approximately 50% of cases. In paediatric age group these tumours are rare and when present they may present a diagnostic challenge because of the non-specific symptoms they produce. A high index of suspicion is necessary for the diagnosis of cardiac myxomas in paediatric age group. Any patient presenting with unexplained dyspnoea and signs of failure must be thoroughly investigated for the possibility of cardiac tumours particularly myxoma. Echocardiography will generally pick up the tumour. transoesophageal echocardiography can pick up even smaller myxomas. Magnetic resonance imaging (MRI) can not only show presence but also delineate the precise location, size, and extent of the tumour, which is invaluable for surgical planning. Management of these tumours is usually surgical and the prognosis is excellent if these cases are diagnosed early and treated with prompt surgical resection. We here present a case of 12-year-old boy who presented to us with dyspnoea and eventually found to be having left ventricular myxoma. The case highlights the importance of proper evaluation of paediatric patients for the presence of intracardiac tumours particularly in cases of unexplained dyspnoea.

Keywords: - Dyspnoea, Left ventricular myxoma, MRI, Surgical resection,

Introduction

Cardiac tumours are a relatively rare entity in clinical practice, with an estimated prevalence of 0.0017-0.19% among the general population. Among these, myxomas represent the most common primary cardiac tumours, accounting for approximately 50% of cases. Myxomas predominantly arise from the atria, with left atrial myxomas being more prevalent than right atrial myxomas.[1] However, left ventricular myxomas are exceedingly rare, constituting only a small fraction of all cardiac myxomas. This case report aims to shed light on the clinical, diagnostic, and therapeutic challenges

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posed by left ventricular myxomas, emphasizing the importance of a high index of suspicion to ensure timely and appropriate management.[2]

Cardiac myxomas are typically benign neoplasms composed of connective tissue and mesenchymal cells embedded in a mucinous stroma. While their exact etiology remains elusive, a familial predisposition has been noted in some cases, suggesting a potential genetic basis. The majority of myxomas are sporadic, and they occur predominantly in middle-aged adults, with a slight predilection for females.[3]

Left ventricular myxomas are unique in their anatomical location and clinical presentation. Unlike their atrial counterparts, which frequently cause obstructive symptoms due to their location within the atrial chambers, ventricular myxomas tend to remain clinically silent until they attain a significant size or produce non-specific symptoms. This characteristic silent progression often leads to delayed diagnosis and an increased risk of complications.[4]

Clinical manifestations of left ventricular myxomas can vary widely, and patients may present with a constellation of symptoms that mimic other cardiac or non-cardiac conditions. These symptoms can include dyspnoea on exertion, chest pain, fatigue, syncope, or even sudden cardiac death in rare cases.[5] The variable and non-specific nature of these symptoms can confound the diagnostic process, frequently leading to misdiagnosis or delayed intervention.[6]

The diagnostic evaluation of left ventricular myxomas requires a multimodal approach. Electrocardiography (ECG) is generally non-specific but may show signs of left ventricular hypertrophy or arrhythmias in some cases.[7] Echocardiography, particularly transthoracic echocardiography (TTE) and transoesophageal echocardiography (TEE), plays a pivotal role in identifying cardiac tumours. However, the differentiation of myxomas from other benign or malignant tumours can be challenging on imaging alone.[8]

Cardiac magnetic resonance imaging (MRI) provides superior tissue characterization and aids in distinguishing myxomas from other cardiac masses, such as fibromas, lipomas, or thrombi. Furthermore, MRI can delineate the precise location, size, and extent of the tumour, which is invaluable for surgical planning.[9]

The definitive diagnosis of left ventricular myxoma ultimately relies on histopathological examination. Surgical excision is the mainstay of treatment, as complete resection offers the best chance for cure and minimizes the risk of recurrence. Due to the rarity of left ventricular myxomas, there is limited data on their natural history and optimal management strategies, underscoring the importance of sharing individual case experiences.[10]

In this case report, we present a challenging case of a left ventricular myxoma in a 12-year-old male patient with a history of unexplained exertional dyspnoea and chest pain. Despite initial misdiagnoses and therapeutic trials for alternative conditions, our patient was ultimately found to have a left ventricular myxoma during a comprehensive cardiac workup. We highlight the clinical, radiological, and histological features of this case, as well as the intricacies of its surgical management.

Case Report

A 12-year-old male presented to our Paediatric OPD with a history of gradually worsening exertional dyspnoea and intermittent chest pain over the past six months. The patient had no significant medical history or family history of cardiac diseases. On physical examination, his vital signs were stable, and no remarkable findings were noted. Cardiovascular examination revealed a regular heart rate and rhythm with no murmurs, rubs, or gallops.

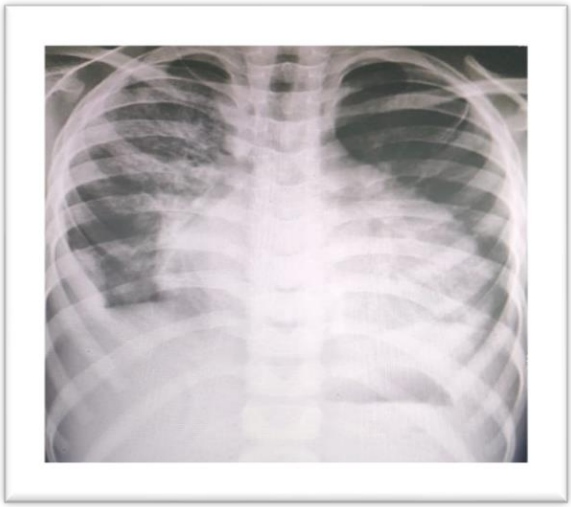

Figure 1: X-Ray Chest PA view showing Cardiomegaly, Pericardial Effusion and right pleural Effusion.

Initial investigations, including routine blood tests and electrocardiography (ECG), were unremarkable. However, given the persistent and concerning symptoms, further evaluation was warranted. An X-Ray was done which showed presence of cardiomegaly and right pleural effusion. Echocardiography was performed, revealing a hyperechoic mass within the left ventricular cavity, measuring approximately 2.5 cm in diameter. The mass appeared to be mobile, attaching to the left ventricular wall by a thin stalk during systole

and prolapsing into the left ventricular outflow tract during diastole. Also, there was presence of pericardial effusion.

Subsequently, a cardiac magnetic resonance imaging (MRI) was conducted for better tissue characterization and precise localization of the mass. The MRI confirmed the presence of a well-defined, non-enhancing mass within the left ventricular cavity, consistent with the initial suspicion of a cardiac myxoma.

Given the patient's age and the rarity of left ventricular myxomas in paediatric populations, a multidisciplinary team, including paediatric cardiologists and cardiothoracic surgeons, convened to discuss the case. After a thorough evaluation and risk-benefit analysis, it was decided that surgical excision was the most appropriate course of action and hence patient was referred to cardiothoracic surgeon for further management.

Discussion

Paediatric cardiac tumours, including myxomas, are exceptionally rare, comprising a small fraction of all paediatric cardiac conditions. Left ventricular myxomas, in particular, are extremely uncommon, and only a limited number of cases have been reported in the literature. [11] The rarity of this presentation in paediatric patients underscores the importance of considering cardiac tumours in the differential diagnosis of unexplained cardiac symptoms, especially when they do not respond to conventional treatments.[12]

The diagnostic journey in this case was marked by several challenges. The non-specific nature of the patient's symptoms, including exertional dyspnoea and chest pain, initially led to a broad differential diagnosis. Echocardiography, specifically TTE and TEE, played a pivotal role in identifying the cardiac mass. However, accurate differentiation between cardiac tumour types can be challenging, necessitating additional imaging modalities such as cardiac MRI for better tissue characterization. This approach aligns with current guidelines for diagnosing cardiac tumours, even in paediatric patients.[13]

Management decisions in this case were guided by a multidisciplinary team comprising paediatric cardiologists and cardiothoracic surgeons. This collaborative approach is crucial when dealing with rare and complex cardiac conditions, ensuring that all aspects of patient care, from diagnosis to surgical intervention, are well-coordinated. The decision to proceed with surgical excision was based on a thorough evaluation of the patient's clinical status and the tumour characteristics, as well as a risk-benefit analysis.[14]

The definitive treatment of cardiac myxoma is usually surgical. Postoperative follow-up is essential to monitor for tumour recurrence, assess cardiac function, and address any potential complications. In this case, the patient's recovery was uneventful, with no evidence of tumour recurrence on follow-up echocardiography. Long-term prognosis following complete resection of cardiac myxomas, even in paediatric patients, is generally favourable, emphasizing the importance of early diagnosis and surgical intervention.[15]

Conclusion

Our case highlights the importance of considering cardiac tumours in the evaluation of unexplained cardiac symptoms, even in paediatric populations where such tumours are exceedingly rare. The case underscores the value of a multidisciplinary approach, combining advanced imaging techniques like cardiac MRI and intraoperative Echocardiography, to ensure accurate diagnosis and safe surgical resection. With appropriate intervention and vigilant follow-up, patients with cardiac myxomas, regardless of age, can achieve favourable outcomes. This case underscores the significance of collaborative care and advances in diagnostic modalities in addressing rare cardiac conditions in paediatric patients.

Conflict of interest

none

Source of Funding

None

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Authors Contribution: SA- Concept and design; manuscript preparation; revision of manuscript, review of manuscript.

How to cite this article

Ahmed S, Left Ventricular Myxoma causing Dyspnoea in Paediatric Patient: A Rare Case Report IJOMCR. 2023;4(4): 5-8.