International Journal of Science and Research (IJSR)
ISSN: 2319-7064
Impact Factor 2024: 7.101

Case Study On-Successful Diagnosis and Post Surgical Management of a Right Ventricular Myxoma in a Pediatric Patient

Priyanka Minz[1], Dr. Satyajit Sahoo[2]

[1]Charge nurse, CTVS, Apollo Hospital Bhubaneswar, Odisha, India

[2]Senior Consultant CTVS, Clinical Lead and Senior Consultant, Apollo Hospital, Bhubaneswar, Odisha, India

Abstract: ***In my view, the case of a 15-year-old boy from a rural background, diagnosed with a rare right ventricular myxoma, offers a compelling glimpse into the challenges and triumphs of managing uncommon cardiac tumors in childeren. This article delves into the clinical journey of the patient, who presented with severe shortness of breath and was found to have a sizable gelatinous mass obstructing the right ventrilce, as confirmed by advanced diagnistic tools like 2D echocardiography and CT pulmonary angiography. It is evident that the interplay of symptoms- ranging from pulmonnary hypertension to ventricular tachycardia-underscored the urgency of surgical intervention, which was deftly executed at Apollo Hospitals, Bhubhaneswar. What stands out is the critical role specialized nursing care, which navigated post-operative complexities with precision, ensuring the boy's stable recovery. This suggests that early diagnosis, coupled with skilled surgical and post-surgical management, can transform outcomes in such rare cases, shedding light on both the medical intricacies and the human resilience at play. Beyond the technical success, this case invites reflection on how healthcare teams adapt to the unpredictable nature of rare conditions, offering hope where data is scarece.***

Keywords: right ventricular myxoma, pediatric cardiac tumors, surgical intervention, nursing care, echocardiography

1. Introduction

Primary heart tumors are rare in children, and right ventricular myxomas are especially uncommon. These tumors can cause a range of symptoms depending on their size and location, often including obstruction, embolisms, and general symptoms. While most myxomas occur in the left atrium, only a small percentage originate in the right ventricle. Right ventricular myxomas, particularly those arising from free wall. Among other constitutional symptoms, cardiac myxoma can result in embolism, outflow tract blockage, as well as arrhythmia. Between30-40% of cases result in embolism.

In3-7% of instances, myxomas originate from RV(right ventricle); however, myxomas that originate in RV free wall have been uncommon moreover lack clear pathogenic mechanism. Heart primary tumors have been uncommon, occurring in0.02-0.05% of cases. About75–80% of myxomas occur in LA, 10–20% in RA, 5–10% in either ventricle or both ATRIA. Gelatinous mass inside ventricle has been characteristic of myxomas that emerge from RV. Because of rarity as well as paucity of accessible data, precise incidence of RV myxoma has been unknown.

Incidence

RV myxomas are representing a tiny fraction of all cardiac tumors. These unusual growths consist of gelatinous mass within right ventricle. Precise incidence figures are difficult to establish due to their rarity, resulting in limited available data. Often, these myxomas are discovered unexpectedly during diagnostic testing for other cardiac issues. Symptoms that patients may encounter include palpitations, shortness of breath, chest pain, as well as heart murmurs, though some individuals may be asymptomatic.

While the majority appear to be sporadic, meaning they arise without a clear hereditary pattern, a small percentage may be linked to genetic syndromes, such as Carney complex. This complex is a rare, inherited disorder characterized by various tumors, including cardiac myxomas.

Because right ventricular myxomas can obstruct blood flow, cause arrhythmias, or even shed emboli (fragments that travel through the bloodstream), prompt diagnosis and treatment are essential. Surgical removal of the myxoma is the standard treatment and is usually curative. In some cases, particularly if the myxoma has caused damage to the heart or surrounding structures, additional interventions may be required. The prognosis following surgical excision is generally excellent, with a low risk of recurrence. Because they reside in the right ventricle, the effects often manifest in the pulmonary circulation. This can lead to stroke-like symptoms if the embolus travels to the brain, or pain and reduced blood flow in other affected areas.

2. Case Description

A 15-year-old boy from a rural village presented with severe shortness of breath. After initial evaluation at a local hospital, he was referred to Apollo Hospitals, Bhubaneswar, where Dr. Satyajit Sahoo diagnosed him with a right ventricular myxoma. Diagnostic tests, including a 2D echocardiogram, X-ray, HRCT of the thorax, CT pulmonary angiogram, and pulmonary angiography, confirmed the diagnosis. The CT pulmonary angiogram revealed a sizable mass (36x33x40mm) attached to interventricular septum, protruding into right ventricle. Mild pulmonary hypertension and tricuspid regurgitation were also noted. The patient's father was informed that surgical intervention was necessary, and the boy was immediately admitted to the ICU. While in the ICU, he experienced an episode of irregular heart rhythms, including ventricular tachycardia, which was treated with inj. Lignocaine.

Pre-operatively, the nursing staff prepared the patient for surgery, explaining procedure, making sure all necessary tests had been completed, giving emotional support, and preparing his skin for OT.

On June 26, 2023, the patient underwent surgical intervention to remove the right ventricular mass and repair the tricuspid valve. The procedure involved a standard sternotomy, pericardiotomy, and initiation of cardiopulmonary bypass. Patient had then been transferred to CTVS-ICU in stable condition.

Post Surgery Nursing Management:
This rare case of right ventricular myxoma surgery required highly specialized nursing care throughout the patient's journey, from admission to discharge and beyond. Nurses played a crucial role in managing post-operative complications, administering medications, addressing side effects, and educating the patient and family about post-surgical exercises and care. Infection prevention was a top priority, with strict adherence to aseptic techniques, hand hygiene, and care bundles for central lines to prevent any HAI. Oral care, nutritional support (including Ryle's tube feeding when patient was in ventilator to provide nutrition to the patient), and pain management (through a systematic escalation of analgesics, including fentanyl patches and fentanyl infusions during 1st post op day, and diversional therapy) were also essential components of care. Fluid and electrolyte balance was meticulously monitored and corrected as needed.

Continuous monitoring of vital signs, including attention to warning signs like hypotension, tachycardia, tachypnea, drain amount and changes in oxygen saturation, was paramount. The patient's condition was closely observed for post-op complications such as uncontrolled arrhythmias, which were promptly treated. Nurses also encouraged spirometry exercises and steam inhalation to improve lung function and prevent atelectasis. Neurological status (GCS), cardiac rhythm, and hemodynamic stability were continuously assessed, and blood transfusions were administered as needed to achieve normal hemoglobin levels.

3. Follow Up Plan

On June 30th, the patient was discharged in stable condition with detailed instructions for follow-up care. These instructions included to visits for dressing changes and blood sampling, regular check-ups with the cardiac surgeon, and precautions to avoid crowded places, dusty areas, contact with infected individuals, heavy lifting and adherence to dietary recommendations. The patient was also instructed to wear a chest binder for six months and continue spirometry exercises at home. Nurses played a key role in educating the family about the post-operative recovery process for this rare condition, including potential side effects, and reinforcing the importance of infection control practices, hand hygiene, and personal hygiene. This education and discharge planning began upon admission, empowering the family to actively participate in the patient's recovery. 2D Echocardiogram: A final 2D echocardiogram was performed before discharge to assess the heart's function after surgery.

- Wound Care: A final surgical wound dressing was performed before discharge.
- Home Care Education: The patient and his family received detailed instructions from the doctor regarding routine home care, including wound management, activity restrictions, and recognizing potential complications.
- Medication Review: A thorough explanation of all discharge medications was provided to the patient, including dosage, frequency, purpose, and potential side effects.

4. Discussion

RV myxomas are rare entities, especially in the pediatric population. Their clinical presentation can be variable, and they can mimic other cardiac or systemic conditions. Echocardiography remains the primary diagnostic modality. This case highlights the successful surgical management of an RV myxoma in 15year-old boy. Patient's excellent postoperative outcome underscores the importance of early diagnosis, prompt surgical intervention and impressive post-surgical nursing care make it possible to the successful outcome.

References

[1] Recurrent cardiac myxoma: a case report. Mahavar RK, Arora D, Singh A, Mishra M. Ann Card Anaesth. 2021;24:490–492. doi: 10.4103/aca.ACA_7_20. [DOI] [PMC free article] [PubMed] [Google Scholar]
[2] https://www.sciencedirect.com/science/article/pii/S2666084924008969 Rupendra Nath Saha MD, Bhanu Duggal DM, Vijaya Kumar Varada DM, Anirudh Mukherjee MD, Arvind Kumar MD
[3] https://pmc.ncbi.nlm.nih.gov/articles/PMC4301803/
[4] https://cts.springeropen.com/articles/10.1186/s43057-023-00095-w
[5] https://pubmed.ncbi.nlm.nih.gov/35450546/