RIGHT ATRIAL MYXOMA ASSOCIATED WITH FATAL THROMBOCYTOPENIA: A RARE CLINICAL ASSOCIATION

Faisal Iqbal Jadoon, Taimoor Sikandar Zaman Khan, Mujtaba Zahid, Waseem Ahmad Jadoon, Shahzadi Umar

[1]House officers, Khyber Teaching Hospital, Peshawar - Pakistan

ABSTRACT

A woman in her sixties with a history of hypertension, type 2 diabetes mellitus, and previously diagnosed right atrial myxoma presented with generalized body swelling, fever, dyspnea, bilateral chest pain, and mucosal bleeding. Laboratory tests showed progressive thrombocytopenia, renal dysfunction, and metabolic acidosis. Despite supportive care, her platelet count decreased from 29 × 10^9/L to 21 × 10^9/L, and she ultimately died from severe thrombocytopenia with mucosal hemorrhage and multi-organ failure. Infectious and hematologic causes were ruled out, and all other common causes were excluded, suggesting a paraneoplastic mechanism related to the right atrial myxoma. This case highlights a rare, potentially fatal hematologic complication of right-sided cardiac myxoma and emphasizes the importance of considering tumor-associated thrombocytopenia in similar situations.

Keywords: Atrial Myxoma, Immune Mechanism, Mucosal Bleeding, Paraneoplastic, Thrombocytopenia

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INTRODUCTION

Atrial myxomas account for about half of all benign primary cardiac tumors and are most commonly found in the left atrium, making up 75%, with right atrial involvement reported in less than 15-20% of cases. [1] While cardiac myxomas typically present with obstructive, embolic, or constitutional symptoms, hematologic abnormalities like thrombocytopenia are very rare. [2]

Paraneoplastic thrombocytopenia secondary to atrial myxoma has been sporadically reported in the literature, with proposed mechanisms including immune-mediated platelet destruction, cytokine-driven marrow suppression, or consumptive coagulopathy. This report presents a rare and fatal case of right atrial myxoma complicated by progressive thrombocytopenia and mucosal bleeding, highlighting pathophysiologic insights and reviewing published evidence.

CASE PRESENTATION

A woman in her sixties with a history of hypertension, type 2 diabetes mellitus, and a right atrial myxoma diagnosed a year earlier (ejection fraction 60%) presented to our emergency department with generalized swelling, fever, shortness of breath, bilateral chest pain, constipation, and weakness.

Upon arrival, her Glasgow Coma Scale score was 13 out of 15, indicating an altered mental state probably caused by severe uremic encephalopathy and metabolic acidosis. The cardiovascular exam revealed normal first and soft second heart sounds. Bilateral chest crackles and mucosal bleeding were noted, along with pedal edema.

Given her previous diagnosis of right atrial myxoma and new-onset thrombocytopenia, a comprehensive laboratory and imaging assessment was conducted. Initial key laboratory results revealed significant metabolic disturbances. Arterial blood gases showed metabolic acidosis (pH 7.267, pCO2 18.3 mmHg, HCO3- 5.2 mmol/L). Renal function was severely compromised (urea 216 mg/dL, creatinine 4.5 mg/dL), indicating acute on chronic kidney injury with uremic encephalopathy. Serum electrolytes were also abnormal (potassium 6.9 mmol/L, calcium 8.24 mg/dL, sodium 140 mmol/L), and C-reactive protein was elevated at 86 mg/L. Infectious screens were negative, and a peripheral smear demonstrated normal morphology without schistocytes. Bone marrow biopsy and platelet antibody testing were unremarkable.

Echocardiography confirmed a right atrial mass consistent with the previously diagnosed myxoma (figure 1). Chest radiography showed bilateral pulmonary congestion, and ultrasonography revealed pericholecystic edema and renal parenchymal disease.

The platelet counts gradually decreased from 29 × 10^9/L to 21 × 10^9/L, while hemoglobin stayed at 14.6 g/dL with mild macrocytosis (mean corpuscular volume

Correspondence
Dr. Faisal Jadoon
House officers, Khyber Teaching Hospital,
Peshawar - Pakistan
Cell: +92-345-8747507
Email: faisaliqbal3d@gmail.com
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101.4 fL). See Table 1 for details. Platelet transfusions had no effect, suggesting a consumptive process related to the tumor-associated paraneoplastic condition.

Due to hemodynamic instability, the patient's condition rapidly worsened, with increased mucosal bleeding and multi-organ failure. Despite intensive care, she succumbed to severe thrombocytopenia and hemorrhagic complications.

Transthoracic echocardiogram demonstrating a well-defined right atrial mass attached to the interatrial septum, consistent with previously diagnosed right atrial myxoma.

This patient's platelet counts steadily decreased, suggesting a consumptive paraneoplastic mechanism associated with right atrial myxoma.

DISCUSSION

This case illustrates a rare and deadly hematologic complication from right atrial myxoma. Thrombocytopenia linked to cardiac tumors has been documented in limited case reports, with proposed mechanisms including immune-mediated platelet destruction, cytokine release, mechanical shearing, or disseminated intravascular coagulation. [7, 8]

Our literature review found fewer than 10 published cases linking atrial myxoma with thrombocytopenia (Table 2). In most cases, platelet counts improved after surgical removal, supporting a tumor-associated mechanism. [9] However, for patients with advanced disease or coexisting organ failure, outcomes remain poor.

This rare association emphasizes the importance

Table No 1: Investigations details during hospital stay

Parameters	Results	Reference range	Remarks
pH	7.267	7.45-7.35	Metabolic acidosis
pCO2 (mmHg)	18.3	45-35	Decreased
HCO3 (mmol/L)	5.2	28-22	Decreased
Urea (mg/dL)	216	50-10	Markedly elevated
Creatinine (mg/dL)	4.5	1.2-0.5	Elevated
Sodium (mmol/L)	140	145-135	Normal
Potassium (mmol/L)	6.9	5.0-3.5	Critically high
Calcium (mg/dL)	8.24	8.5-10.5	Slightly low
C-reactive protein	86	<5	Elevated
Hemoglobin	14.6	12-16	Normal
Mean corpuscular volume (fL)	101.4	80-100	Mild macrocytosis
Platelet count (9^10/L)	29 decreases to 21	150-450	Severely decreased

Table No 2: Reported cases of Atrial Myxoma-Associated thrombocytopenia

Author (Year)	Patient ((age/ sex)	Tumor location	Platelets count (x-10/L)	Proposed mechanism	Management	Outcome
Taamallah K et al. (10 .(2020	-72years-old female	Left atrium	~18x -10/L	Tumor-associated peripheral destruction or consumption	Surgical excision	Platelets count rose to ~95x -10/L after 6 months
Moisi M et al. (11 .(2018	Age not specified	Atrial myxoma with atrial fibrillation	Thrombocytopenia present (exact count not given)	Myxoma+ AF: Possible consumptive mechanism	Surgical removal	Outcome not reported
Raman K R et al. (12 .(2019	Age not stated	Right atrium	Associated with immune thrombocytopenia purpura (ITP)	Immune mediated platelets destruction	Surgical removal	Outcome not mentioned
Jayadevappa G & Chaudhri B (13 .(2025	-26year-old male	Left atrium	Severe thrombocytopenia (platelets not given)	Tumor obstruction + platelets destruction	Urgent surgery and supportive therapy	Platelets levels stable at discharge
Pourkia R et al. (14 .(2025	-61years-old male	Right atrium	Thrombocytopenia with polycythemia	Tumor-associated destruction	Surgical excision	Thrombocytopenia resolved completely

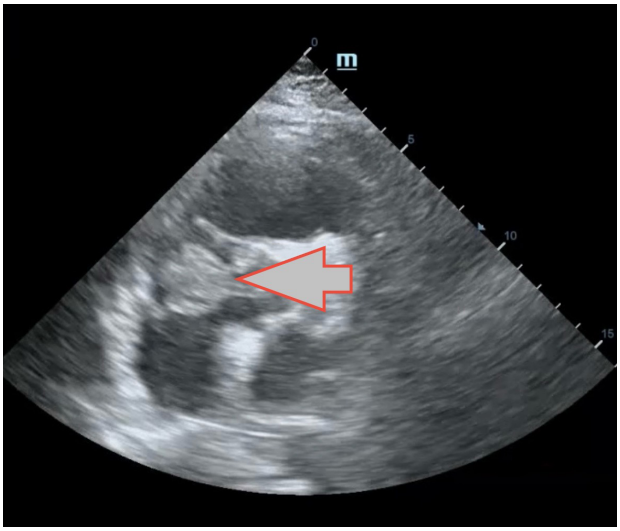

Fig- 1: Echocardiogram showing right atrial mass consistent with myxoma

of closely monitoring patients with cardiac myxoma who develop unexplained low platelet counts. In this case, other secondary causes (infection, drug-induced cytopenia, disseminated intravascular coagulation, and marrow infiltration) were ruled out. The timing of the platelet decline, the lack of schistocytes, and the unresponsiveness to transfusions strongly suggest a peripheral destruction mechanism (a tumor-associated paraneoplastic process).

Published cases demonstrate thrombocytopenia associated with cardiac myxomas, predominantly resolving after tumor excision, supporting a tumor-related paraneoplastic mechanism.

CONCLUSIONS

Right atrial myxoma is a rare but potentially life-threatening cause of secondary thrombocytopenia. Clinicians should stay alert for tumor-related immune or consumptive mechanisms in patients with known cardiac myxoma and unexplained drops in platelets. Early detection and quick surgical intervention when possible may improve outcomes. Unfortunately, this case demonstrates that when severe metabolic disturbances and multi-organ failure occur, the prognosis often remains poor, frequently leading to a fatal outcome.

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