Int. J Med. Pharm. Res.
E-ISSN: 2958-3683 | **P-ISSN**: 2958-3675
Available on: https://ijmpr.in/

International Journal of
Medical and Pharmaceutical Research

CASE REPORT OPEN ACCESS

Unusual Left Atrial Thrombus in an Infant After Sustained Supraventricular Tachycardia

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Received: 09-06-2025
Accepted: 25-06-2025
Available Online: 21-08-2025

A B S T R A C T

Intracardiac thrombus in infants is an exceptionally rare finding and often associated with underlying congenital heart disease, central venous catheters, or coagulation abnormalities. Left atrial thrombi are typically encountered in adults with atrial fibrillation, but their occurrence in infants without structural heart defects is unusual. We report the case of an infant who developed a large left atrial thrombus following sustained supraventricular tachycardia (SVT). Echocardiography revealed dilated atria, atrioventricular valve regurgitation, and a large clot in the left atrial appendage. The child was managed conservatively with anticoagulation, resulting in significant thrombus resolution over 45 days. This case highlights the importance of early echocardiographic evaluation in infants with persistent arrhythmia and demonstrates the efficacy of anticoagulation therapy in resolving thrombi without surgical intervention.

Keywords: Left atrial thrombus, infant, supraventricular tachycardia, anticoagulation, echocardiography.

INTRODUCTION:

Thrombus formation within the cardiac chambers is an uncommon event in pediatric patients and is usually related to congenital structural abnormalities, indwelling catheters, or systemic disorders such as sepsis or hypercoagulable states. The left atrial appendage (LAA) is the most frequent site for thrombus formation in adults, especially in association with atrial fibrillation. However, in infants, atrial thrombi are extremely rare and sparsely reported in literature.

Supraventricular tachycardia (SVT) is the most common tachyarrhythmia in children, with an incidence estimated at 1 in 250–1,000 pediatric patients. While usually benign with prompt recognition and treatment, sustained SVT may lead to tachycardia-induced cardiomyopathy, atrial enlargement, atrioventricular valve regurgitation, and stasis of blood flow. These changes predispose to thrombus formation, especially in the LAA where blood flow is naturally sluggish.

The clinical importance of such thrombi lies in their high embolic potential. Untreated, they may result in stroke, systemic embolization, or sudden hemodynamic collapse. Literature on LAA thrombi in infants is limited to isolated case reports, and management remains challenging given the lack of standardized guidelines.

This case report describes a rare instance of left atrial thrombus in an infant following sustained SVT, which was successfully managed with anticoagulation therapy.

CASE PRESENTATION

An infant was admitted in department of pediatrics, Mahatma Gandhi Medical College & Research Institute, Puducherry, with a history of sustained supraventricular tachycardia. The child presented with irritability, poor feeding, tachypnea, and mild hepatomegaly.

ECG demonstrated narrow complex tachycardia consistent with SVT, along with features suggestive of atrial enlargement

Echocardiography on admission revealed:

- Situs solitus with normal atrioventricular and ventriculoarterial concordance
- Intact interatrial and interventricular septum
- Near adequate left and right ventricular function
- Dilated right atrium and left atrium
- Moderate mitral regurgitation
- Moderate tricuspid regurgitation with estimated pulmonary artery pressure of 65 mmHg
- Large thrombus in the left atrial appendage extending into the cavity

The infant was stabilized and commenced on systemic anticoagulation therapy. Antiarrhythmic medications were initiated to control SVT episodes. Serial coagulation profiles were monitored, and no bleeding complications occurred.

Follow-up echocardiography on day 15 demonstrated partial thrombus regression and reduction in atrial dimensions . By day 45, the thrombus had nearly resolved, with significant improvement in valve regurgitation and pulmonary pressures The infant remained clinically stable with marked recovery.

DISCUSSION

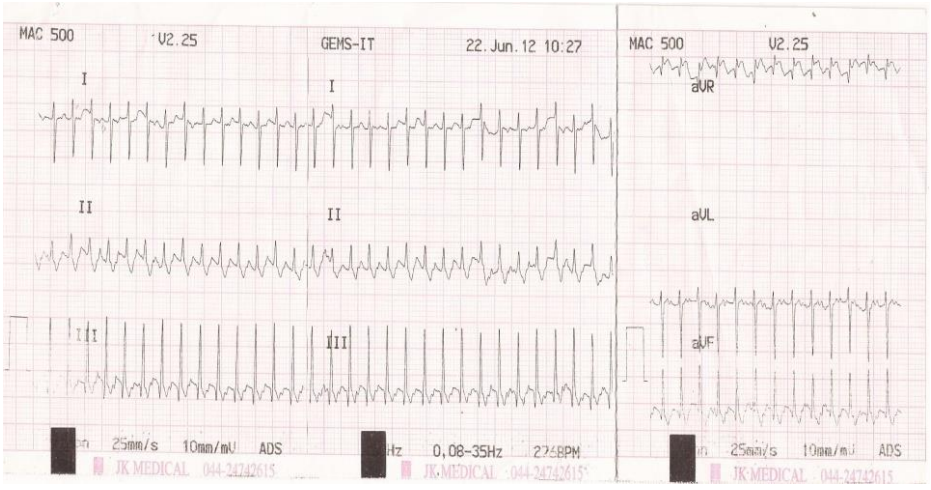
The occurrence of LAA thrombus in infants without congenital structural heart disease is extremely rare. Atrial thrombi usually arise in the context of atrial fibrillation, prosthetic heart valves, or indwelling catheters. In this case, sustained SVT was the likely predisposing factor.

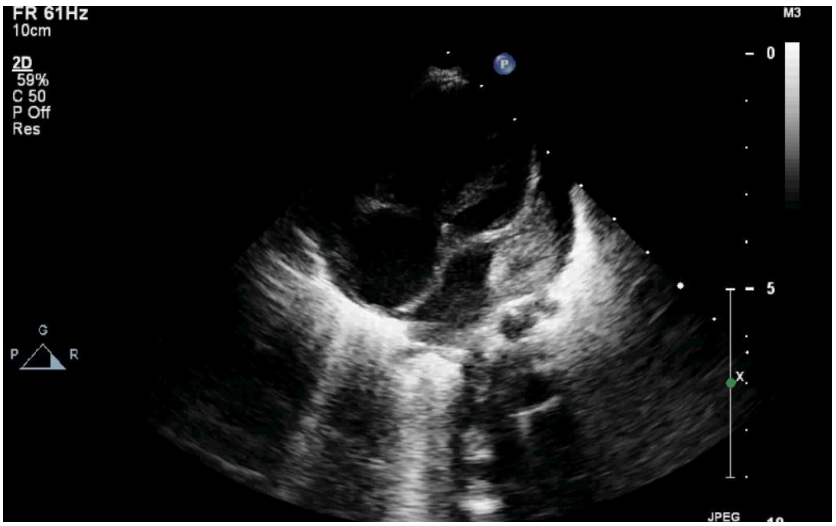
Sustained tachyarrhythmias can result in tachycardia-induced cardiomyopathy, atrial dilatation, and atrioventricular valve regurgitation. These changes create turbulent blood flow and stasis, especially in the LAA. Additionally, atrial stretch and neurohormonal activation may increase thrombogenicity.

In the literature, pediatric atrial thrombi are rare, with most reports linked to catheters or structural defects. Very few describe LAA thrombus after SVT. Black et al. (2002) highlighted the strong association between atrial arrhythmias and LAA thrombi, though their study mainly involved adults. To our knowledge, this may be among the few reported cases of infant LAA thrombus after SVT without structural heart disease.

Management options include anticoagulation, thrombolysis, or surgical thrombectomy. In stable patients, anticoagulation is preferred and often effective, as seen here. Surgery is reserved for large or embolizing thrombi. Thrombolysis carries bleeding risks in infants. Our case illustrates that anticoagulation alone can be safe and effective under close monitoring.

This case stresses the importance of echocardiographic screening in infants with sustained SVT. Early diagnosis and conservative therapy may prevent embolic complications.

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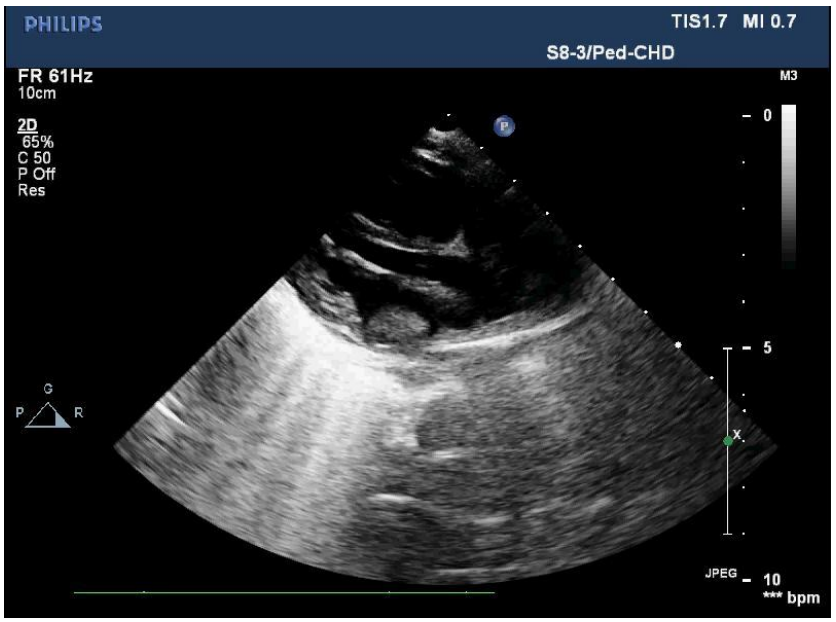
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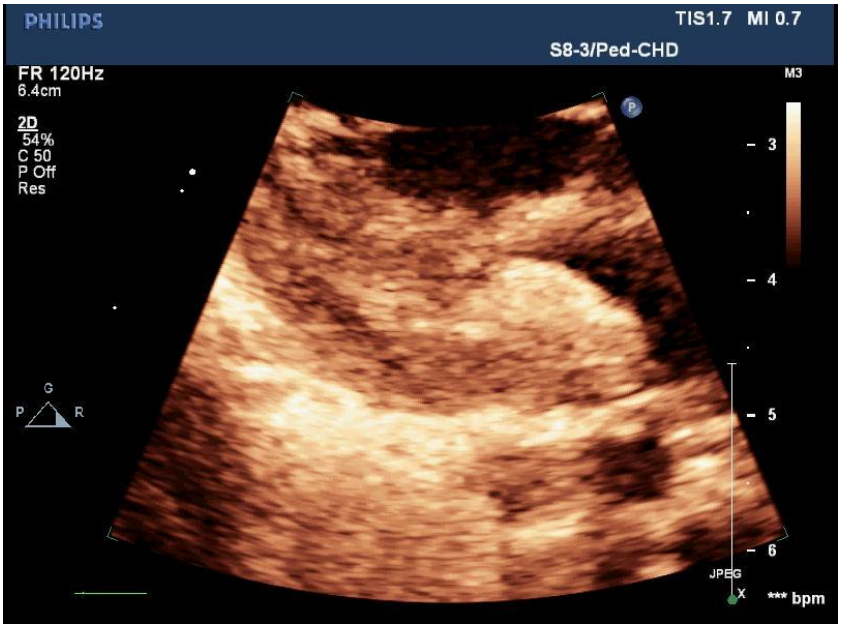
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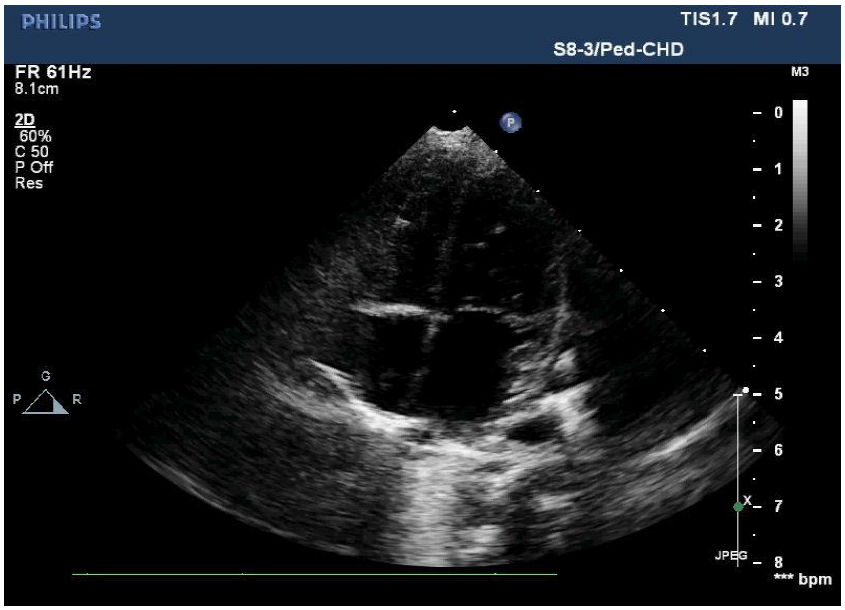
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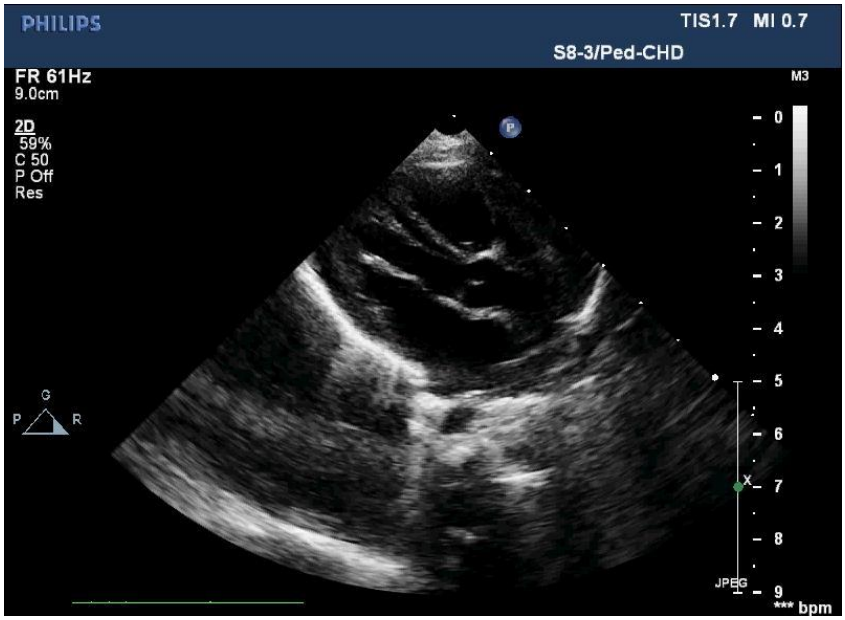
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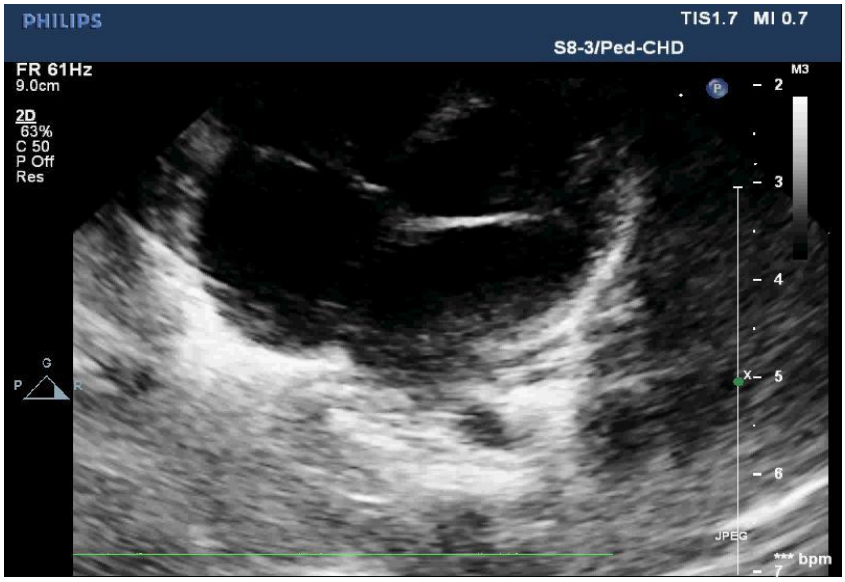
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CONCLUSION

We present a rare case of left atrial appendage thrombus in an infant following sustained supraventricular tachycardia. Timely echocardiographic diagnosis and anticoagulation therapy achieved successful thrombus resolution. This case underscores the importance of vigilance in pediatric arrhythmias and supports anticoagulation as a safe first-line therapy in selected infants.

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