

Left Atrial Septal Pouch Thrombosis Detected Before Electrical Cardioversion: a Rare Source of Embolism

Andre Barcellos Amon,¹ Mariana De Castro Lopes,¹ Marina Petersen Saadi,¹ Willian R. Menegazzo,¹ Angela Barreto Santiago Santos^{1,2}

Hospital de Clínicas de Porto Alegre,¹ Porto Alegre, RS – Brazil
Universidade Federal do Rio Grande do Sul,² Porto Alegre, RS – Brazil

A 59-year-old male patient with a history of systemic arterial hypertension was admitted to the emergency department with a seven-day history of chest pain and palpitations. On examination, he was hypotensive (93/70 mmHg) and tachycardic (150 bpm). A prominent systolic–diastolic murmur was heard along the right upper sternal border.

The initial investigation included electrocardiography (ECG) and Transthoracic Echocardiography (TTE). The ECG revealed atrial flutter, and the TTE showed biventricular dilation [Left Ventricular (LV) end-diastolic/end-systolic diameters: 60/51 mm; right ventricular (RV) basal diameter: 54 mm] and severe systolic dysfunction (LV ejection fraction: 19%; RV fractional area change: 16%). Additionally, a bicuspid aortic valve with mixed disease was identified: low-flow, low-gradient aortic stenosis (peak velocity: 3.1 m/s; peak/mean gradients: 39/23 mmHg; velocity ratio: 0.15; valve area: 0.7 cm², stroke volume index: 17 ml/m²) and severe aortic regurgitation (pressure half-time: 170 ms; holodiastolic reversal in the descending aorta, end-diastolic velocity: 24 cm/s).

Parenteral anticoagulation was initiated, and a Transesophageal Echocardiogram (TEE) was performed before planned cardioversion. The TEE demonstrated a tubular interatrial septum forming a Left Atrial Septal Pouch (LASP). Within the LASP, a homogeneous echodense mass consistent with thrombus was detected (Figure 1), while no thrombus was present in the Left Atrial Appendage. Agitated saline was injected in a peripheral vein, and no interatrial communication was observed (Figure 2). Consequently, cardioversion was deferred, and systemic anticoagulation was continued.

During hospitalization, the patient underwent surgical aortic valve replacement with a mechanical prosthesis. It was decided not to perform surgical removal of the thrombus, and anticoagulation therapy was maintained. After two weeks of anticoagulation, follow-up transesophageal echocardiography demonstrated complete resolution of the thrombus in the Left Atrial Appendage (Figure 3). Subsequently, successful electrical cardioversion was performed.

Keywords

Transesophageal Echocardiography; Thrombosis; Atrial Septum.

Mailing Address: Andre Barcellos Amon •

Hospital de Clínicas de Porto Alegre. Rua Ramiro Barcelos, 2350. Postal code: 90035-903. Porto Alegre, RS - Brazil

E-mail: andreamon@hotmail.com.br

Manuscript received September 28, 2025; revised October 27, 2025; accepted November 12, 2025

Editor responsible for the review: Maria Otto

DOI: <https://doi.org/10.36660/abcimg.20250075i>

This case highlights the clinical relevance of LASP, an anatomic variant resulting from incomplete fusion of the septum primum and secundum, which potentially carries a thrombogenic risk—particularly in the presence of additional prothrombotic conditions such as blood stasis from atrial arrhythmias and/or left ventricular dysfunction.¹ LASP is found in up to 38% of the general population.² Its role as an embolic source, however, remains controversial, as studies have reported conflicting associations with stroke.¹ Thrombus formation within LASP is exceedingly rare.³ To our knowledge, this is the first reported case of an LASP thrombus detected prior to electrical cardioversion. This observation underscores the importance of careful echocardiographic assessment of the interatrial septum, in addition to the left atrial appendage, not only in patients with prior stroke but also in those with atrial arrhythmias who are being considered for rhythm control strategies.

Author Contributions

Conception and design of the research and acquisition of data: Amon AB, Saadi MP; analysis and interpretation of the data and Writing of the manuscript: Amon AB; critical revision of the manuscript for intellectual content: Amon AB, Lopes MC, Saadi MP, Menegazzo WR, Santos ABS.

Potential Conflict of Interest

No potential conflict of interest relevant to this article was reported.

Sources of Funding

There were no external funding sources for this study.

Study Association

This study is not associated with any thesis or dissertation work.

Ethical Approval and Informed Consent

All participants gave their consent before being included in the study.

Use of Artificial Intelligence

The authors did not use any artificial intelligence tools in the development of this work.

Availability of Research Data

The underlying content of the research text is contained within the manuscript.

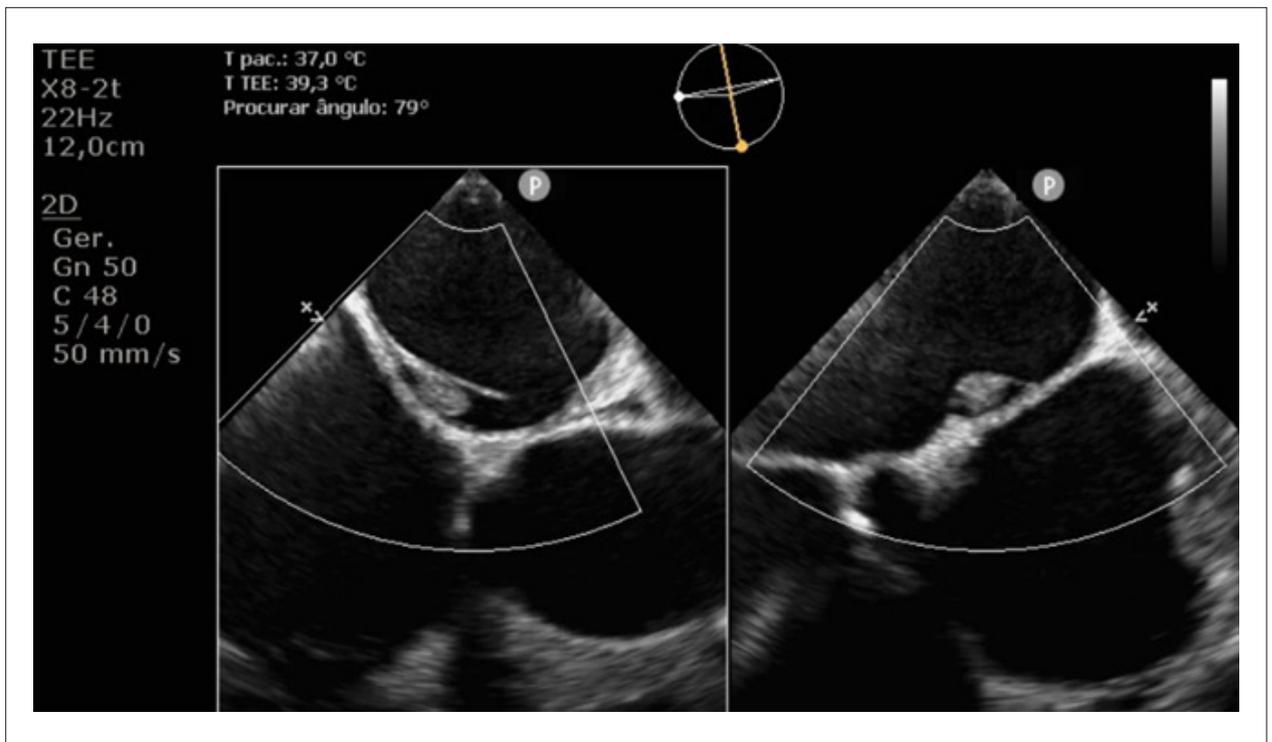


Figure 1 – Mid-esophageal biplane TEE demonstrates a left atrial septal pouch (LASP) with an intraluminal thrombus measuring up to 1.3 cm in its longest axis. TEE: transesophageal echocardiography; LASP: left atrial septal pouch.

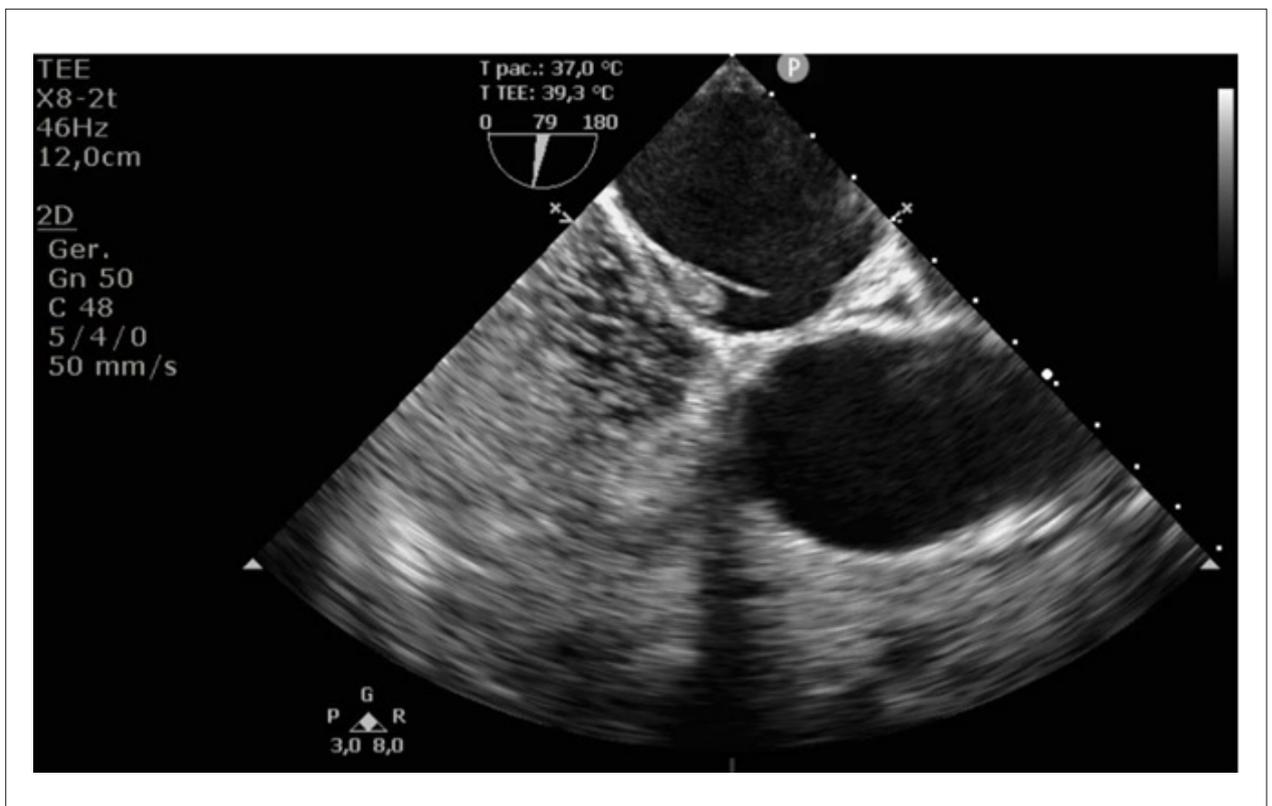


Figure 2 – Peripheral agitated saline injection demonstrates opacification of the right cardiac chambers without evidence of interatrial communication.

Image

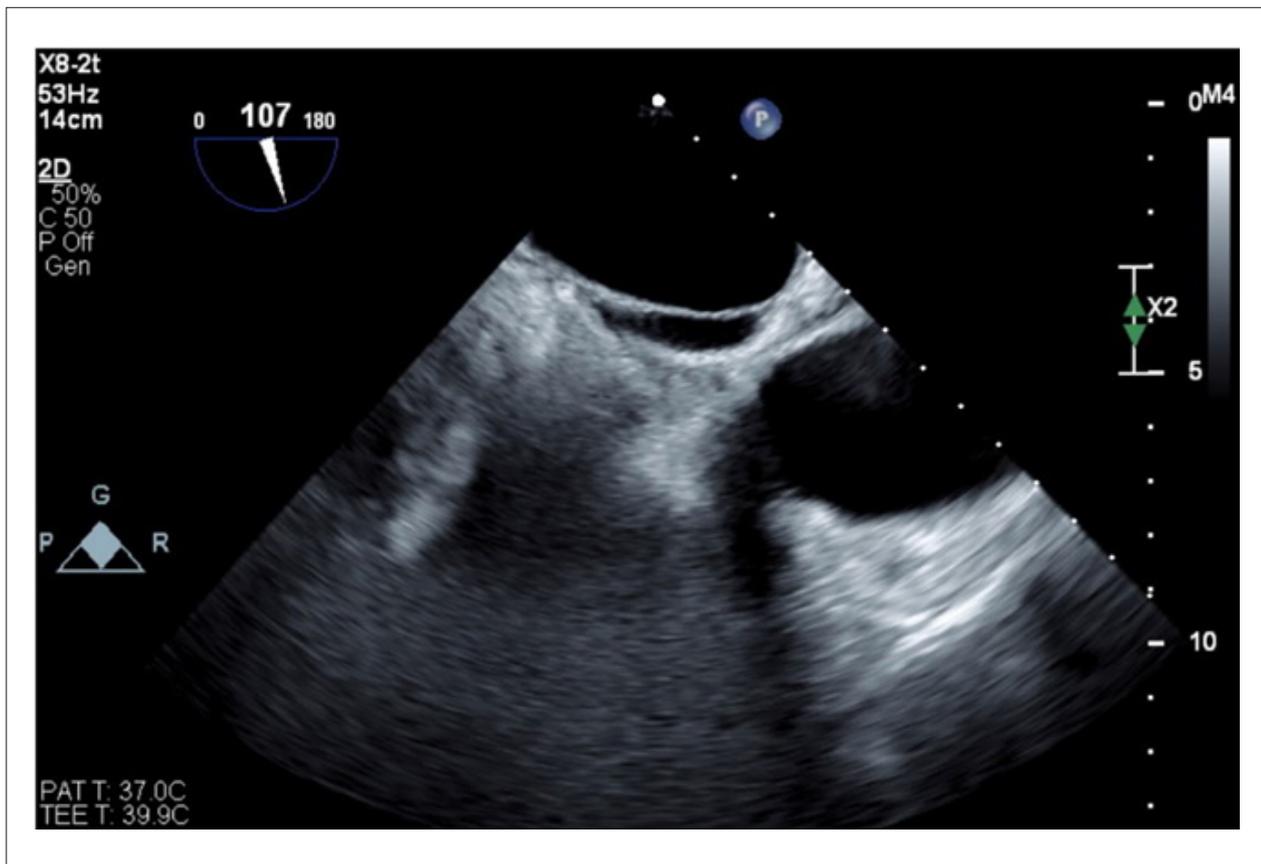


Figure 3 – Follow-up TEE two weeks after anticoagulation with resolution of LASP thrombus. TEE: transesophageal echocardiography; LASP: left atrial septal pouch.

References

1. Farooqi P, Yaqobi A, Khail BM, Medina JAN, Ullah ZO, Saeed A, et al. Left Atrial Septal Pouch (LASP) and Cryptogenic Stroke: A Narrative Review. *Cureus*. 2024;16(7):e64245. doi: 10.7759/cureus.64245.
2. Michałowska I, Dudzińska K, Kowalik I, Kwiatek P, Piotrowski R, Kułakowski P, et al. Left Atrial Septal Pouch-Is it Really a New Risk Factor for Ischemic Stroke?: Subanalysis of the ASSAM Study. *J Thorac Imaging*. 2022;37(3):168-72. doi: 10.1097/RTI.0000000000000582.
3. Bhawe A, Patel A, Patel R, Barmore W, Siddu M, Switzer J, et al. Left Atrial Septal Pouch Thrombus: An Unusual Cause of an Embolic Stroke. *Clin Case Rep*. 2024;12(9):e9279. doi: 10.1002/ccr3.9279.



This is an open-access article distributed under the terms of the Creative Commons Attribution License