Journal of the Saudi Heart Association

Volume 36 | Issue 2 Article 12

2024

Spontaneous Interatrial Hematoma: Still an Unresolved Critical Conundrum

Recommended Citation

Khazi, Fayaz Mohammed; Manoly, Imthiaz; Siddiqi, Nayyer R; Aziz, Tarek Abdel; and Aljassim, Obaid (2024) "Spontaneous Interatrial Hematoma: Still an Unresolved Critical Conundrum," *Journal of the Saudi Heart Association*: Vol. 36 : Iss. 2 , Article 12.
Available at: https://doi.org/10.37616/2212-5043.1388

CASE REPORT

Spontaneous Interatrial Hematoma: Still an Unresolved Critical Conundrum

Fayaz M. Khazi [a,*], Imthiaz Manoly [b], Nayyer R. Siddiqi [a], Tarek A. Aziz [b], Obaid Aljassim [b]

[a] Cardiothoracic Anesthesia, Dubai Hospital, Dubai Academic Health Corporation, Dubai, United Arab Emirates
[b] Cardiothoracic Surgery, Dubai Hospital, Dubai Academic Health Corporation, Dubai, United Arab Emirates

Abstract

Spontaneous interatrial hematoma is a rare clinical entity leading to the obliteration of the left atrial cavity and causing haemodynamic compromise, necessitating immediate surgical intervention. Herein, we report a patient with acute chest pain with normal coronaries and echocardiographic evidence of left atrial mass. The investigations revealed the mass to be a thrombus rather than tumour. The patient underwent surgery to remove a large thrombus completely enclosed within the interatrial septum. The septum was then repaired using a pericardial patch. No apparent etiological factor was found. Spontaneous atrial wall dissection should be considered in the differential diagnosis of acute chest pain.

Keywords: Left atrial haematoma, Atrial fibrillation, Left atrial dissection, Transoesophageal echocardiography, Left atrial mass

1. Introduction

Spontaneous interatrial wall hematoma (SIAH) is a rare entity and could be fatal with other complications such as stroke or cardiac tamponade [1]. The variability of its aetiology, location and the size may account for different modalities of presentation.

2. Case presentation

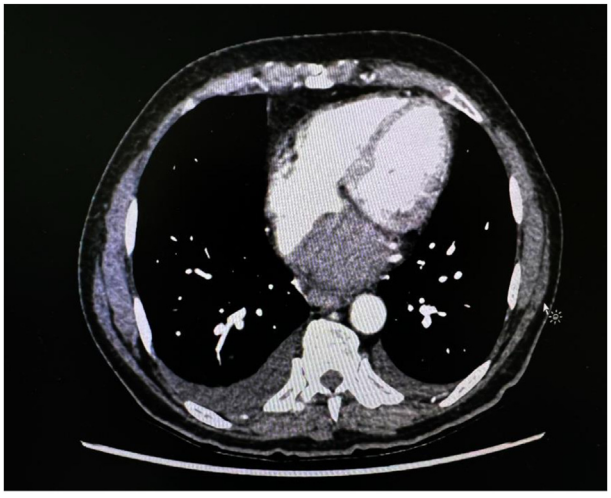
A 52-year-old hypertensive and diabetic male complaining of chest pain was referred to our hospital for echocardiographic evidence of left atrial (LA) mass abutting mitral valve. There was no previous history of trauma, surgery or infective state, but the patient had undergone coronary angiogram six months ago for nonspecific chest pain. At presentation, the physical examination, laboratory testing and repeat coronary angiogram were unremarkable. Electrocardiography showed a normal sinus rhythm with ST-segment changes in leads I, aVL, V5-V6 with serial negative troponin. The cardiac MRI with contrast confirmed a large mass located in LA not invading the adjacent structures. Tissue characterization did not show enhancement on gadolinium perfusion sequences, suggesting that the mass is a thrombus rather than tumour (Fig. 1a). With the diagnosis still unclear during the multidisciplinary meeting, the decision was made to proceed with the surgical resection of the mass.

The patient underwent stable anaesthetic induction with invasive monitoring. During intraoperative transoesophageal echocardiography (TEE), a well-defined multiloculated mass measuring 3.9 × 4.6 cm was confirmed to occupy most of the left atrium. The mass adhered to the septum without any colour Doppler signal obstructing the left ventricular inflow (Fig. 1b and c). The standard pericardiotomy revealed 200 ml of blood-stained fluid. Aortic cannulation and bicaval cannulation was performed to initiate cardiopulmonary bypass. Following aortic cross-clamping, LA was opened via the Sondergaard's groove. A mass appeared to be bulging into LA without an

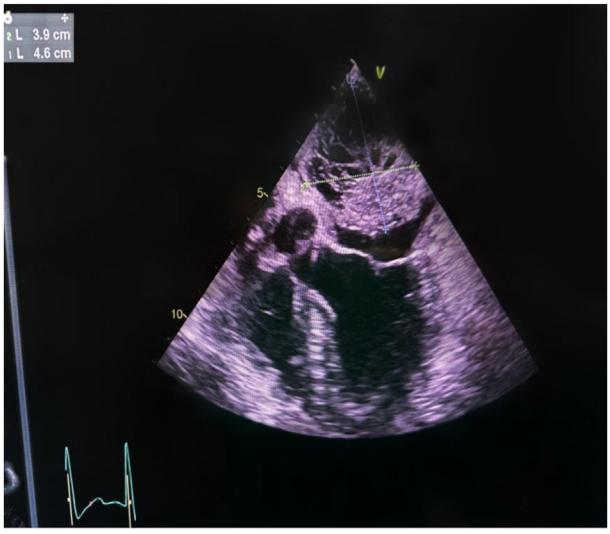
Received 2 July 2024; revised 30 July 2024; accepted 7 July 2024.
Available online 12 August 2024

* Corresponding author at: Department of Cardiothoracic Surgery, Dubai Hospital, Dubai Academic Health Corporation, Al Baraha, Dubai, United Arab Emirates.
E-mail address: Fayaz94@hotmail.com (F.M. Khazi).

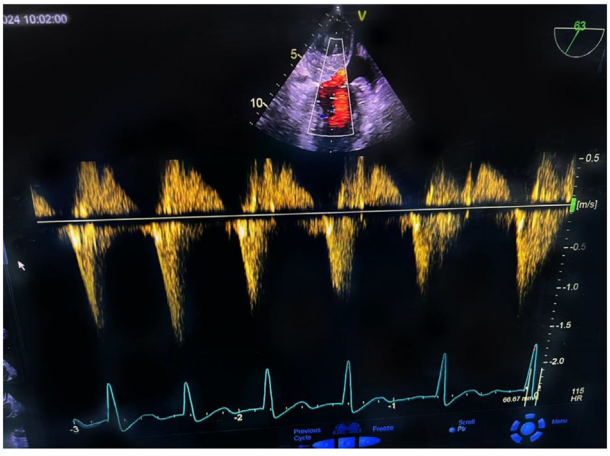
https://doi.org/10.37616/2212-5043.1388



(a)



(b)



(c)

Fig. 1. (a) Preoperative computed tomography showing a large left atrial mass occupying whole of atrium. (b) Preoperative transoesophageal echocardiography showing a large multiloculated mass (3.9 × 4.6 cm) with no clear stalk, extending up to the mitral valve. (c) Preoperative transthoracic echocardiography showing the colour Doppler signal not obstructing the mitral inflow.

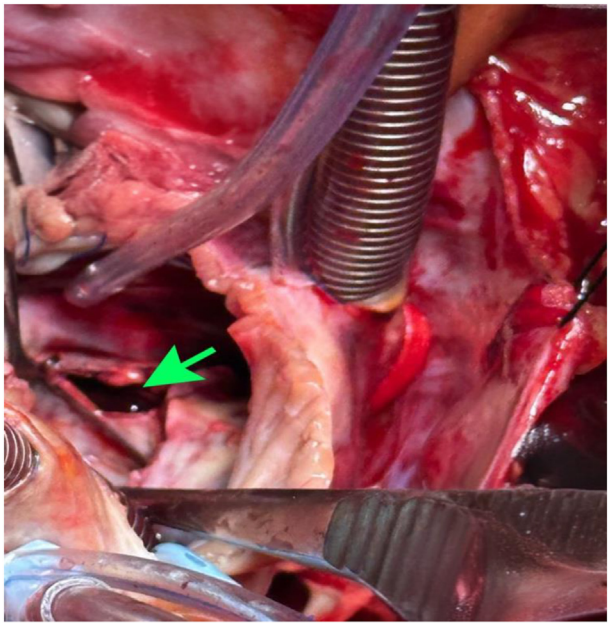
identifiable stalk. Therefore, a right atriotomy was performed, proceeding with a transeptal incision along the roof. Upon incision, the interatrial wall was splitting with the voluminous clot inside without any active bleed (Fig. 2a). The mass was friable, appeared to be an organized thrombus was enucleated, leaving behind a large empty space (Fig. 2b). After complete evacuation of the clot, the false lumen was obliterated and reconstruction of interatrial septum was performed using a pericardial patch. Post bypass TEE showed complete removal of mass with no residual atrial septal defect. Except for atrial fibrillation controlled with amiodarone and bisoprolol, his postoperative stay was uneventful. After ten days, the echocardiography revealed decreased left atrial size with intact thick septum (Fig. 2c). Histopathology revealed the mass to be an encysted hematoma without any amyloid or proliferative cells. The patient provided informed consent for the publication of this case report.

3. Discussion

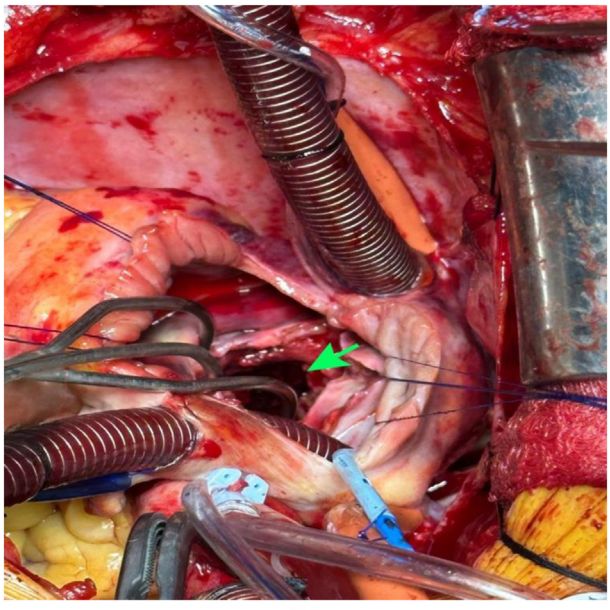
Interatrial hematoma, otherwise known as left atrial dissection (LatD) is a rare entity reported following mitral valve surgery (incidence 0.16%), tumour excision, percutaneous or electrophysiological procedures, myocardial infarction (incidence 0.02%) and blunt chest trauma. There are few case reports of spontaneous occurrence in amyloidosis [2] or due to use of anticoagulants. The dissection results in hemodynamic compromise due to the mass effect, obstruction to mitral valve inflow and right heart failure. The hematoma generally involves the posterior part of the interatrial septum, extends to the A-V node, bundle and rupture into the pericardium. Various aetiologies including damage while positioning the guide wire and/or thermal energy during interventional procedures [3], increased left atrial size, amyloid deposit resulting in fragility of tissues have been suggested. Yacoub et al. also suggested early operative intervention, as all patients during their study with conservative approach resulted in mortality [4]. It is believed that the hematoma was caused by the perforation of atrial rather than the coronary artery during interventional procedures. Furthermore, heart block may occur if the hematoma extends to the AV node and bundle that favour early operative treatment with intravenous pacing prior to surgery.

Interestingly, our patient had undergone previous coronary intervention yet failing to reveal any sign of dissection during current angiography. He was not on anticoagulants and had normal atrial size without mitral calcification or endocarditis. The histopathology showed no evidence of active infection, amyloid deposits, tumour or vascular malformation.

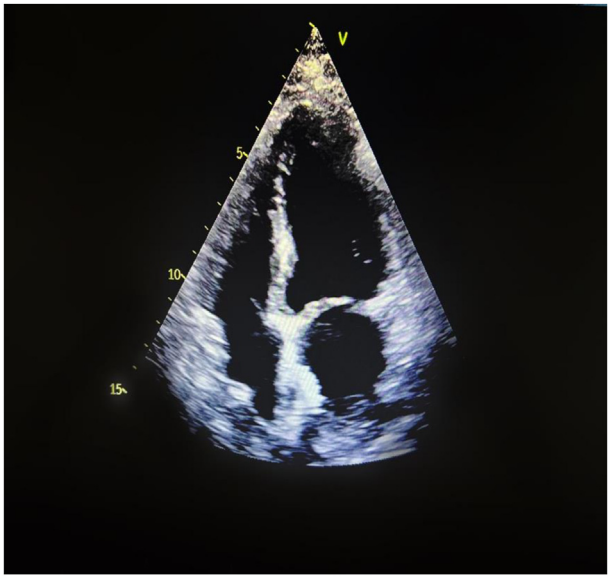
The efficacy and diagnostic value of radiological screening in LatD may be limited. An entry of dissection, even in the presence of expanding dissection, is often difficult to visualize. Because LA dissection is often located near the annulus, the use of echocardiography in mitral prostheses is limited, making diagnosis more difficult. The findings often resemble a left atrial mass and cardiac tamponade, especially when the dissection is focal and containing clots or even confused for aneurysmal dilatation of the coronary sinus and cystic myxoma. Multimodality imaging using TEE and/or cardiac MRI can lead to the correct diagnosis by showing a mass without significant enhancement after contrast injection. Sah [5] reported the usefulness of cardiac magnetic resonance (CMR) with superior tissue characterization and image resolution, to discriminate between an intramural hematoma, dissection and thrombosis of the coronary sinus.



(a)



(b)



(c)

Fig. 2. (a) Intraoperative appearance of the incised interatrial septum from right atrial side showing the presence of clot. (b) Intraoperative appearance of a large empty interatrial space after the removal of clot. The arrow directed at interatrial space. (c) Postoperative transthoracic echocardiography on day 10 showing clear left atrium, thick interatrial septum with pericardial patch.

Up until now, there is no definitive protocol that exists to guide the management of this rare complication. Maeda et al. reported the first surgical repair through a left thoracotomy. Surgery is aimed at adequately evacuating the hematoma, obliterating the false lumen, and addressing the entry point to prevent recurrence. Although a conservative approach has been described, a rapidly growing or an obstructive hematoma in a symptomatic patient like ours is a clear indication for surgery. It can recur even after surgical repair with no identifiable

communication resulting in a persistent pressurized inflow. As the atrial tissue do not hold sutures adequately, the use of bio glue adhesive or a bovine pericardial/synthetic patch may be helpful. The relationship between stroke and LA dissection is not clear, although thrombus can form either in the false chamber or at the site of communication. In our opinion, surgery should be the first choice, based on clinical presentation. In the present case, the decision for operative intervention was guided by the patient's ongoing pain and nature of radiological findings. Postoperatively, anticoagulants were not administered due to possible recurrence [6]. These patients need a long-term follow-up treatment, even with uneventful early smooth recovery.

4. Conclusion

In conclusion, we described a rare critical case of a spontaneous left interatrial hematoma, mimicking myocardial ischemia treated with excision and pericardial patch reconstruction. This life-threatening complication can develop rapidly without any apparent cause, and an appropriate intervention can prevent its deleterious effects. It is challenging to diagnose, but a high degree of suspicion is mandatory. It may also represent an 'idiopathic' clinical entity that needs to be considered in the differential diagnosis of prolonged persistent chest discomfort.

Author contribution

Conception and design of Study: FMK, IM. Literature review, Acquisition of data, Analysis and interpretation of data, Research investigation and analysis, Data collection, Drafting of manuscript, Revising and editing the manuscript critically for important intellectual contents, Data preparation and presentation: FMK, IM, NRS, TAA, OA. Supervision of the research: FMK, IM, OA. Research coordination and management: FMK, OA.

Ethics information

The patient provided informed consent for the publication of this case report.

Funding

The work received no specific grant from any funding agency in the public, commercial, or not-for-profit sectors.

Conflicts of interest

None declared.

References

[1] Mohan JC, Shukla M, Mohan V, Sethi A. Spontaneous dissecting aneurysm of the left atrium complicated by cerebral embolism: a report of two cases with review of literature. Indian Heart J 2016 Sep;68(Suppl 2):140–S145. https://doi.org/10.1016/j.ihj.2015.12.020.

[2] Lanfranchi A, Gelpi G, Rossi RS, Lemma M. A fast-growing obstructive left atrial intramural hematoma causing acute prolonged chest pain. Interact Cardiovasc Thorac Surg August 2009;9(2):363–5. https://doi.org/10.1510/icvts.2009.205443.

[3] Yaşar S, Gökoğlan Y, Görmel S, Asil S, Kabul KH. Left atrial õntramural hematoma after radiofrequency catheter ablation of left lateral accessory pathway. Int J Arrhythm 2021;22:12. https://doi.org/10.1186/s42444-021-00041-z.

[4] Fukuhara S, Dimitrova KR, Geller CM, Hoffman DM, Tranbaugh RF. Left atrial dissection: an almost unknown entity. Interact Cardiovasc Thorac Surg 2015 Jan;20(1):96–100. https://doi.org/10.1093/icvts/ivu317.

[5] Tsukui H, Iwasa S, Yamazaki K. Left atrial dissection. Gen Thorac Cardiovasc Surg 2015 Aug;63(8):434–45. https://doi.org/10.1007/s11748-015-0562-7.

[6] Alshaabi H, Donaghue JF, Franko DM, McCullough JN. Recognition and management of left atrial dissection during mitral repair. J Cardiothorac Surg 2024;19:139. https://doi.org/10.1186/s13019-024-02641.