CASE REPORT
Vol. 10 No. 4 October-December 2025
doi: 10.35366/121360

Left atrial appendage aneurysm as a cause of ischemic vascular event: case report and review of the literature

Aneurisma de la orejuela izquierda como causa de evento vascular isquémico: reporte de caso y revisión de la literatura

Humberto J. Martínez-Hernández, Cecilio Morales-Flores, Ale You-Guo, Luis M. Villegas-García, Javier A. Reyes-Quan and Luis J. García-Buendía

Department of Cardiothoracic Surgery, Instituto Nacional de Cardiología Ignacio Chávez. Mexico City, Mexico.

ABSTRACT

Left atrial appendage aneurysm is a rare entity, with only a few cases reported in the literature, but with significant potential clinical implications. We present the case of a patient who experienced an ischemic vascular event. Imaging studies revealed a left atrial appendage aneurysm. Due to the high embolic risk, surgical management was performed by means of surgical exclusion of the left atrial appendage. The postoperative course was favorable.

Keywords: cerebrovascular accident, emblolism, left atrial appendage, left atrial appendage aneurysm, left atrial appendage exclusion.

RESUMEN

El aneurisma de la orejuela izquierda es una entidad rara, con pocos casos reportados en la literatura, pero con potenciales implicaciones clínicas significativas. Presentamos el caso de una paciente que debutó con evento vascular isquémico. La evaluación con estudios de imagen evidenció un aneurisma de la orejuela izquierda. Dado el alto riesgo embólico, se decidió el manejo quirúrgico mediante exclusión de la orejuela izquierda. La evolución postoperatoria fue favorable.

Palabras clave: *accidente vascular cerebral, embolismo, orejuela izquierda, aneurisma de orejuela izquierda, exclusión de orejuela izquierda.*

Left atrial appendage aneurysm (LAAA) is an extremely rare cardiac anomaly, with its exact prevalence remaining uncertain and poorly documented in the current literature.[1,2] The most common symptoms include palpitations, dyspnea, and thromboembolic events.[1-3] These manifestations often result from the aneurysm's predisposition to atrial arrhythmias and systemic embolism.[2,3] In some cases, LAAA is incidentally diagnosed during imaging studies performed for other reasons.[2,4] The diagnosis is typically confirmed using echocardiography, the most widely used imaging modality for this condition.[1-4] Transthoracic and transesophageal echocardiography are commonly employed to assess the size and morphology of the aneurysm.[1,2] Additionally, cardiac computed tomography (CT) and magnetic resonance imaging (MRI) are useful for confirmation.[4] The primary treatment for LAAA is surgical resection, which has shown favorable outcomes and symptomatic improvement.[1,2,4-7] Surgery is recommended to prevent severe complications, even in asymptomatic patients.[6]

How to cite: Martínez-Hernández HJ, Morales-Flores C, You-Guo A, Villegas-García LM, Reyes-Quan JA, García-Buendía LJ. Left atrial appendage aneurysm as a cause of ischemic vascular event: case report and review of the literature. Cir Card Mex. 2025; 10 (4): 131-133. https://dx.doi.org/10.35366/121360

Received: 03-30-2025. Accepted: 04-28-2025.

Correspondence: Dr. Ale You-Guo. E-mail: aleyoug01@gmail.com

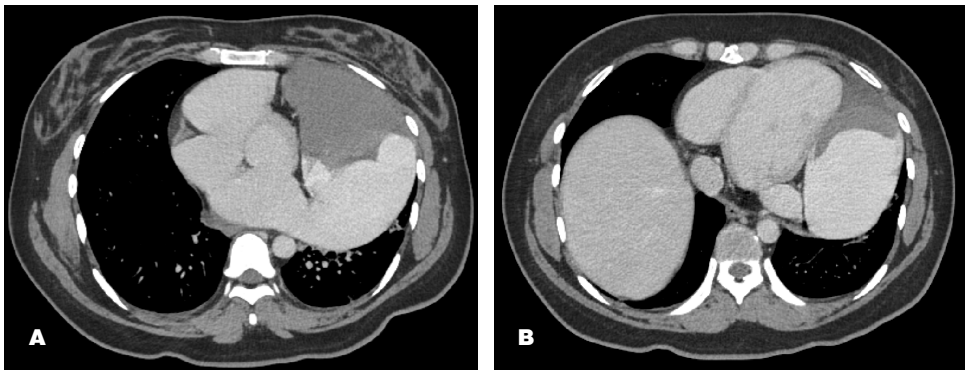

Figure 1:

Contrast-enhanced cardiac computed tomography (CT) demonstrating a giant left atrial appendage aneurysm (LAAA). The aneurysmal sac is clearly opacified with contrast, confirming communication with the left atrium. The image illustrates the large size of the aneurysm and its anatomic relationships with adjacent cardiac structures, including the left ventricle, pulmonary veins, and mitral valve.

CASE REPORT

A 36-year-old female patient with a history of atrial flutter presented with sudden-onset headache, left-sided hemiplegia, and transient monocular vision loss, which spontaneously resolved. She also reported dyspnea and pleuritic chest pain lasting 48 hours.

Transthoracic echocardiography revealed an aneurysmal dilation of the left atrial appendage, confirmed by cardiac CT and MRI *(Fig. 1) (Fig. 2)*. Due to the high embolic risk, urgent surgical management was indicated. Under cardiopulmonary bypass with femoral cannulation and median sternotomy, the left atrial appendage was accessed through the posterior interatrial groove. Surgical exclusion was performed using double-layer continuous polypropylene sutures reinforced with teflon patches to ensure a watertight closure and prevent dehiscence *(Fig. 3)*.

The postoperative course was uneventful, with chest drains removed on the third day and no embolic recurrence. The patient was discharged on anticoagulation therapy and scheduled for clinical follow-up.

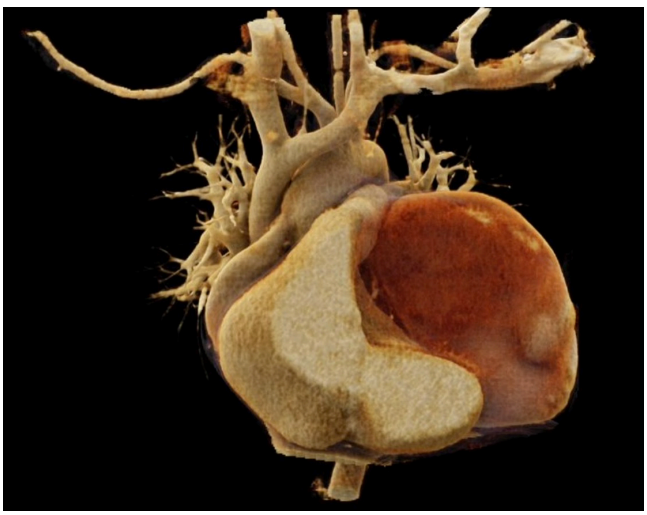

Figure 2: Three-dimensional volume-rendered reconstruction of the cardiac CT scan, highlighting the morphology and extent of the LAAA. The reconstruction provides a clear spatial understanding of the aneurysm's origin and helps differentiate it from other cardiac or extracardiac masses. This 3D visualization was instrumental in establishing the diagnosis and in surgical strategy planning.

DISCUSSION

LAAA is a rare cardiac anomaly, with less than 150 cases reported,[1,2] since its initial description by Dimond et al. in 1960.[8] It can be either congenital –associated with dysplasia of the pectinate muscles and atrial wall weakness– or acquired, often secondary to elevated left atrial pressure due to mitral valve disease or atrial arrhythmias such as atrial fibrillation or flutter.[2,4] The clinical presentation is variable, ranging from asymptomatic to life-threatening thromboembolic events.[2] Symptoms may include palpitations, dyspnea, chest discomfort, or neurological deficits. Atrial arrhythmias are frequently reported and are believed to increase the risk of systemic embolism.[4] Transthoracic and transesophageal echocardiography are commonly used for initial diagnosis, while cardiac CT and MRI provide detailed anatomical information critical for surgical planning.[4-6] In our case, CT angiography and 3D reconstruction were fundamental in defining the size of the aneurysm and relationship to adjacent structures, thus guiding the surgical strategy. Although there are no formal guidelines due to the rarity of the condition, most authors agree that surgical treatment should be considered in the presence of symptoms, thrombus, progressive enlargement, or high embolic risk—even in asymptomatic patients.[1,2,4,6,7] Surgical approaches include resection or exclusion of the aneurysm under cardiopulmonary bypass, with favorable outcomes reported in most cases.[1,2,4,7] Our patient underwent successful surgical exclusion with an uneventful recovery. Histopathological examination of the resected specimen revealed organized thrombi and fibrosis,

consistent with chronicity and high embolic potential—supporting the surgical indication. Alternative treatments such as transcatheter closure or anticoagulation have been reported but are generally reserved for high-risk surgical candidates or small, stable aneurysms without thrombus.[1,2] This case highlights the importance of considering LAAA as a potential source of embolism, particularly in young patients without other evident cardiovascular risk factors and emphasizes the value of early surgical intervention to prevent serious complications.

CONCLUSIONS

Although LAAA is a rare condition, its recognition is crucial due to its association with significant cardiovascular morbidity and mortality. Surgical resection remains the gold standard of treatment, while medical management focuses on addressing thromboembolic complications and atrial arrhythmias. Its association with atrial fibrillation and cerebrovascular events underscores the importance of early diagnosis and appropriate therapeutic strategies.

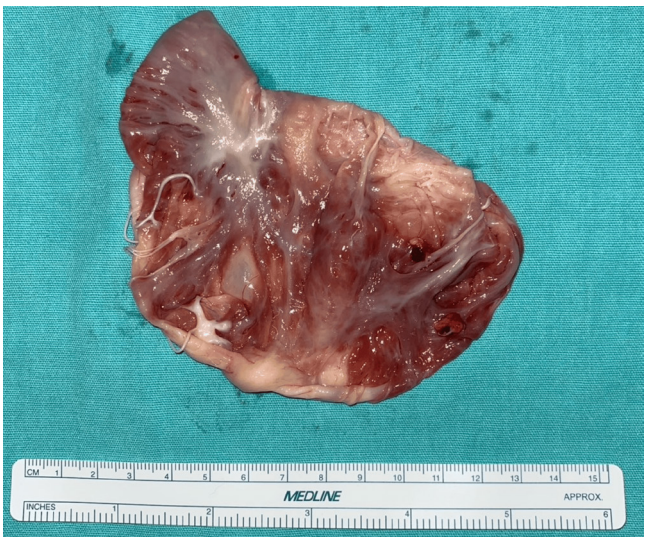

Figure 3: Gross pathological specimen of the resected left atrial appendage aneurysm. The specimen measures approximately 10 cm in its largest dimension. The internal surface reveals multiple laminated thrombi and fibrotic changes of the aneurysmal wall, consistent with chronic remodeling and stasis. These findings support the high embolic potential and the indication for surgical exclusion.

ACKNOWLEDGMENTS

The authors would like to thank the medical and surgical teams at the *Instituto Nacional de Cardiología Ignacio Chávez* for their collaboration in the diagnosis and treatment of the patient. We are also grateful to the Department of Radiology for their support in the acquisition and reconstruction of the imaging studies.

REFERENCES

1. Daralammouri Y, Odeh A, Abuzahra S, Azamtta M, Shawahna R. Left atrial appendage aneurysm: a descriptive systematic review of 177 cases. BMC Cardiovasc Disord. 2024;24(1):633. doi: 10.1186/s12872-024-04323-x.
2. Aryal MR, Hakim FA, Ghimire S, et al. Left atrial appendage aneurysm: a systematic review of 82 cases. Echocardiography. 2014;31(10):1312-1318. doi: 10.1111/echo.12667.
3. Belov DV, Moskalev VI, Garbuzenko DV, Arefyev NO. Left atrial appendage aneurysm: A case report. World J Clin Cases. 2020;8(19):4443-4449. doi: 10.12998/wjcc.v8.i19.4443.
4. Wang B, Li H, Zhang L, et al. Congenital left atrial appendage aneurysm: A rare case report and literature review. Medicine (Baltimore). 2018;97(2):e9344. doi: 10.1097/MD.0000000000009344.
5. Jiang B, Wang X, Liu F, Song L. Left atrial appendage aneurysm. Interact Cardiovasc Thorac Surg. 2020;30(3):495-496. doi: 10.1093/icvts/ivz283.
6. Nezafati MH, Nazari Hayanou H, Kahrom M, Khooei A, Nezafati P. Five chambered heart: case of a huge left atrial appendage aneurysm. Cardiovasc Pathol. 2018;34:43-45. doi: 10.1016/j.carpath.2018.02.004.
7. Choi YJ, Kim JS, Cha YK, Han KM. Left atrial appendage aneurysm: a case report. J Korean Soc Radiol. 2022;83(6):1400-1405. doi: 10.3348/jksr.2021.0149.
8. Dimond EG, Kittle CF, Seigel DG. Aneurysm of the left auricle: report of a case and review of the literature. Circulation. 1960;22:173-179.

Funding: none.
Disclosure: the authors have no conflicts of interest to disclose.