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Case Report

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Surgical Removal of Left Atrial Appendage Thrombus in a Patient with Acute Ischemic Stroke

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ABSTRACT

Atrial fibrillation is a major risk factor for ischemic stroke. Left atrial appendage thrombus is responsible for the majority of cardioembolic stroke caused by atrial fibrillation. Left atrial appendage thrombus in a patient with acute ischemic stroke is usually managed medically with anti-coagulation. We present a case of left atrial appendage thrombus causing acute ischemic stroke in a patient with atrial fibrillation, who underwent surgical removal of left atrial appendage thrombus. The surgical approach was chosen due to several embolic infarcts and a left atrial appendage with a high clot burden.

KEYWORDS: Thrombosis; Atrium; Atrial Fibrillation; Stroke.

INTRODUCTION

Atrial fibrillation is recognized as a major risk factor for stroke accounting for approximately 15 % of all strokes.[1] Atrial fibrillation is the most common cause of cardioembolic stroke accounting for approximately 60% of all cases.[2] Left Atrial Appendage (LAA) thrombus in a patient with acute ischemic stroke is usually managed medically with anti-coagulation. We present a case of LAA thrombus causing acute ischemic stroke in a patient with atrial fibrillation, who underwent surgical removal of LAA thrombus due to several embolic infarcts and high clot burden in left atrial appendage.

CASE REPORT

A 65-year-old male was brought to the emergency department with expressive aphasia and right-sided weakness. His past medical history was significant for hypertension and seizure disorder. Initial vital signs were notable for an irregular pulse at 83 beats per minute and BP of 222/127 mm Hg. He was alert but could not speak. He had right-sided hemiparesis. CT brain without contrast was unremarkable without hemorrhage. He was not a candidate for thrombolytics due to delayed presentation. His malignant hypertension was managed with Labetalol drip. Electrocardiogram showed atrial fibrillation. MRI of the brain revealed multiple acute infarctions in left parietal and occipital lobes (Figure 1) along with small focus of petechial hemorrhagic conversion of left parietal infarcts. Transesophageal echocardiogram, performed two days after admission, revealed a large echogenic density in the LAA suggestive of thrombus with mobile elements (Figure 2, Video 1). With multiple brain infarcts, large LAA clot burden with mobile elements, with high potential of recurrent stroke, it was decided on neurology consultation that it would be reasonable to surgically remove the LAA clot and then

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plan for long term anticoagulation. During hospitalization, telemetry revealed paroxysmal atrial arrhythmias including atrial fibrillation and atrial flutter. Patient underwent surgical removal of LAA clot and resection of LAA (Figure 3) three days after his presentation. His post-operative course was remarkable for new small cerebellar infarctions with small areas of microhemorrhage on repeat MRI of the brain. Serial imaging of the brain was performed to assess the stability of the hemorrhages. With stability of the neurological findings and imaging, he was started on Heparin and Coumadin to decrease the risk of future cardioembolic stroke with chronic atrial fibrillation. After the INR was therapeutic on Coumadin, he was transferred to rehabilitation facility to address his neurological deficits. Patient has residual aphasia and right hemiparesis.

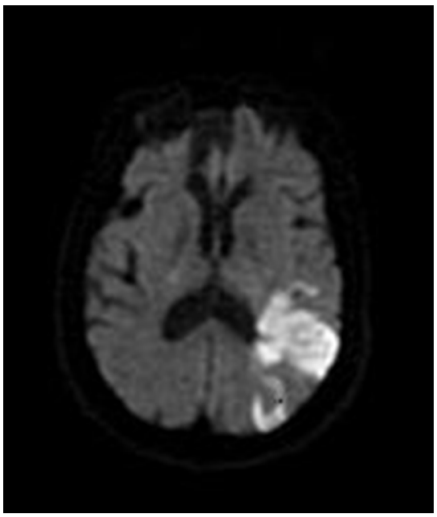


Figure1: MRI of brain revealed multiple acute infarctions in left parietal and occipital lobes along with evidence of small focus of hemorrhagic conversion of left parietal infarction.

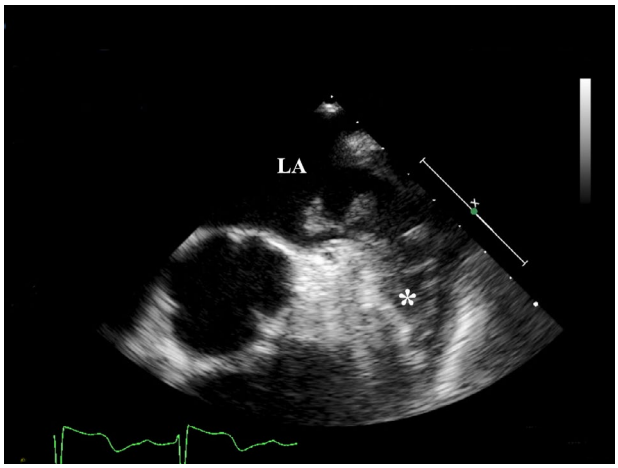
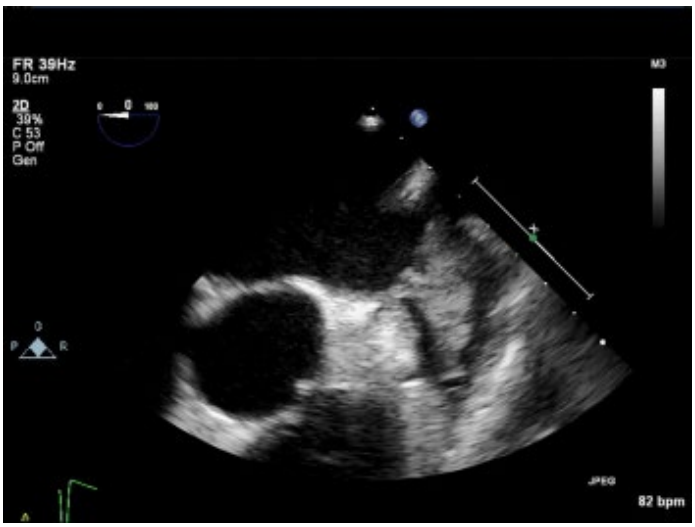


Figure 2: Transesophageal echocardiogram reveals a large echogenic density (asterisk) in LAA suggestive of thrombus with mobile elements.

DISCUSSION

A study on a large series of patients with LAA thrombus on transesophageal echocardiogram showed increased risk of embolic events approximately 10.4% per year and mortality of 15.8% per year.[3] LAA thrombosis is occasionally detected in patients with atrial fibrillation and managed medically with anticoagulation to prevent the development of stroke.[4] Although anti-coagulant therapy is considered relatively safe, embolic events after the initiation of therapy because of the partial fragmentation of the thrombus have been reported.[5-7] Our patient presented with cardioembolic stroke due to large LAA thrombus with mobile elements and had evidence of several embolic strokes. The surgical approach was chosen due to concern for recurrent systemic embolization from the extensive LAA thrombus with mobile elements. To our knowledge, this case represents the first



Video 1: Transesophageal echocardiogram reveals a large echogenic density (asterisk) in LAA suggestive of thrombus with mobile elements.

Note: To best view

1. Kindly open the pdf file in Adobe Reader XI version.
2. Please save the pdf file in your local computer.
3. To watch the video kindly install the latest adobe flash player. Click here to download: http://get.adobe.com/flashplayer/otherversions/

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LAA: Left Atrial Appendage; LA: Left Atrium

Figure 3: A. Intraoperative view showsthe exposed thrombus (asterisk) in LAA. B. LAA thrombus is fragmented and removed. C. LAA was surgically removed along with a retained thrombus (asterisk).

report where surgical thrombectomy and LAA resection is undertaken, with acute stroke, in place of anticoagulation to decrease the chance of recurrent systemic embolization. The best timing for surgical removal of thrombus from LAA is unknown and this approach may be based on clinical context, residual clot in LAA, potential for further embolization and the risk with surgical approach.

CONFLICTS OF INTEREST

The authors declare that they have no conflicts of interest.

CONSENT

No consent is required to our article publication/The patient has provided written permission for publication of the case detail.

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