

Successful Resolution with Apixaban of a Massive Left Atrial Appendage Thrombus Due to Nonrheumatic Atrial Fibrillation: A Case Report and Review

Abstract

A 32-year-old woman with a past medical history of paroxysmal atrial fibrillation, long QT syndrome, and implantation of an automatic implantable cardioverter-defibrillator (AICD) following cardiac arrest presented with disabling symptoms of paroxysmal atrial fibrillation due to recurrent AICD shocks. Before curative ablation, transesophageal echocardiography was performed to assess for existing thrombi. This is a rare case of successful resolution with apixaban of a massive left atrial appendage thrombus due to non-rheumatic atrial fibrillation that was successfully treated with apixaban.

Keywords: Apixaban, atrial fibrillation, atrial thrombus

Introduction

Thrombus has a predilection to develop in the left atrial appendage due to its shape and composite trabeculations.^[1] This is particularly true in any cardiac pathology with resultant stasis, such as atrial fibrillation. Moreover, since the Framingham study showed that atrial fibrillation increases the risk for stroke 5-fold,^[2] monitoring and treatment of thrombi is necessary. Transesophageal echocardiography has made clear imaging of the left atrial appendage possible, allowing its size, shape, flow patterns, and content to be assessed. This has allowed a more accurate assessment of the left atrial appendage for thrombus before cardioversion in patients with atrial fibrillation. While warfarin has preferably been the standard medication to decrease thromboembolic events in atrial fibrillation patients, factors such as regular international normalized ratio monitoring, variable dosing, food-drug interactions, and drug-drug interactions limit warfarin's practicality. Direct oral anticoagulants (DOACs) have been shown to be effective in decreasing stroke risk with fewer drug interactions, easier dosages, and no need for monitoring, thus providing a sound alternative to warfarin.^[3] Nevertheless, limited data involving the use of direct oral anticoagulants as thrombolytics exists.^[4]

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Herein, we report an interesting case of a patient who presented with a massive left atrial appendage thrombus secondary to nonvalvular atrial fibrillation which was successfully treated with apixaban anticoagulation.

Case Report

A 32-year-old woman with a past medical history of paroxysmal atrial fibrillation, long QT syndrome, and implantation of an automatic implantable cardioverter-defibrillator (AICD) following cardiac arrest presented with disabling symptoms of paroxysmal atrial fibrillation due to recurrent AICD shocks. Upon presentation, the patient had a CHA₂DS₂-VASc score of 1 and was not receiving any anticoagulant therapy. Before curative ablation, transesophageal echocardiography [Figure 1a and b] was performed to assess for existing thrombi. On examination, a large thrombus was noted on the left atrial appendage measuring (3.9 cm × 2.86 cm). This finding contraindicated curative ablation due to the risk of embolization. Following this discovery, the patient was started on apixaban 5 mg twice daily and scheduled for reevaluation with an additional transesophageal echocardiography 5 weeks later. As shown in Figure 2a and b, on reevaluation the massive left atrial appendage had completely resolved. One week following

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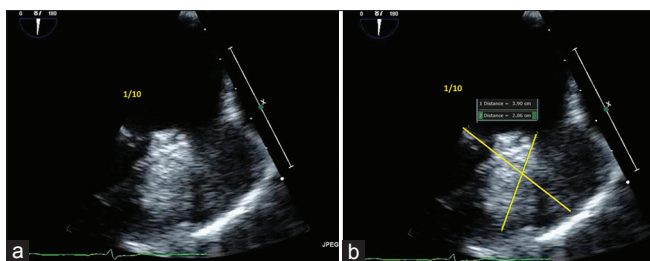


Figure 1: (a and b) Tee done Revealed A 3.9 cm × 2.86 cm LAA thrombus

the second transesophageal echocardiography, the patient was able to undergo curative ablation with resultant atrial paced sinus rhythm as per her postprocedure electrocardiogram. Despite the development of a massive left atrial appendage thrombus, the patient was able to undergo curative ablation only 7 weeks following its discovery and was sent home on apixaban 5 mg twice daily and metoprolol tartate 100 mg twice daily.

Discussion

Nonrheumatic atrial fibrillation is the most common cause of cerebral embolism overall. The presumed stroke mechanism is thrombus formation in the fibrillating atrium or atrial appendage, with subsequent embolization.^[5] As shown in our case, apixaban can successfully resolve large left atrial appendage thrombi in a relatively short period, thus providing a sound alternative to warfarin treatment. DOACs directly inhibit thrombin or factor Xa in the clotting cascade and hence potentiate thrombolytic properties. Inhibition of factor Xa blocks the production of thrombin. Thus, DOACs have the potential not only contribute to the prevention of de novo thrombi but also enable the resolution of established thrombi. Recent reports have demonstrated that direct factor Xa inhibitors such as apixaban possess the ability to inhibit thrombin generation and platelet aggregation derived through the tissue factor pathway to a more effectively greater extent than direct thrombin inhibitors do.^[6] Furthermore, there are other published case reports where apixaban dissolved existing left atrial thrombi. For example, 2.5 mg twice daily of apixaban partially dissolved a large thrombus in the left atrium from (4.8 cm × 2.2 cm) to (1.5 cm × 0.6 cm) in 11 weeks.^[7] In another case study, 5 mg twice daily apixaban was used to resolve a small left atrial appendage thrombus measuring (1.1 cm × 1 cm) in 16 days.^[8] The results of these cases suggest that apixaban is a potential alternative to warfarin to resolve existing left atrial thrombi. However, Ohyagi *et al.* reported a case where a patient had an embolic stroke during apixaban therapy for an existing left atrial appendage thrombus.^[9] Therefore, more research is needed. The Apixaban for Reduction in Stroke and Other Thromboembolic Events in Atrial Fibrillation (ARISTOTLE) study demonstrated that the use of 5 mg twice daily apixaban as equated to warfarin significantly reduced the risk of stroke or systemic embolism by 21%, major bleeding by 31% and death by 11% as compared to warfarin.^[10] Perhaps the next step requires

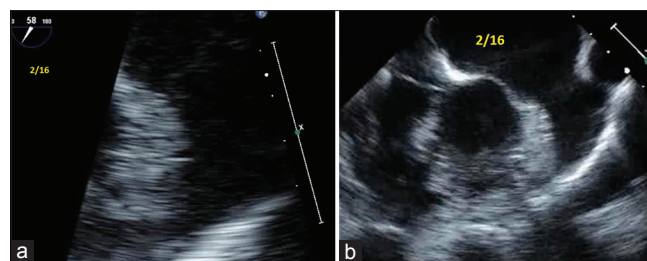


Figure 2: (a and b) Tee done revealed resolution of atrial thrombus after apixaban therapy

performing a similar trial to analyze resolution of existing left atrial thrombi by apixaban as compared to warfarin.

Declaration of patient consent

The authors certify that they have obtained all appropriate patient consent forms. In the form the patient(s) has/have given his/her/their consent for his/her/their images and other clinical information to be reported in the journal. The patients understand that their names and initials will not be published and due efforts will be made to conceal their identity, but anonymity cannot be guaranteed.

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Conflicts of interest

There are no conflicts of interest.

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