

Thrombolytic Action of Apixaban on Intra-Atrial Thrombus Developed after Previous Treatment with Warfarin: A Case Report

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Key Words

Atrial fibrillation · Electrical cardioversion · Atrial thrombus · Vitamin K antagonists · Warfarin · Novel oral anticoagulants · Apixaban

Abstract

Objective: To highlight the usefulness of apixaban on intra-atrial thrombus that develops after previous treatment with warfarin. **Clinical Presentation and Intervention:** A 69-year-old woman with a history of atrial fibrillation treated with warfarin presented with acute decompensated heart failure due to an episode of atrial fibrillation. Transesophageal echocardiogram revealed the presence of an intra-atrial thrombus. She was treated with apixaban, and transesophageal echocardiogram showed complete resolution of the thrombus after 3 weeks of treatment. **Conclusion:** This case highlights the usefulness of apixaban in the management of atrial fibrillation and proven intra-atrial thrombus.

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Introduction

Atrial fibrillation (AF) is the most common sustained cardiac arrhythmia, occurring in 1–2% of the general population [1]. Oral anticoagulation (OAC) is considered mandatory before ambulatory electrical cardioversion (ECV) of the AF in order to reduce the risk of thromboembolic complications related to the procedure and derived from intra-atrial thrombus formation, mainly located in the left atrial appendage (LAA) [1, 2]. Vitamin K antagonists (VKAs) have been the classic OAC therapy, but one of the main problems of VKAs is the difficulty in maintaining an adequate time-in-therapeutic range (TTR) of the optimal international normalized ratio (INR) in daily clinical practice [3]. In this context, novel oral anticoagulants (NOACs) were developed. They emerged recently as an alternative to conventional treatment with VKAs in patients with nonvalvular AF and other clinical scenarios [4], based on the data obtained on safety and efficacy of dabigatran, rivaroxaban, apixaban, and edoxaban versus warfarin in clinical trials published to date [5]. However, there is still some uncertainty concerning their use in daily clinical practice, mainly in clinical indications where we still do not have

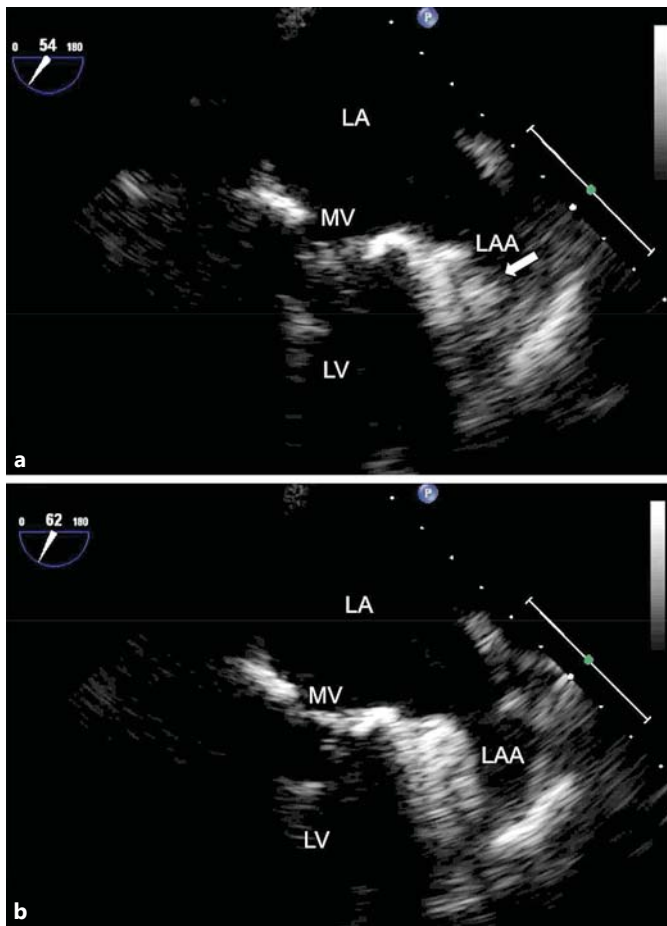


Fig. 1. Transesophageal echocardiogram. **a** Midesophageal two-chamber view showing the presence of a thrombus (arrow) in the LAA. **b** Midesophageal two-chamber view after 3 weeks of treatment with apixaban showing the complete resolution of the thrombus in the LAA. LA = Left atrium; LV = left ventricle; MV = mitral valve.

firm scientific evidence, e.g. their efficacy against an intracavitary thrombus. Therefore, we describe a case report where apixaban was used to resolve an intra-atrial thrombus that developed after previous treatment with warfarin.

Case Report

A 69-year-old woman with a history of advanced heart failure presented with severe pulmonary hypertension secondary to a hypertrophic obstructive cardiomyopathy and paroxysmal AF, treated with warfarin for the last 4 years. She was admitted to our hospital with signs and symptoms of worsening heart failure related to the recurrence of an episode of AF. Because the time-in-thera-

peutic range (INRs >2) under treatment with VKAs was less than 3 weeks and the episode was of unknown duration, a transesophageal echocardiogram was performed in order to rule out intracardiac thrombus prior to an elective ECV. The transesophageal echocardiogram (fig. 1a), revealed the presence of a hyperechoic mass with well-defined borders located at the LAA, findings highly suggestive of an intra-atrial thrombus (arrow). Given the clinical need of performing an ECV and the difficulty in maintaining stable INRs within an optimal therapeutic range, we decided to switch warfarin to apixaban at a dose of 5 mg every 12 h. After 3 weeks of treatment with apixaban, transesophageal echocardiogram was repeated showing complete resolution of the intra-atrial thrombus (fig. 1b), which allowed us to carry out the ECV and to achieve sinus rhythm. The 1-year follow-up was uneventful and showed that the patient had an important clinical improvement during outpatient visits with maintenance of sinus rhythm. It was decided to continue lifelong OAC treatment with apixaban.

Discussion

This report is a case of a patient with an intra-atrial thrombus that developed after previous treatment with warfarin where there was difficulty in maintaining an adequate time-in-therapeutic range of optimal INR leading us to switch warfarin for apixaban, and allowing the resolution of the intracardiac thrombus 3 weeks after treatment.

VKAs have important limitations that make their use problematic, such as slow onset of action, a narrow therapeutic window making it difficult to maintain an optimal range, high potential for food and drug interactions, and unpredictable anticoagulant effect [3]. However, no robust data regarding the use of NOACs as a thrombolytic agent in patients with an intra-atrial thrombus exist to date.

In the specific field of ECV of nonvalvular AF, current scientific evidence has confirmed that performing an ECV under treatment with NOACs is a procedure that is at least as safe as when it is performed under treatment with VKAs, with a very low incidence of intra-atrial thrombus formation [6]. In this regard, recent data published in the scope of daily clinical practice consolidate the safety of its use in the field of ambulatory cardioversion [7]. Nevertheless, once an intra-atrial thrombus has been formed, VKAs have traditionally been the only OAC therapy used [1] and currently there are no randomized studies that support the use of NOACs in this field. On the other hand, in the last years some case series have been published in which dabigatran [8], rivaroxaban [9], or apixaban [10] were able to carry out a thrombolytic action on a previously developed intracardiac thrombus. In par-

ticular with apixaban, although scientific evidence is scarce, several clinical cases have been reported in which an LAA thrombus resolution was achieved when apixaban was prescribed de novo [10]. To the best of our knowledge, our case is one of the rare cases that demonstrate the thrombolytic action of apixaban on intra-atrial thrombus developed under previous OAC treatment with VKAs. It is known that apixaban, in comparison with VKAs has a rapid onset of action, low potential for food and drug interactions, and predictable anticoagulant effect, being similar in efficacy and superior in terms of safety (especially reduced dose apixaban) [5], and thus

making it an attractive alternative for these patients. Nevertheless, future studies are required to evaluate the efficacy of NOACs in this area.

Conclusion

This case report highlights the usefulness of OAC treatment with apixaban as an alternative to the management of patients with AF and proven intra-atrial thrombus, especially when OAC treatment with VKAs has been shown to be inadequate or ineffective.

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