

## CASE REPORT

## Resolution of left ventricular thrombus with apixaban in a patient with hypertrophic cardiomyopathy

### Hipertrofik kardiyomiyopatili bir hastada sol ventriküldeki trombüsün apiksaban tedavisi ile rezolüsyonu

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**Summary**– Anticoagulation with warfarin is the main treatment of intracardiac thrombus. While novel oral anticoagulants (NOACs) have been approved by the US Food and Drug Administration (FDA) for stroke prevention in patients with nonvalvular atrial fibrillation (AF), they are not indicated for resolution of intracardiac thrombus. The case of a 60-year-old woman with left ventricular (LV) thrombus secondary to hypertrophic cardiomyopathy and AF is described in the present report. Indications for oral anticoagulation were AF and LV thrombus. Thrombus was dissolved after 1 month of apixaban treatment. To the best of our knowledge, this is the first report that describes the resolution of LV thrombus with apixaban treatment in a patient with hypertrophic cardiomyopathy.

Warfarin initiated with heparin infusion or low-molecular-weight heparin is the gold standard for intracardiac thrombus.<sup>[1]</sup>

Following approval by the US Food and Drug Administration (FDA), novel oral anticoagulants (NOACs) have been used more widely and were indicated for venous thromboembolism (VTE) prophylaxis in 2010. In 2014, apixaban was indicated for VTE prophylaxis after major orthopedic surgery and for treatment of pulmonary embolism. Though NOACs are not yet indicated for management of intracardiac thrombus, dissolution of left ventricular (LV) apical thrombus after 4 weeks of dabigatran treatment has been reported.<sup>[2]</sup>

#### Abbreviations:

AF	Atrial fibrillation
FDA	US Food and Drug Administration
LV	Left ventricular
NOAC	Novel oral anticoagulant
TTE	Transthoracic echocardiography
VTE	Venous thromboembolism

**Özet**– Kalp içi trombüsü olan hastalarda ana tedavi varfarin ile antikoagülasyondur. Bu ilaçlar kapak hastalığı olmayan atriyum fibrilasyonlu hastalarda inmeden korumada Amerikan Gıda ve İlaç İdaresi (FDA) tarafından onaylanmıştır, fakat hiçbirinin kalp içi trombüs rezolüsyonunda endikasyonu yoktur. Bu yazıda, hipertrofik kardiyomiyopati ve atriyum fibrilasyonu tanıları konan ve sol ventrikülde trombüs gelişen 60 yaşında bir kadın hasta sunuldu. Oral antikoagülasyon için iki endikasyon mevcuttur; atriyum fibrilasyonu ve ventrikül trombüsü. Trombüs bir aylık apiksaban tedavisinden sonra kayboldu. Bu olgu bildiğimiz kadarıyla sol ventrikülde trombüsü olan ve apiksaban tedavisiyle kaybolan ilk hipertrofik kardiyomiyopatili olgudur.

A woman with LV thrombus secondary to hypertrophic cardiomyopathy and AF is described in this case report.

#### CASE REPORT

A 60-year-old woman diagnosed with congestive heart failure secondary to nonobstructive hypertrophic cardiomyopathy began follow-up at the cardiology department of a different hospital in 2010. Warfarin treatment was initiated secondary to the concomitance of hypertrophic cardiomyopathy and atrial fibrillation (AF). The patient experienced gastrointestinal bleeding in September 2014, was transfused with erythrocyte suspensions, and was discharged without anticoagulation treatment. In October of the same year, she suffered a transient ischemic attack and was

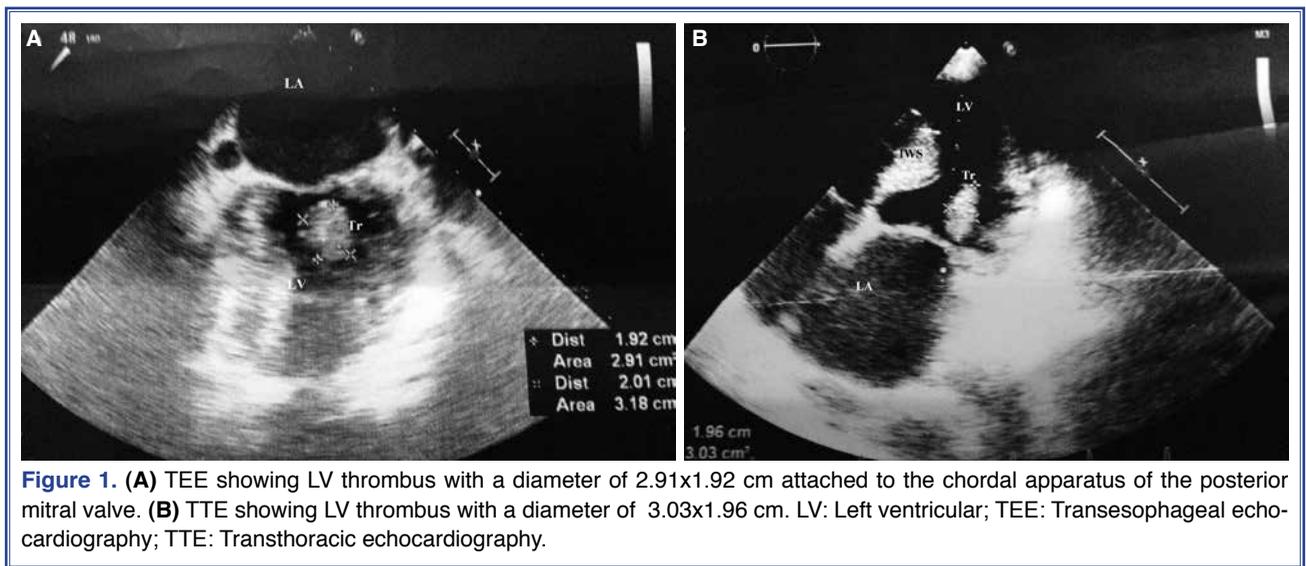
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referred to cardiology for etiology. Multiple small cerebral infarcts were observed in cranial computed tomography. Fever or other constitutional symptoms suggesting infective endocarditis were not detected. Transesophageal echocardiography revealed left atrium appendage thrombus and LV thrombus with a diameter of 3x2 cm attached to the chordal apparatus of the posterior mitral valve (Figure 1a). LV thrombus was also seen on transthoracic echocardiogra-

phy (TTE) (Figure 1b). Patient was discharged with treatment of apixaban 5 mg twice daily additional to heart failure treatment. One month later, in November 2014, the patient was admitted to our outpatient clinic for control. When we saw the figures with intracardiac thrombus in discharge reports, a control TTE was decided and performed. TTE showed dissolution of LV thrombus, LV ejection fraction reduced to 30%, LV hypertrophy, moderate mitral regurgitation, and left atrium dilatation (Figure 2). With the exception of those relating to the thrombus, results were identical to those of the other hospital. AF was observed on electrocardiogram and patient refused transesophageal echocardiography to detect thrombus in left atrium appendage. Apixaban treatment was continued.

## DISCUSSION

AF is the most common cardiac arrhythmia, and its prevalence increases with age. Risk of cardioembolic stroke increases with the presence of this arrhythmia, particularly in the elderly. Patients with AF have a 4–5-times greater risk of stroke or transient ischemic attack.<sup>[3,4]</sup> Warfarin was the only drug used to prevent of stroke in AF patients until 2010, when NOACs came on the market. Apixaban is a highly selective direct factor Xa inhibitor that prevents amplification of the coagulation process.<sup>[5]</sup> It has FDA approval for stroke prevention in nonvalvular AF, VTE prophylaxis after major orthopedic surgery, and pulmonary embolism, but is not yet indicated for dissolution of intracardiac thrombus.



Patient follow-up for hypertrophic cardiomyopathy and heart failure began in 2010, and treatment with warfarin for stroke prevention was initiated following detection of AF. Warfarin treatment was stopped due to gastrointestinal bleeding in September 2014. Patient suffered a transient ischemic attack 1 month later, and LV thrombus and left atrium appendage thrombus were detected. Patient was discharged with twice daily treatment of apixaban 5 mg. One month later, dissolution of LV thrombus was observed.

To the best of our knowledge, the present is the first report to describe LV thrombus dissolution in a hypertrophic cardiomyopathy patient. While LAA<sup>[6]</sup> and LV<sup>[2]</sup> thrombus dissolution with rivaroxaban and dabigatran has been reported, dissolution with apixaban has not. NOACs present new options in the daily therapy of stroke prevention in patients with AF, VTE prophylaxis after major orthopedic surgery, and pulmonary embolism. However, there is a scarcity of literature describing use of NOACs in the dissolution of intracardiac thrombus.

To best of our knowledge, the present is the first report to describe LV thrombus dissolution with apixaban in a patient with hypertrophic cardiomyopathy and AF.

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**Anahtar sözcükler:** Apiksaban; atriyum fibrilasyonu; hipertrofik kardiyomyopati; trombüs.