Folia Cardiologica 2018
tom 13, nr 5, strony 453–455
DOI: 10.5603/FC.a2018.0086

ISSN 2353–7752

Thrombus in the left atrium after brief interruption of rivaroxaban therapy

Skrzeplina w lewym przedsionku po krótkotrwałym przerwaniu leczenia riwaroksabanem

Małgorzata Ewa Buksińska-Lisik, Hanna Mularczyk, Artur Mamcarz

III Department of Internal Medicine and Cardiology, II Faculty of Medicine, Warsaw Medical University, Warsaw, Poland

Abstract

Planning an invasive procedure with a high risk of bleeding is the most common reason for temporary interruptions of anticoagulant therapy in patients with atrial fibrillation. Bridging therapy is strongly recommended only in patients with mechanical heart valves. This case report presents a 75-year-old patient with ischaemic stroke and left atrial thrombus that occurred after a short treatment interruption with rivaroxaban without bridging therapy in a patient with 'nonvalvular' atrial fibrillation.

Key words: left atrial thrombus, atrial fibrillation, ischaemic stroke, rivaroxaban

Folia Cardiologica 2018; 13, 5: 453–455

Introduction

The role of non-vitamin K antagonist oral anticoagulants in lowering the risk of embolic complications in 'nonvalvular' atrial fibrillation (AF) is well known. In the case of planned invasive procedures with a high bleeding risk, anticoagulation therapy should be temporarily interrupted.

According to AHA/ACC/HRS guidelines, for patients without mechanical heart valves, bridging therapy decisions should balance stroke and bleeding risks and the length of time during which a patient will not be anticoagulated [1]. However, according to ESC guidelines, bridging therapy is recommended only for patients with prosthetic heart valves and does not seem to be beneficial in patients without mechanical heart valves [2].

Herein, we report a case of fast thrombus formation in the left atrium and ischaemic stroke that occurred after brief discontinuation of rivaroxaban in a patient with 'nonvalvular' AF.

Case report

A 75-year-old man with a history of mitral valve repair in 2012 (annuloplasty and the implantation of artificial cords) and permanent AF was admitted to the Orthopaedic Department due to planned total hip arthroplasty. His thromboembolic risk according to the CHA_2DS_2-VASc score was 3. The patient had been treated with warfarin in the past, but in 2014 he was switched to rivaroxaban and was complaining with all his medications. He had regular follow ups with his cardiologist, and a transthoracic echocardiogram (TTE) carried out three months earlier did not reveal any clot in the left atrium. On admission to the Orthopedic Department he was in good condition. The bleeding risk in total hip replacement surgery was high, so rivaroxaban was discontinued. After 48 hours the patient suffered a stroke, manifesting left upper and lower extremity hemiparesis and aphasia. Computed tomography revealed an ischaemic stroke from a large left middle cerebral artery (MCA).

Address for correspondence: dr n. med. Małgorzata Ewa Buksińska-Lisik, III Klinika Chorób Wewnętrznych i Kardiologii, Warszawski Uniwersytet Medyczny, ul. Lindleya 4, 02–005 Warszawa, Poland, e-mail: mblisik@wp.pl

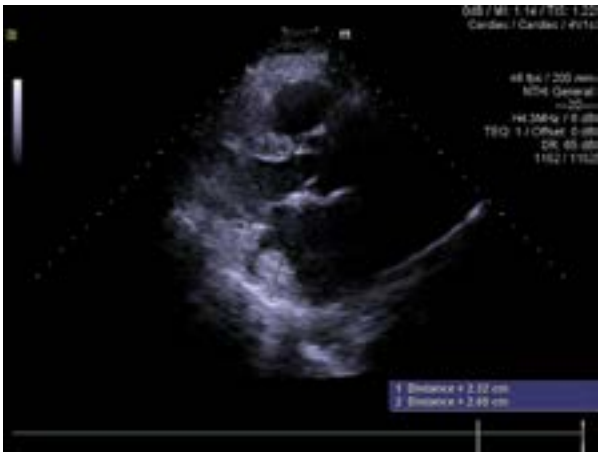

Figure 1. Transthoracic echocardiogram (TTE) — remarkably enlarged left atrium and a large thrombus (23 × 21 mm)

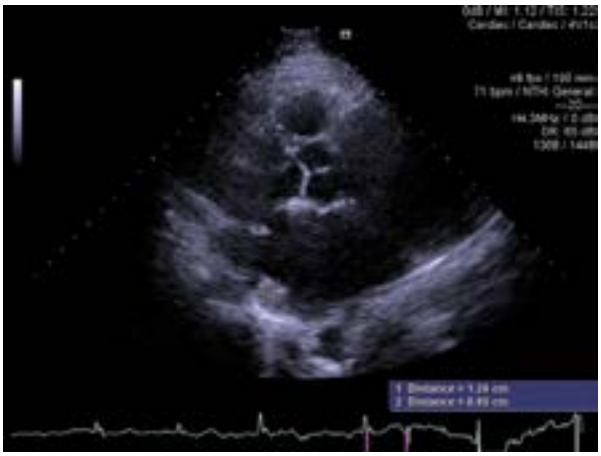

Figure 2. Transthoracic echocardiogram (TTE) after seven days of anticoagulation therapy — a decrease in thrombus size (12 × 9 mm)

After admission to the Neurology Department, the patient's neurological condition improved with increased left-side strength and a regained ability to communicate simply. He was not a candidate for thrombolysis, mainly because of the time delay. Three days later, the patient underwent a TTE which demonstrated mild to moderate mitral regurgitation and a large, immobile thrombus in the significantly enlarged left atrium (Figure 1). Enoxaparin 1 mg/kg sc two times a day was started, followed by warfarin. After seven days on the therapy, TTE showed a decreased thrombus size (Figure 2).

Discussion

In clinical practice, temporary interruptions of anticoagulation (TI) are common in patients with AF. TI is associated with an increased risk of embolic events, which is similar with rivaroxaban or warfarin, and significantly higher after three or more days of discontinuation [3]. The use of bridging therapy does not affect stroke/systemic embolism rates during TIs [4]. Moreover, the use of bridging anticoagulation is significantly associated with higher overall bleeding and adverse event rates [5].

In the presented case, stroke occurred exactly 48 hours after rivaroxaban interruption with documented fast thrombus formation in the LA. Given the result of the previous TTE and the rapid treatment effect of low molecular weight heparin, it seems very unlikely that the thrombus was 'old'. It is much more likely that it was a result of rivaroxaban discontinuation. Probably, the effect of mitral annuloplasty and huge atrium size may lead to local blood slow flow, resulting in the easy formation of a thrombus. Watanabe et al. found a few echocardiographic parameters including left atrial dimension that would predict warfarin-resistant LA thrombus formation [6]. Furthermore, Kim et al. [7] found that adding LA functional markers to the clinical risk factors can improve the predictive value of the CHA_2DS_2-VASc score.

All these findings suggest that structural changes and remodelling of LA should receive greater consideration when assessing embolic risk in AF.

Conclusions

This case suggests that patients with AF after mitral valve repair need more attention to determine the best perioperative strategy when stopping anticoagulation therapy.

Conflict of interest

The authors declare no conflict of interest.

Streszczenie

Planowanie procedury inwazyjnej o wysokim ryzyku krwawienia stanowi najczęstszą przyczynę czasowego przerwania leczenia przeciwzakrzepowego u pacjentów z migotaniem przedsionków (AF). Terapia pomostowa jest zdecydowanie zalecana jedynie u pacjentów z mechanicznymi zastawkami serca. W opisie przypadku przedstawiono 75-letniego pacjenta z udarem niedokrwiennym mózgu i skrzepliną w lewym przedsionku, które wystąpiły po krótkim przerwaniu leczenia riwaroksabanem bez zastosowania leczenia pomostowego u pacjenta z „niezastawkowym" AF.

Słowa kluczowe: skrzeplina w lewym przedsionku, migotanie przedsionków, udar niedokrwienny, riwaroksaban

Folia Cardiologica 2018; 13, 5: 453–455

References

1. January CT, Wann LS, Alpert JS, et al. American College of Cardiology, American Heart Association Task Force on Practice Guidelines, Heart Rhythm Society. 2014 AHA/ACC/HRS guideline for the management of patients with atrial fibrillation: a report. J Am Coll Cardiol. 2014; 64(21): e1–76, doi: 10.1016/j.jacc.2014.03.022, indexed in Pubmed: 24685669.
2. Kirchhof P, Benussi S, Kotecha D, et al. ESC Scientific Document Group. 2016 ESC Guidelines for the management of atrial fibrillation developed in collaboration with EACTS. Eur Heart J. 2016; 37(38): 2893–2962, doi: 10.1093/eurheartj/ehw210, indexed in Pubmed: 27567408.
3. Patel MR, Hellkamp AS, Lokhnygina Y, et al. Outcomes of discontinuing rivaroxaban compared with warfarin in patients with nonvalvular atrial fibrillation: analysis from the ROCKET AF trial (Rivaroxaban Once-Daily, Oral, Direct Factor Xa Inhibition Compared With Vitamin K Antagonism for Prevention of Stroke and Embolism Trial in Atrial Fibrillation). J Am Coll Cardiol. 2013; 61(6): 651–658, doi: 10.1016/j.jacc.2012.09.057, indexed in Pubmed: 23391196.
4. Sherwood MW, Douketis JD, Patel MR, et al. ROCKET AF Investigators. Outcomes of temporary interruption of rivaroxaban compared with warfarin in patients with nonvalvular atrial fibrillation: results from the rivaroxaban once daily, oral, direct factor Xa inhibition compared with vitamin K antagonism for prevention of stroke and embolism trial in atrial fibrillation (ROCKET AF). Circulation. 2014; 129(18): 1850–1859, doi: 10.1161/CIRCULATIONAHA.113.005754, indexed in Pubmed: 24552831.
5. Douketis JD, Spyropoulos AC, Kaatz S, et al. BRIDGE Investigators. Perioperative bridging anticoagulation in patients with atrial fibrillation. N Engl J Med. 2015; 373(9): 823–833, doi: 10.1056/NEJMoa1501035, indexed in Pubmed: 26095867.
6. Watanabe A, Yamashita N, Yamashita T. Blood stasis secondary to heart failure forms warfarin-resistant left atrial thrombus. Int Heart J. 2014; 55(6): 506–511, doi: 10.1536/ihj.14-133, indexed in Pubmed: 25310929.
7. Kim MN, Kim SA, Choi Ji, et al. Improvement of predictive value for thromboembolic risk by incorporating left atrial functional parameters in the CHADS2 and CHA2DS2-VASc scores. Int Heart J. 2015; 56(3): 286–292, doi: 10.1536/ihj.14-380, indexed in Pubmed: 25912904.