Multi-chamber intracardiac thrombi successfully treated with apixaban in a patient with dilated cardiomyopathy and sinus rhythm

Authors: Waldemar Elikowski, Małgorzata Małe-Elikowska, Natalia Fertała, Magdalena Zawodna-Marszałek

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Multi-chamber intracardiac thrombi successfully treated with apixaban in a patient with dilated cardiomyopathy and sinus rhythm

Waldemar Elikowski¹, Małgorzata Małek-Elikowska², Natalia Fertała¹, Magdalena Zawodna-Marszałek¹

¹Department of Internal Medicine, Józef Struś Hospital, Poznań, Poland

²2nd Department of Cardiology, University of Medical Sciences, Poznań, Poland

Short title: multi-chamber intracardiac thrombi treated with apixaban

Correspondence to:

Waldemar Elikowski, MD,
Department of Internal Medicine, Józef Struś Hospital
Szwajcarska St. 3, 61-285 Poznań, Poland
phone: 618739416
fax: 618739160,
e-mail: welikowski@wp.pl

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Multi-chamber intracardiac thrombi (MCICTs) occur mainly in severe heart failure (HF) and/or in the presence of prothrombotic factors. The frequency of MCICTs in HF and sinus rhythm is not exactly known. In patients with left ventricular (LV) thrombus, coexistent (locally formatted) thrombi in the right ventricle (RV), right atrium (RA) and, alternatively, left atrium (LA) can rarely be found. Such patients have an increased risk of systemic and pulmonary embolism. There is a growing interest in intracardiac thrombi therapy replacing vitamin K antagonists (VKAs) with direct oral anticoagulants (DOACs) such as apixaban, rivaroxaban, edoxaban and dabigatran. However, observations are particularly focused on left ventricular thrombi (LVTs) and based mainly on case/case series reports [1,2] and, more recently, on single multicenter cohort studies/retrospective studies [3,4] comparing DOACs with VKAs.

A 60-year-old male with dilated cardiomyopathy (DCM) was referred due to advanced HF with a markedly decreased ejection fraction (15%; normal above 56%) and global longitudinal strain (-4%; normal above -20%); no atrial fibrillation or flutter were observed. Transthoracic echocardiography (TTE) and transesophageal echocardiography (TEE) revealed three-chamber intracardiac thrombi (FIGURE 1A,C,E,G): 1 irregular in LV (6 x 2 cm) - attached to the lateral wall and extending lengthwise to the apex, 3 oval near the RV apex (diameter 0.8-1.0 cm), 1 longitudinal arising from the RA appendage (4.5 x 1 cm). Thrombi were also found in computed tomography, which additionally confirmed coexistent pulmonary embolism despite the absence of deep venous thrombosis. Anticoagulation with apixaban was started, initially at a dose of 10 mg bd. (for 10 days) and then continued at 5 mg bd. Control TTE was done daily for two weeks, then - 3 times a week. TEE was controlled when the TTE image suggested a significant change of any thrombus. Thrombi resolution was observed at different times: in RV after 2 weeks, in LV after 3 weeks, in RA after 5 weeks (FIGURE 1B,D,F,H). No complications of anticoagulation, particularly systemic and (new)
pulmonary embolism or bleeding were observed. HF was treated with angiotensin converting enzyme inhibitor, beta-blocker and diuretics.

MCICTs occurrence in patients with HF and sinus rhythm seems to be underestimated because TTE may not reveal all thrombi. Even in a study including the highest number of patients with LVTs, the data on coexisting other intracardiac thrombi are lacking [4]. MCICTs were reported, e.g. in myocarditis, DCM, Behçet's disease. Patients were usually treated with heparin or VKAs; none of them used DOACs. Publications on the effectiveness and safety of LVTs treatment with DOACs give conflicting results. Some authors suggest more frequent stroke episodes [3], while others claim that DOACs could constitute a worthwhile option of such therapy, although still out of label [4]; therefore, randomized control trials are needed. Coexistent pulmonary embolism indicates a proper initial dose of DOAC, e.g. 2 x 10 mg of apixaban and 2 x 15 mg of rivaroxaban. Permanent severe heart damage or irreversibly increased thrombotic risk promote long-lasting therapy, which should prevent intracardiac thrombi recurrence. Caution in such therapy is necessary [5].

References


Figure 1. Transthoracic and transesophageal echocardiography at the moment of multiple intracardiac thrombi diagnosis (A,C,E,G) and after thrombi resolution, following treatment.
with apixaban (B,D,F,H). LV - left ventricle, RV - right ventricle, RA - right atrium, LA - left atrium; see also reverberation artifact mimicking left atrial thrombus (A)