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Brief Report

Resolution of intracardiac thrombus with novel oral anticoagulants in an adult patient with complex CHD

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Abstract Thromboembolic complications occur frequently in Fontan patients with atrial arrhythmias and are a cause of significant morbidity and all-cause mortality. We report the case of an adult woman with direct atriopulmonary connection and atrial arrhythmia who developed a right atrial thrombus. She was switched to apixaban therapy because of echocardiographic evidence of thrombus progression despite combined therapy with warfarin and aspirin. After 1 year of treatment, there was evidence of complete thrombus resolution, in the absence of bleeding events. Our case shows that direct oral anticoagulants can be effective and safe for the treatment of thrombosis in adult patients with complex CHD.

Keywords: Adult CHD; Fontan intervention; novel oral anticoagulants; thrombosis

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Case report

A 26-year-old woman with tricuspid atresia treated with atriopulmonary Fontan connection at the age of 4 years started to struggle with recurrent episodes of persistent atrial fibrillation since adolescence; therefore, warfarin anticoagulation was started, and, because of refractoriness to different anti-arrythmic regimens, a rate-control strategy was finally adopted (Fig 1).

Following transthoracic echocardiograms showed thrombus development within a giant right atrium (Fig 2a), persisting despite a satisfactory median time in therapeutic range of 65% and the addition of an anti-platelet agent (Fig 2b).

As the patient refused surgical intervention including thrombectomy and Fontan conversion combined with a Maze procedure, we decided to switch to a different anticoagulant regimen with apixaban 5 mg twice daily.

During the follow-up, a progressive reduction in thrombus size was observed until complete resolution after 1 year (Fig 2c). No bleeding events and/or any side-effects were encountered since apixaban was initiated.

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The Fontan procedure with direct right atrium-to-pulmonary artery connection is known to carry a high risk for the development of atrial arrhythmias and thrombus formation, which are, in turn, both associated with poor outcome.[1] On the other hand, several studies have demonstrated abnormal levels of anticoagulant factors in Fontan patients, causing a paradox condition of both increased bleeding and clotting risk.[2] Thromboprophylaxis is generally recommended in these patients, with warfarin therapy appearing to be the most successful strategy; however, its narrow therapeutic window remains problematic and, as shown in our patient, it can be ineffective in some instances.

Although novel oral anticoagulants provide a significant opportunity to address some of the limitations of current anticoagulation management, a few data are available on their use in patients with CHD.[3]

Our case shows that novel oral anticoagulants can be effective and safe for the treatment of thrombosis in adult patients with complex CHD at non-negligible risk of bleeding.

Acknowledgement

None.

Conflicts of Interest

None.

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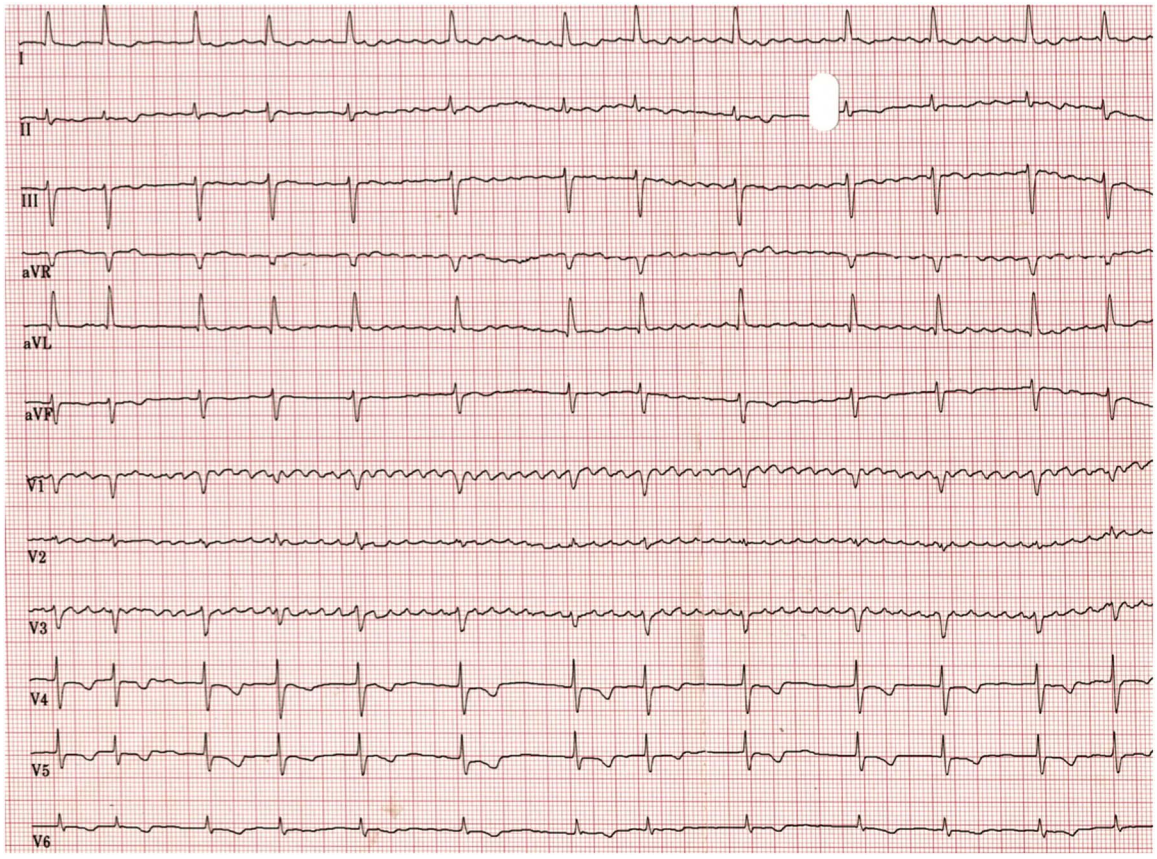

Figure 1.
Twelve-lead echocardiograms showing atrial fibrillation.

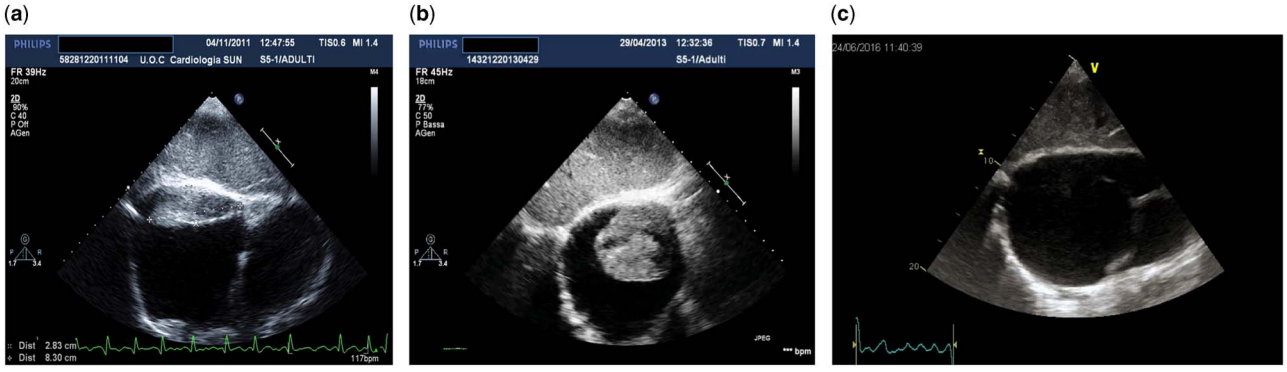

Figure 2.
*Subcostal views from transthoracic echocardiograms performed at different follow-up time points. During warfarin treatment, a thrombotic stratification on the free wall of a giant right atrium is shown (**a**). Although aspirin was added, the thrombus increased in size and changed its features, becoming pedunculated, round shaped with inhomogeneous echotexture (**b**). After switch to apixaban, the echocardiogram demonstrated complete resolution of the thrombus (**c**).*

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