

IMAGES IN INTERVENTION

Thrombosis of a Left Atrial Appendage Occluder After Treatment With Thrombopoietin Receptor Agonists



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A 77-year-old man with atrial fibrillation, diabetes mellitus, hypertension, asymptomatic moderate-to-severe aortic stenosis (aortic valve area 1.0 cm², aortic mean gradient 38 mm Hg), and idiopathic thrombocytopenic purpura (ITP) in which splenectomy and immune modulators had failed was considered at very high risk of bleeding because of chronic oral anticoagulation (CHA₂DS₂-VASc score = 4 and HAS-BLED score = 3). Thus, the patient was referred for left atrial appendage (LAA) occlusion. A 22-mm Amplatzer Amulet (Abbott, Minneapolis, Minnesota) device was successfully placed by transeptal left atrial access, under fluoroscopy and 3-dimensional transesophageal echocardiography (3DTEE) guidance without any procedural complications (Figures 1A1 and 1A2). Two days later, a transthoracic echocardiogram confirmed the correct position of the device, and the patient was discharged uneventfully. Due to ITP, warfarin and aspirin were prescribed for 6 months (instead of usual dual antiplatelet therapy).

The patient did well, but 4 months later, an oral thrombopoietin (TPO) receptor agonist (eltrombopag [Revolade], GlaxoSmithKline, Brentford, United Kingdom) was prescribed due to the very low platelet count (15,000 platelets/ μ l). One month later, even with the patient being on warfarin and aspirin, the platelet count rose to 80,000 platelets/ μ l, and a routine 3DTEE showed a large adherent thrombus in

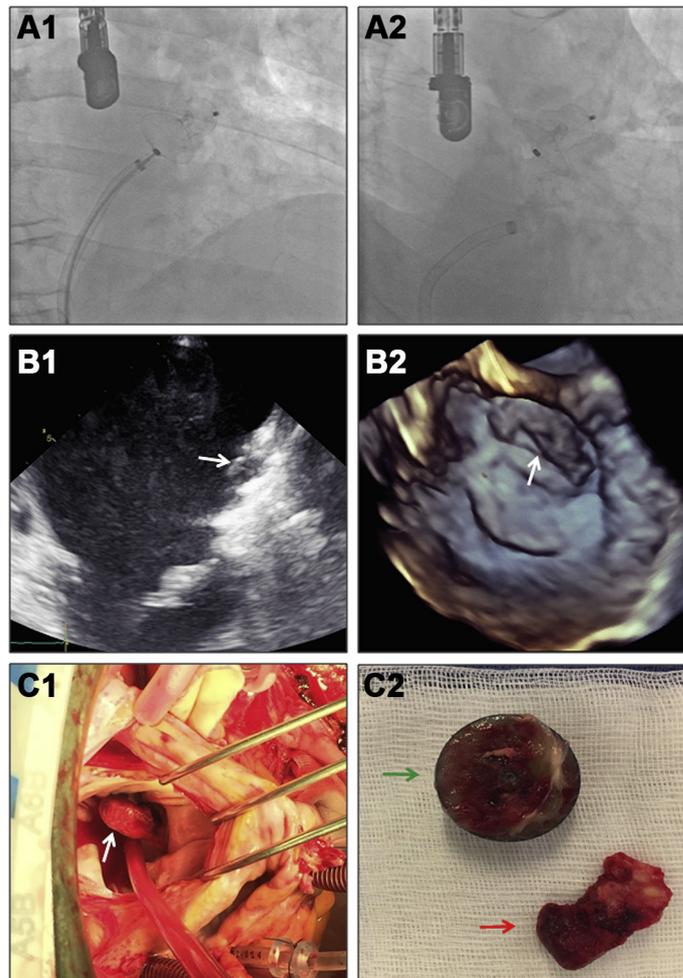
the atrial surface of the LAA occluder (Figures 1B1 and 1B2) despite its correct position without residual leak. In view of the high bleeding risk and the long-term need of TPO receptor agonists to maintain an acceptable platelet count, the patient was discussed by a heart team, and a decision was made to refer the patient for surgical LAA closure (Figures 1C1 and 1C2, Online Video 1) and aortic valve replacement with a bioprosthesis.

This is the first description, to our knowledge, of early thrombosis of a LAA occluder in a patient under treatment with TPO receptor agonists. Eltrombopag is an oral, small nonpeptide molecule that binds to the TPO receptor to increase platelet production. Thromboembolic events have been reported in patients treated with TPO receptor agonists, the majority of whom had pre-existing cardiovascular or thromboembolic risk factors. This finding should be considered when a patient with refractory ITP (which may require TPO receptor agonists) is referred for LAA occlusion. Further investigation is warranted to recognize the frequency and clinical implications of this early device thrombosis.

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Manuscript received October 14, 2017; revised manuscript received October 31, 2017, accepted November 7, 2017.

FIGURE 1 Fluoroscopy, TEE, and Surgical Images of LAA Occluder

(A1 and A2) Fluoroscopic images of the 22-mm Amplatzer Amulet device deployment for percutaneous LAA closure. **(B1 and B2)** Follow-up 2-dimensional and 3-dimensional transesophageal echocardiography (TEE) showing a focal adherent thrombus in the atrial surface of LAA occluder (**white arrow**). **(C1)** Surgical view of the adherent thrombus in the atrial surface of LAA occluder (**white arrow**). **(C2)** Endothelialized Amplatzer Amulet plug (**green arrow**) and the thrombus (**red arrow**) after surgical resection ([Online Video 1](#)). LAA = left atrial appendage.

KEY WORDS left atrial appendage occluder, thrombosis, thrombopoietin receptor agonists

APPENDIX For a supplemental video, please see the online version of this paper.