

Percutaneous left atrial appendage occlusion as a bridge to pulmonary vein isolation

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A 36-year-old woman was admitted to our center for persistent atrial fibrillation (AF) with New York Heart Association (NYHA) class II/III symptoms. The patient had a history of surgery for atrial septal defect type ostium secundum and mitral valve annuloplasty at the age of four and five, respectively. Echocardiography revealed severely reduced left ventricular ejection fraction (LVEF, 36%) with global hypokinesia and no significant valvular heart disease. Magnetic resonance imaging showed no signs of ischemic nor inflammatory cardiomyopathy, therefore, tachycardia-induced cardiomyopathy was diagnosed, and the patient was qualified for pulmonary vein isolation. However, transthoracic echocardiography (TEE) showed a massive thrombus located in the medial and distal part of the left atrial appendage (LAA) (Figure 1A). The strategy of rate control had to be chosen, as neither cardioversion nor cryoablation was permissible.

After four weeks, control TEE revealed a persistent LAA thrombus despite using the nonvitamin K antagonist oral anticoagulants (NOAC). The antithrombotic therapy was changed — NOAC was withdrawn and enoxaparin (1 mg per kg twice daily subcutaneously) with acetylsalicylic acid (75 mg/daily) were administered. Despite more aggressive antithrombotic treatment, the second control TEE, performed four weeks later, showed no thrombus resolution.

Given highly symptomatic AF and deterioration of heart failure symptoms to NYHA class III, the patient was qualified for left atrial appendage occlusion (LAAO) with a cerebral protection device to make possible cryoablation and electrical cardioversion. The procedure

was performed using an Amplatzer Amulet 28 mm occluder with the SENTINEL cerebral protection system to minimize the risk of cerebral arterial embolization (Figure 1B). Despite neuroprotection, we also used the “no-touch technique”, with no contrast injection and restriction on guidewire or catheter manipulation within LAA. We achieved complete occlusion of the LAA (Figures 1C and 1D), with no periprocedural complications. The patient was discharged in good clinical state one day after the procedure. Cryoablation with subsequent effective electrical cardioversion were performed 3 weeks later. Control echocardiography showed a significant increase in LVEF (LVEF, 50%).

The incidence of left atrial thrombus (LAT) in AF patients receiving oral anticoagulants varies from 1.6 to 8.0%, and over 90% of all thrombi are located within the LAA [1–3]. Thanks to more aggressive anticoagulation therapy, about 60% of thrombi might be resolved; however, such a strategy is burdened with significantly higher bleeding risk [1–3]. The presence of a LAT is associated with a significant increase in the risk of ischemic stroke and other thromboembolic complications, especially during electrical/pharmacological cardioversion and in procedures involving catheterization of the left atrium (LA). Therefore, both cardioversion and invasive procedures within LA are strongly contraindicated in the case of LAT presence [4]. However, a recent study demonstrated, that LAAO in the presence of LAT is feasible and quite safe, and the use of a cerebral protection device might reduce the risk of procedure-related thromboembolic events [5].

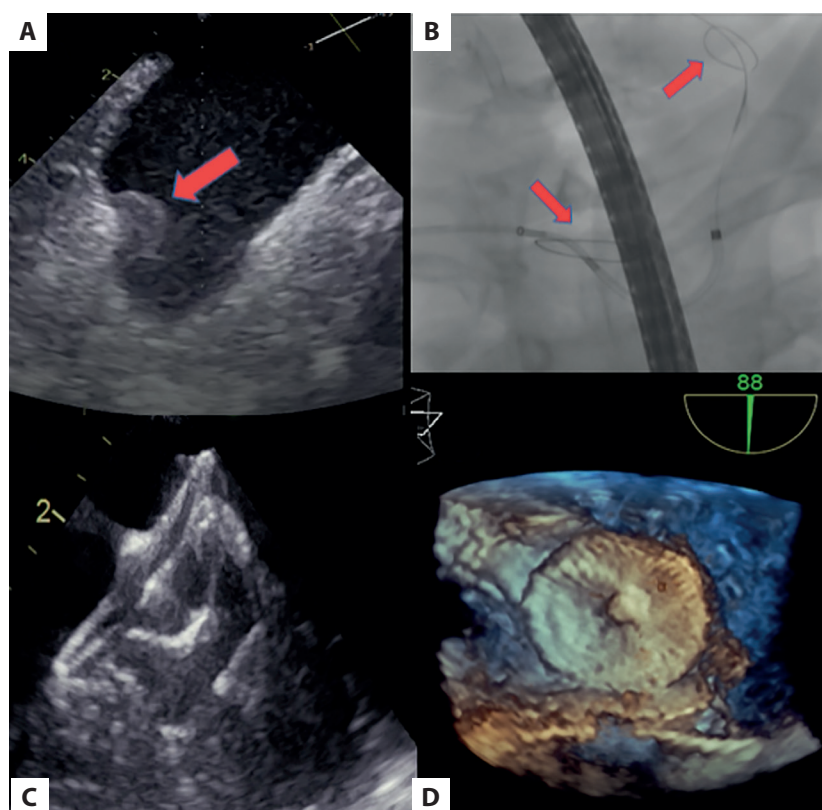


Figure 1. A. Visualization of the LAA thrombus on TEE. B. Sentinel cerebral protection system — arrows indicate the deployed device filters — fluoroscopy image. C. The LAA after closure with an Amplatzer Amulet occluder — TEE. D. The disc of Amplatzer Amulet occluder closing the LAA ostium — TEE 3D view

Abbreviations: LAA, left atrial appendage; TEE, transesophageal echocardiography

To the best of our knowledge, we have reported the first case of LAAO performed to facilitate cryoablation in a patient with persistent thrombus within the LAA.

Article information

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