Termination of anticoagulation therapy at 45 days after concomitant atrial fibrillation catheter ablation and left atrial appendage occlusion resulting in device-related thrombosis and stroke

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Introduction

Catheter ablation therapy for atrial fibrillation (AF) is a safe and effective treatment for patients with both paroxysmal and persistent symptomatic AF. However, given the uncertainty about recurrence after the ablation procedure and continued risk of thromboembolism, it is still recommended to treat with anticoagulation for the long-term prevention of stroke. Left atrial appendage (LAA) occlusion with the WATCHMAN device (Boston Scientific Corp., Natick, MA) has demonstrated equivalent reduction in stroke compared to warfarin as well as a mortality benefit in patients with AF and $CHADS_2VASC_2$ score >1,[1,2] and it is increasingly being used as an alternative to warfarin for long-term prevention of stroke. A short-term requirement for antithrombotic therapy remains for 6 months while the device develops an endothelial layer.

Recently, some centers have begun to perform concomitant catheter ablation and WATCHMAN LAA occlusion.[3–6] This strategy has the benefit of providing treatment for symptomatic AF as well as stroke prevention without the need for long-term anticoagulation. However, there are currently no established guidelines for the type and duration of short-term antithrombotic therapy necessary to prevent device-related thrombosis (DRT) and stroke. Current antithrombotic strategies in studies involving concomitant AF ablation and WATCHMAN LAA occlusion are based on a combination of the HRS/EHRA/ECAS expert consensus statement on catheter and surgical ablation of AF[7] and the PROTECT AF trial protocol.[1] These studies use differing antithrombotic strategies, however.

Given the numerous strategies used for anticoagulation in this emerging procedure, it is possible, or even expected, that health care providers, especially nonelectrophysiologists, may be confused about the best strategy to use, potentially leading to deleterious consequences in this patient population. We present a case of combined AF catheter ablation and WATCHMAN LAA closure that had early termination of anticoagulation, leading to DRT.

KEYWORDS Atrial fibrillation; Catheter ablation; Left atrial appendage occlusion; WATCHMAN; Anticoagulation; Device-related thrombosis
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Case report

A 75-year-old woman with a history of aortic valve stenosis with subsequent bioprosthetic valve replacement, history of AF with prior pulmonary vein (PV) isolation via radiofrequency catheter ablation, and pacemaker implantation for an indication of tachycardia-bradycardia syndrome was referred to our practice for recurrent, symptomatic, drug-refractory AF. The patient had been trialed on multiple antiarrhythmic medications including flecainide, dronedarone, and amiodarone without success. In addition, the patient developed significant epistaxis with multiple visits to the emergency department despite low therapeutic international normalized ratios (INRs) and thus had discontinued warfarin. A novel oral anticoagulant (NOAC) drug was not considered because of the treating physicians concern for a lack of a reversal agent at the time. Her $CHADS_2VASC_2$ score was 3. After consultation with the patient, it was decided to pursue concomitant AF ablation and WATCHMAN LAA occlusion. The patient was resumption on warfarin and referred for the procedure 2 months later.

Preprocedure assessment

A transthoracic echocardiogram (TEE) revealed normal left ventricular function with an ejection fraction of 70% and mild aortic regurgitation. Computed tomography of the heart was performed to assess LAA features and to assist with appropriate device selection. The study showed a severely enlarged left atrium with a volume of 161 mL. The LAA was cactus shaped, with an ostium measuring 2.2 × 1.5 cm. Two lobes were noted, with depth to the more anterior lobe being 2.7 cm and the more posterior lobe being 2.3 cm. The patient

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KEY TEACHING POINTS

- Concomitant atrial fibrillation catheter ablation and left atrial appendage occlusion is increasing in incidence.
- There is currently no consensus about the postprocedure anticoagulation regimen for concomitant atrial fibrillation catheter ablation and left atrial appendage occlusion.
- Based on available evidence, it appears that the current best practice is to treat with at least 2 months of oral anticoagulation followed by 4 months of aspirin and clopidogrel therapy and then lifelong aspirin therapy.
- A consensus statement on the postprocedure antithrombotic regimen for this procedure is needed quickly to prevent confusion among the health care community.

was instructed to continue warfarin uninterrupted. The INR was 2.1 on the morning of the procedure.

Procedure details

The procedure was performed under general anesthesia with TEE guidance for both transseptal puncture and deployment of the LAA occlusion device. A ThermoCool SmartTouch (Biosense Webster Inc., Diamond Bar, CA) radiofrequency catheter was used to perform wide circumference ablation around the antrum of the PVs. Bidirectional block was confirmed within all 4 veins. In addition, the posterior left atrium was isolated with roof and posterior left atrial floor lines with confirmation of isolation.

Immediately after the completion of AF ablation, the WATCHMAN LAA occlusion procedure was performed by the same operator. The sheath used for ablation was exchanged over a stiff wire (Amplatz, Boston Scientific Corp., Natick, MA) for the WATCHMAN deployment dual curve sheath. After confirmation of LAA ostium size with both angiography and TEE assessment, a 24-mm device was deployed and released. There was no leak visualized acutely after deployment (Figure 1).

Postprocedural anticoagulation

The patient was continued on warfarin postprocedure. She received enoxaparin 0.5 mg/kg 6 hours after the procedure. She was discharged with a planned regimen of 3 months of warfarin and aspirin followed by 3 months of aspirin and clopidogrel. The INR was 2.2 upon discharge.

Postprocedure course

Three weeks postprocedure, the patient returned with heart failure symptoms and AF. A TEE revealed evidence of worsening bioprosthetic aortic valve regurgitation, and thus TEE was performed approximately 25 days postprocedure. This revealed a well-seated WATCHMAN device with no peridevice leak. There was no evidence of left atrial thrombus (Figure 2). However, the patient was noted to have moderate to severe aortic regurgitation. She recovered clinically and was managed as an outpatient. She returned again approximately 10 weeks after the procedure to the outside hospital with recurrent heart failure symptoms and paroxysmal AF. Noted in the admission History and Physical from that hospital was that she was no longer taking warfarin. Notes state that warfarin was discontinued because she was out from her procedure for 45 days. At this point, the outside hospital contacted our facility for her transfer for consideration of transcutaneous aortic valve replacement

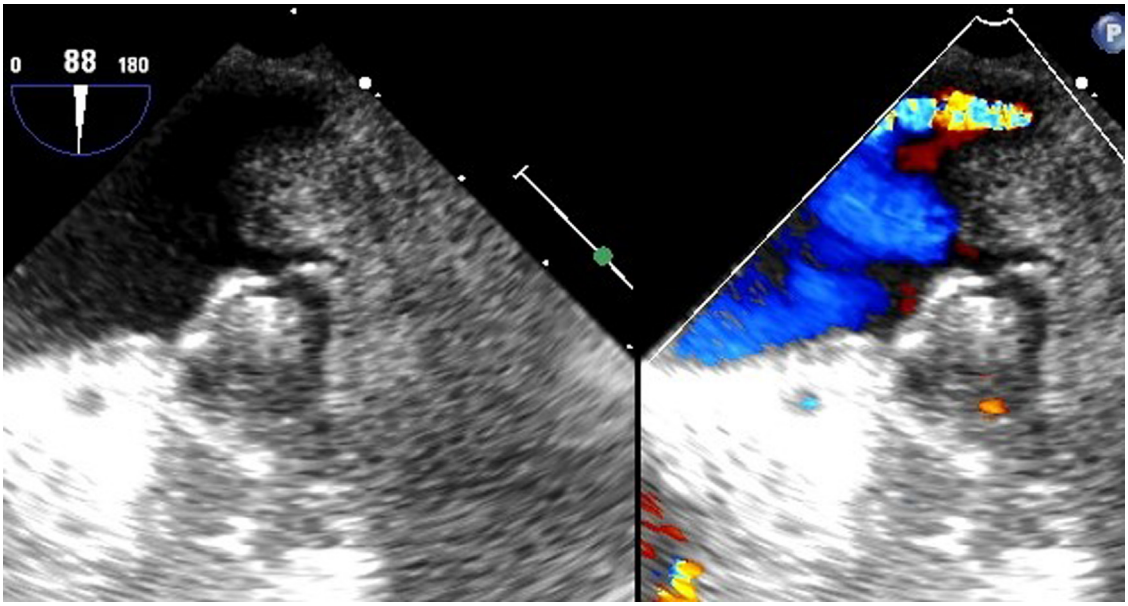

Figure 1 WATCHMAN initial deployment.