

Complete Endothelialization of Watchman Left Atrial Appendage Closure Device Removed During Surgical Aortic Valve Replacement

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Abstract

In June 2012, a 64 years old male with persistent atrial fibrillation (AF) underwent left atrial ablation of AF (circumferential pulmonary veins ablation, roof and posterior wall lines) and left atrial appendage (LAA) closure using the Watchman device. In August 2013 the patient was hospitalized for native aortic valve *staphylococcus bovis* infectious endocarditis. During the aortic valve replacement procedure the Watchman was removed to reduce prosthetic materials inside the patient's heart. The fully endothelialized Watchman device surface was not affected by the infection as shown by bacteriologic analysis.

Keywords

Endothelialization; Left Atrial; Aortic Valve Replacement

Case Report

We are describing a case of a patient with atrial fibrillation treated with AF ablation and LAA percutaneous closure (LAAC) in the same day.

Patient was male, sixty-four years old, with hypertension, ex-smoker, hypercholesterolemia. Significant previous event: surgically treated bladder neoplasm in 2008.

From 1990, he had paroxysmal AF treated twice with electrical cardioversion (ECV), prophylaxis with propafenone. In March 2009, asymptomatic AF was found. Due to CHA₂DS₂-Vasc score=2 and HAS-BLED=2 oral anticoagulation therapy (OAT) was prescribed. AF recurrence after 2 days from the effective ECV and after 1 month of drug therapy gastric erosion with hemorrhage complication occurred. The OAT was interrupted and no antiplatelet therapy was given. AF became persistent in December 2009. Pulmonary vein isolation (PVI) and LAAC with 24 mm Watchman device after trans esophageal echo (TEE) examination were performed in June 2012 (Figure 1). The AF ablation was effective with no complications during both procedures. After the procedures 45 days of OAT and acetylsalicylic acid (ASA) therapy was prescribed. After one month AF recurred.

August 2012, a TEE confirmed correct Watchman position and small flow (<5 mm) was found around the device and OTA was interrupted (CHA₂DS₂-Vasc score=2, HAS-BLED=2). Good general conditions until August 2013 when hospitalization occurred due to persistent fever, worsening conditions and diastolic aortic murmur was observed. A vegetation on aortic valve leaflets with aortic failure during transthoracic echography (TTE) were discovered. TEE images confirmed vegetation on valve associated to leaflets erosion; the Watchman device was in correct original position and no peridevice leaks were found. Blood culture and antibiogram showed *staphylococcus bovis* infection, secondly treated with specific antibiotics. Because of severe aortic regurgitation, surgical aortic valve substitution was requested three weeks after diagnosis: during surgical intervention the Watchman device was documented to be in proper position inside LAA, with no discontinuation of endothelialization (figure 2). LAA surgical closure was performed and the device was removed. Bacteriological analysis of the Watchman device then was negative to the bacterial infection. Two months after the surgery procedure the patient was in good condition. Three years after the patient is very good clinical condition.

Discussion

Hitherto only one case exists in literature about Watchman removal from a patient. Massarenti et al. (1) observed incomplete device endothelialization in a subject who had a cerebral ischemic event ten months after Watchman implant followed by 45 days OAT and ASA + clopidogrel later on. Please note that this paper talks about a Rendu-Osler-Weber patient (HHT), so his hereditary disease may have at least partially caused the incomplete healing.

On the contrary our patient presented no cardio-embolic events within one year post implant without anticoagulant or antiplatelet therapy and the device was completely endothelialized.

The publication by Vilez-Gonzalez (2) states that there is no association between incomplete endothelialization and embolic risk increase (3). In our case, the *staphylococcus bovis* infectious endocarditis was related neither to implant nor presence of device as indicated by bacteriological analysis results. Device was removed only in order to reduce prosthetic materials inside the patient's heart.

Conclusion

This case highlights some important points for further discussion: 1. One year post implant the Watchman device was found completely endothelialized and LAA was completely excluded from blood flow; 2. Complete endothelialization likely played a role in the absence of thrombosis or any other complications even if in presence of variable antiplatelet therapy; 3. The endothelialization may have sequestered the WM device from the systemic bacteriaemia ongoing infection.

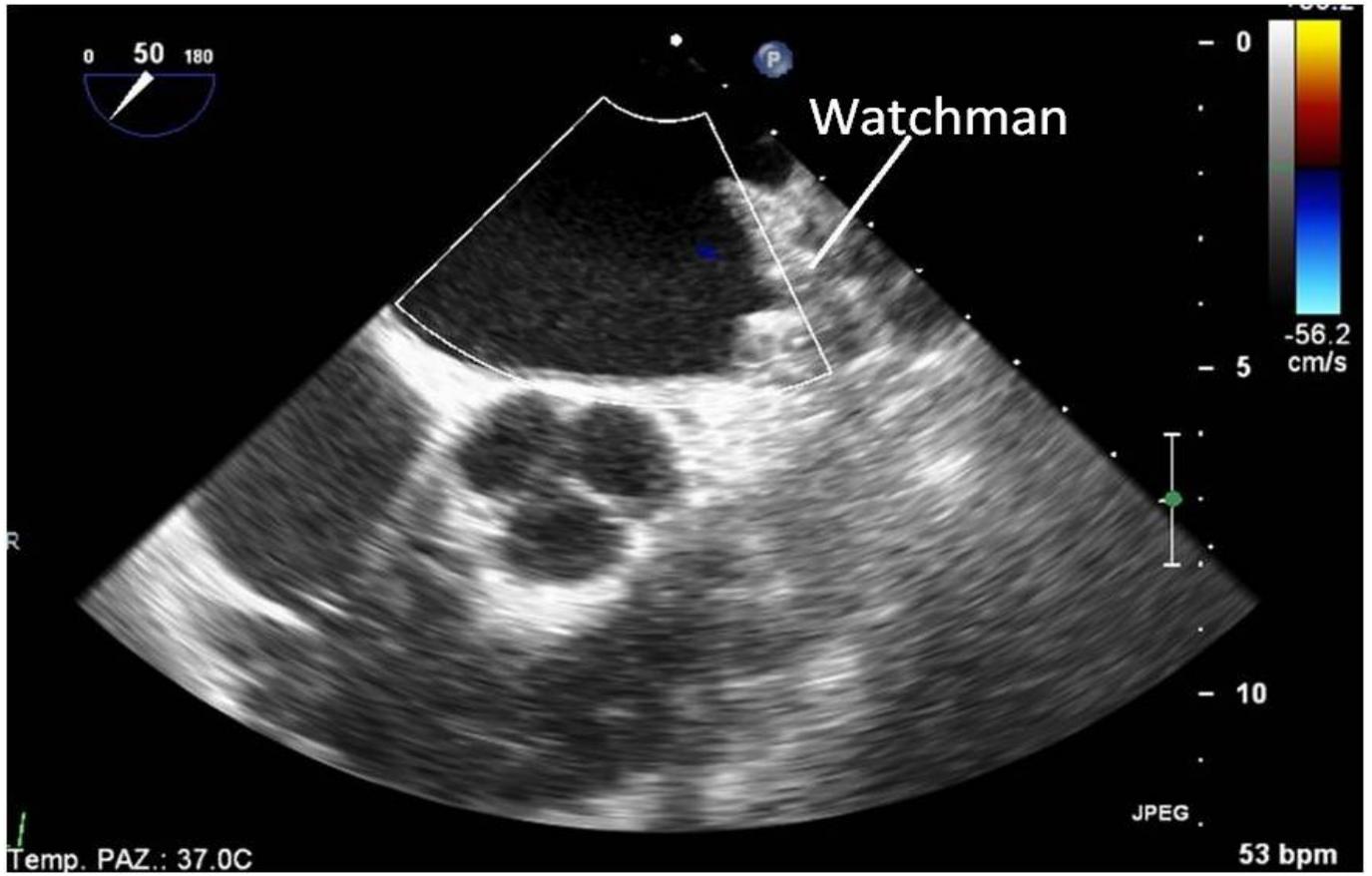


Figure 1



Figure 2

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