CASE REPORT

Percutaneous Retrieval of a Dislodged Watchman Left Atrial Appendage Closure Device

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ABSTRACT

A 46-year-old woman underwent left atrial appendage closure (LAAC) with a Watchman LAAC device. During the procedure, the device embolized into the descending aorta. A new device was implanted to complete the LAAC after the displaced device was successfully snared and removed with the Amplatz Goose Neck™ Snare Kit. The patient recovered well and suffered from no clinical sequelae.

KEYWORDS: left atrial appendage closure; displacement; percutaneous retrieval; embolization

CASE REPORT

A 46-year-old woman with history of persistent atrial fibrillation (CHA2DS2-VASc score 3) underwent left atrial appendage closure (LAAC) with a Watchman® Left Atrial Appendage (LAA) closure device. Pulmonary vein isolation was performed 4 months prior and atrial fibrillation was still documented. Bleeding and transfusion occurred during warfarin treatment due to chronic gastritis. The patient refused to remain on long-term warfarin therapy (HAS-BLED score 3) and agreed to undergo percutaneous LAAC with the WATCHMAN device.

Transesophageal echocardiography (TEE) revealed an LAA ostial diameter of 21 mm and a length of 26 mm before the procedure. After transseptal puncture, a pigtail catheter was positioned in the LAA. A Double Curve WATCHMAN Access Sheath was then tracked over the pigtail into the LAA. The LAA showed "chicken-wing" morphology with a wide ostium. After numerous

TEE measurements of the LAA were made following standard protocol, a first LAA closure device (Watchman, 24mm) was inserted into the anterior-lateral direction and then released. This device was damaged during a recapture and a second (new) LAA closure device (24mm) was then inserted via a posterior-lateral direction and deployed. A tug test was then performed to confirm stability of the device and showed acceptable position with good stability before the device was released. However, shortly after release, the device embolized from the LAA, traveled through the left atrium and mitral valve and into the descending aorta coming to rest near the renal artery (Fig. 1). A third new LAA

Figure 1
Fluoroscopic image of the 24mm Watchman device displaced from the LAA (A) after embolized and came to rest in the descending aorta near the renal artery.
A percutaneous retrieval procedure for the second device was performed soon after the final release of the third LAA device. An 18 Fr sheath was introduced via femoral artery puncture. The Amplatz Goose Neck™ Snare Kit, which contains one Amplatz Goose Neck Snare and one Amplatz Goose Neck Snare Catheter, was advanced to the descending aorta. Initially, alignment of the snare catheter and the embolized device was not optimal and was improved by rotating the catheter. The proximal end of the device was successfully grasped with the snare and then pulled into the sheath on the 3rd (C) or 4th (D) attempt.

Figure 2
Retrieval of the dislodged device with Amplatz Goose Neck™ Snare Kit. The proximal end of the device was grabbed (A). Alignment was facilitated by rotating the catheter (B). The displaced device was successfully grasped with the snare and then pulled into the sheath on the 3rd (C) or 4th (D) attempt.

Figure 3
The original device and the retrieved device (right white arrow) with the same size. The retrieved device was significant deformed.

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Percutaneous closure of the left atrial appendage (LAAC) is a valid alternative to oral anticoagulation in non-valvular atrial fibrillation (NVAF) patients with contraindications for long-term oral anticoagulants (OAC) due to previous major bleeding or high-bleeding risk [1]. Device embolization is a rare complication of LAAC procedures [2-4]. Most cases of embolization occur during hospitalization with a majority of embolizations being intraprocedural [5]. These findings support that routine TEE should be performed during the procedures. In a review of 21 embolization cases, 9 cases showed embolization into the aorta, 9 cases showed embolization into the left ventricle (LV) and 3 cases showed embolization into the left atrium. In these cases, device embolization into the LV was associated with a higher rate of surgical retrieval when compared to embolization into the aorta or the left atrial cavity (8 of 9, or 88%, vs 2 of 12, or 17%; P=0.0019). In ten additional reported cases, no anatomical location was mentioned [5]. Percutaneous retrieval of embolized devices was usually successful by snare. In some cases, a 30mm snare with a 24 Fr sheath was used for retrieval [6], while in this case, an 18 Fr sheath was used. It was time-consuming to use a snare to grab the embolized device. We found that the proximal end of the device, rather than the waist, is the preferred location to grab with the snare and stabilize. While mechanisms for embolization are rarely reported, device undersizing is one potential cause [7]. All the device release criteria and tug test were verified in our patient. The reason for embolization remains unknown.
REFERENCES


DECLARATION OF INTEREST

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