

IMAGES IN INTERVENTION

A Double-Snare Technique for Safe Retrieval of Embolized Left Atrial Appendage Occluders



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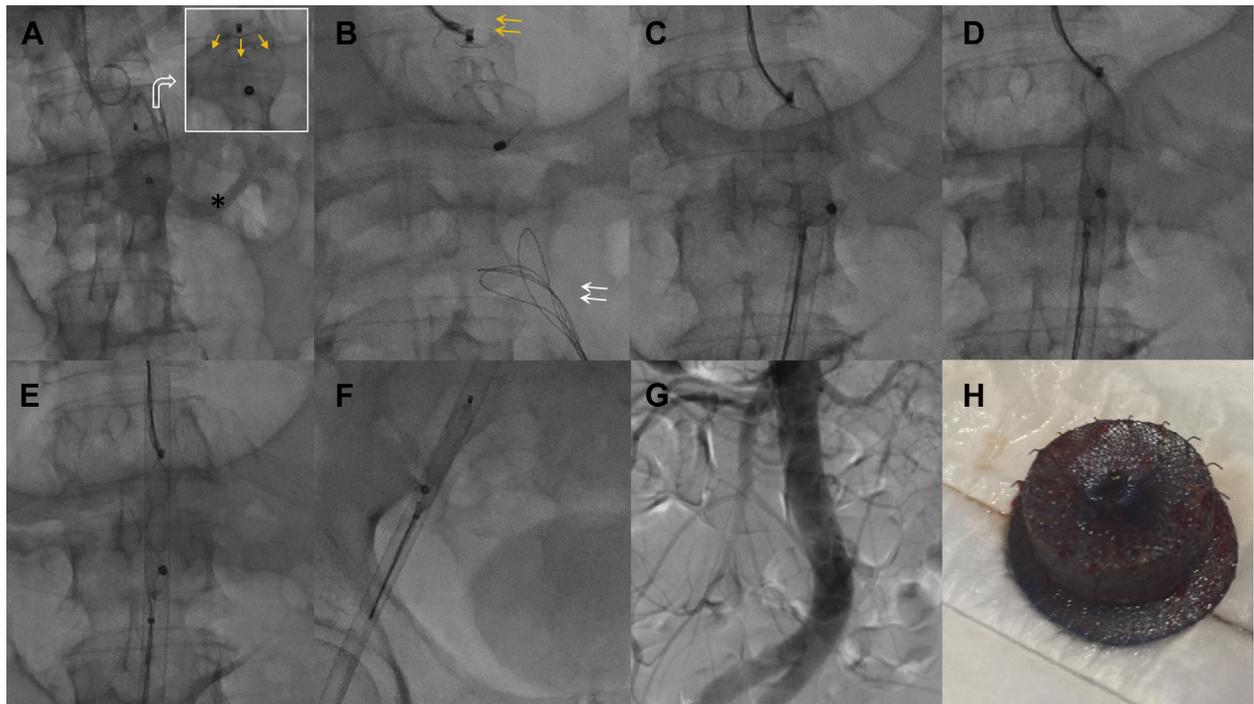
A 71-year-old patient with hypertension, hyperlipidemia, diabetes, and atrial fibrillation, CHADVASC2 score of 3, and HASBLED score of 4, was referred for a left atrial appendage occluder (LAAO) implantation. He has been intolerant to oral anticoagulation because of recurrent epistaxis. After a multidisciplinary team evaluation, the patient underwent an implantation of a 20-mm AMPLATZER Amulet LAAO (St. Jude Medical, St. Paul, Minnesota). Post-Implant day 1, the patient developed a short run of asymptomatic nonsustained ventricular tachycardia. Chest radiograph suggested migration of the LAAO from the appendage. Fluoroscopy revealed the lodging of the embolized device in the mid-abdominal aorta at the level of the renal arteries (**Figure 1A**, [Online Video 1](#)).

Concerns about percutaneous retrieval were raised because the barbs of the device were pointing caudally (**Figure 1A**, insert). A novel method was used to ensure safe percutaneous retrieval of the device. The button of the cephalic disk was snared with a 12-to-20-mm EnSnare (Merit, South Jordan, Utah) advanced inside a 7-F catheter right coronary guiding catheter via a right radial artery approach. The caudal disk of the device was snared with a 18-to-30-mm EnSnare advanced inside a 20-F catheter CheckFlo sheath

(Cook, Bloomington, Indiana) via a right common femoral artery approach (**Figure 1B**, [Online Video 2](#)). Bidirectional tugging was applied on both of the snares to stabilize the cranial disk in place and prevent distal migration and possible damage to the aorta with the barbs, and elongate the device and facilitate its retrieval (**Figure 1C**). The CheckFlo sheath was then advanced into the slenderized device, and the device was removed from the body (**Figures 1D and 1E**, [Online Video 3](#)). Repeat abdominal aortic angiography showed no vascular complications (**Figures 1G and 1H**, [Online Video 4](#)). A 25-mm Amulet LAAO was implanted on day 4, and the patient was discharged home on day 5 without further complications.

Device embolization into the aorta is an uncommon complication of LAAO implantation (1-3). Percutaneous retrieval can be challenging because of the potential risk of vascular wall damage with the device's barbs. A double snare technique can be used to avoid this risk and ensure safe percutaneous retrieval.

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FIGURE 1 Percutaneous Retrieval of the Embolized Left Atrial Appendage Occluder

(A) The embolized Amulet device is seen in the mid-abdominal aorta at the level of the renal arteries (**asterisk**). The down-pointing direction of the device's barbs is depicted by the **yellow arrows** in the insert (**white box**) ([Online Video 1](#)). **(B)** Snaring of the cephalic disk (**yellow arrows**) and the caudal disk (**white arrows**) ([Online Video 2](#)). **(C)** Engulfing of the stabilized and slenderized device with the 20-F catheter sheath ([Online Video 3](#)). **(D)** Removal of the device from the body. **(E to G)** Post-removal aortogram confirming no vascular complications ([Online Video 4](#)). **(H)** The retrieved Amulet device.

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APPENDIX For supplemental videos and their legends, please see the online version of this article.