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IMAGES AND VIGNETTES IN CLINICAL ELECTROPHYSIOLOGY

Percutaneous Retrieval of an Embolized Amulet Device From the Aorta Using a Novel Retrieval System

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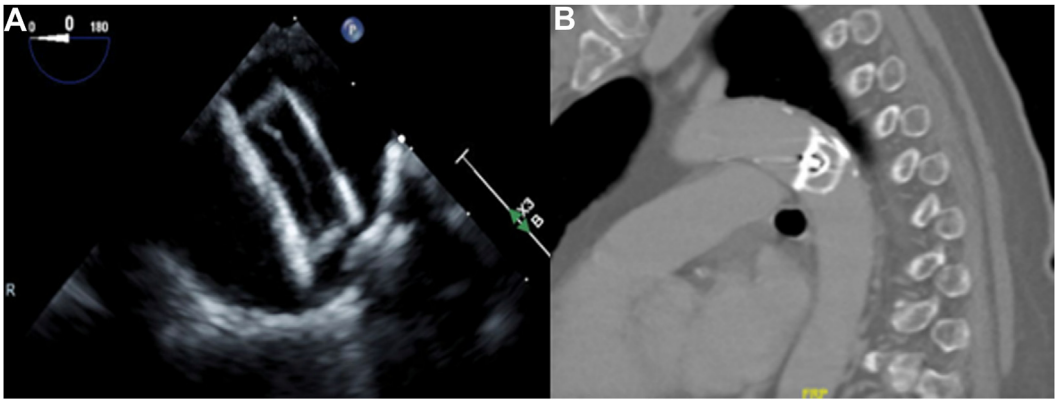
The feasibility of percutaneous retrieval of embolized Amulet (Abbott) devices is fraught with challenges because of the disc, lobe, and barb configuration. It is even more challenging to remove safely if the device has been within the vasculature for an extended period of time. We report, to our knowledge, the first percutaneous use of the ŌNŌ retrieval system (ŌNŌCOR LLC) for removing an embolized Amulet device (Figures 1 and 2). The ŌNŌ conveys several advantages for the safe retrieval of malpositioned devices. The large basket expands to fill the vessel lumen, making it easier to capture and align the target device coaxially with the introducer sheath. The basket helps to reduce the likelihood of inadvertent cardiac or vascular tissue injury during

FIGURE 1 Amulet Device Dislodged in Aortic Arch



An 84-year-old woman with atrial fibrillation and recurrent gastrointestinal bleeding on oral anticoagulation therapy underwent left atrial appendage occlusion with a 22-mm Amulet (Abbott). (A) On the 45-day postimplant transesophageal echocardiogram, the device was incidentally found in the aortic arch distal to the origin of the left subclavian artery. (B) Urgent computed tomography angiography of the aorta revealed that the device disc was oriented cranially and the device lobe caudally. The distal aortic arch diameter (25 mm) were smaller than the Amulet disc (28 mm), likely explaining this location of the embolized device.

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The authors attest they are in compliance with human studies committees and animal welfare regulations of the authors' institutions and Food and Drug Administration guidelines, including patient consent where appropriate. For more information, visit the Author Center.

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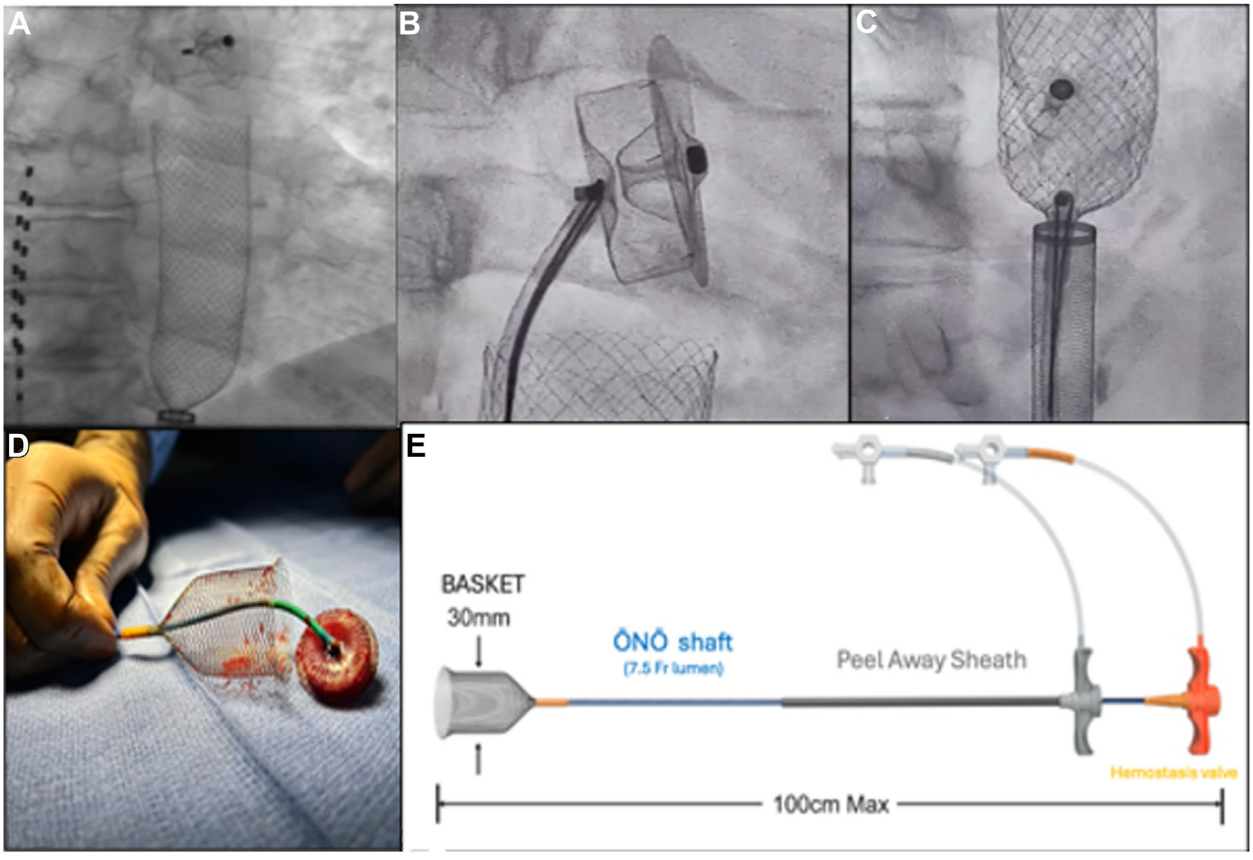
FIGURE 2 Percutaneous Retrieval Steps



(A) For percutaneous retrieval, we preclosed the right femoral artery and inserted a 65-cm 24-F Gore Dryseal and parked it just below the Amulet device. The ŌNŌ retrieval system (ŌNŌCOR LLC) (12-F outer diameter) was advanced to the tip of the Gore Dryseal and then unsheathed (35-mm basket) (Video 1). (B) A 7-F multipurpose guide and a 20-mm Gooseneck snare were inserted through the ŌNŌ device (7.5-F inner lumen). The Amulet was snared by capturing the distal screw while working in a right anterior oblique fluoroscopic projection that allowed the best visualization (Video 2). (C) Once contained within the belly of the ŌNŌ basket, the snared Amulet and ŌNŌ basket were pulled as one unit into the Dryseal sheath and ultimately externalized (Video 3). (D) The Amulet and ŌNŌ basket retrieved. (E) Components of the ŌNŌ basket.

device manipulation and provides a mechanical advantage for compressing targeted objects to a smaller size because the longitudinal "pull force" applied outside of the body is translated into a radial compressive force inside the vasculature by the ŌNŌ basket.

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APPENDIX For supplemental videos, please see the online version of this paper.