

Peri-interventional embolization of left atrial appendage occlusion devices: two manoeuvres of successful retrieval

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In patients with contraindication for oral anticoagulation therapy, e.g. previous history of severe bleeding events, interventional occlusion of the left atrial appendage (LAA) represents an alternative to oral anticoagulation for the prevention of cardioembolic stroke.¹ This case report describes two bail-out manoeuvres of successful retrieval of dislodged LAA occlusion devices.

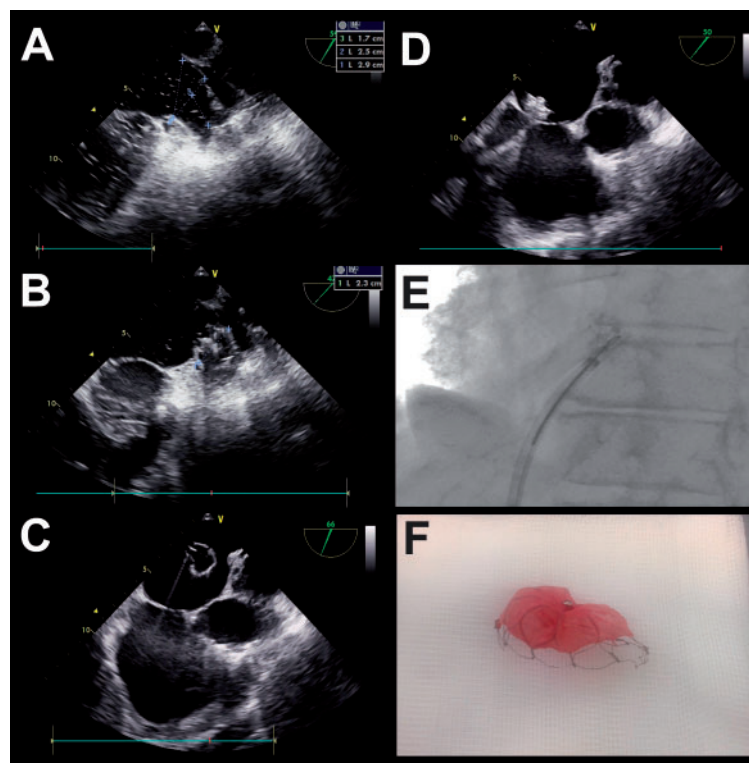


Figure 1 (A) Landing zone of severely angulated chicken-wing-shaped left atrial appendage assessed by transoesophageal echocardiography. (B) Watchman device implanted in left atrial appendage. (C) Dislodged device within the left atrium. (D) Snaring and retrieval via trans-septal atrial sheath. (E) Retrieval of the device into the right atrium assessed by fluoroscopy. (F) Successfully retrieved dislodged device extracorporeally.

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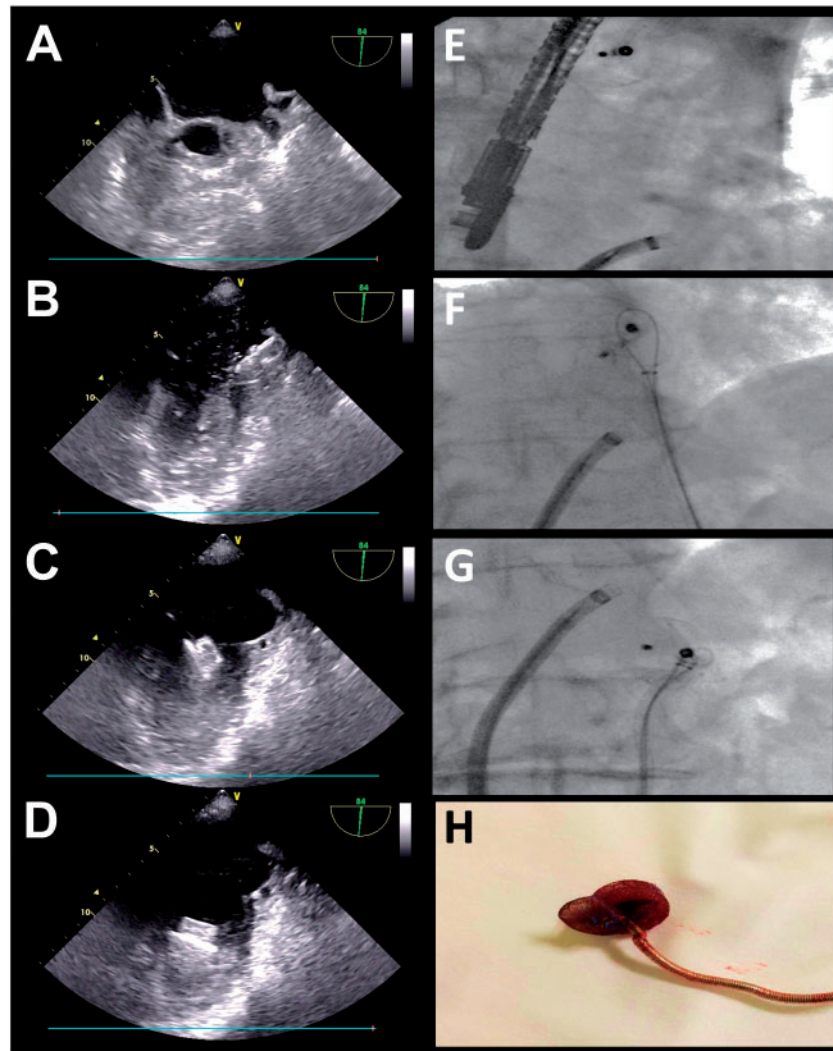


Figure 2 (A) Landing zone of a small bilobular and cauliflower-shaped left atrial appendage assessed by transoesophageal echocardiography. (B) AMPLATZER Amulet device implanted in left atrial appendage. (C and D) Dislodged device being flushed into the left ventricle assessed by transoesophageal echocardiography. (E) Device embolized into descending aorta assessed by fluoroscopy. (F and G) Snaring of embolized device via arterial access from the right femoral artery. (H) Successfully retrieved dislodged device extracorporeally.

A WATCHMAN™ (WM) LAA closure device (Boston Scientific, Natick, USA) was implanted in an 82-year-old woman with known persistent atrial fibrillation and a history of recurrent relevant occult gastrointestinal bleeding and oral anticoagulation with phenprocoumon (CHA₂DS₂-VASc score: 5; HAS-BLED score: 4). The landing zone for the device within the LAA had a maximum diameter of 18 mm (Figure 1A). Firstly, implantation of a WM device of 30 mm size was unsuccessful due to the chicken-wing morphology of the LAA. Thereafter, a 24 mm device was initially implanted successfully (Figure 1B). After successful tug-testing and release of the device, it suddenly dislodged after 3 minutes spontaneously, as being assessed both by fluoroscopy and transoesophageal echocardiography (TOE). The device remained rolling within the left atrium (Figure 1C). Successful retrieval of the WM device was performed by introducing a 25 mm snare into the still positioned trans-septal atrial sheath

(14 Fr), and pulling it backwards within the sheath as far as possible (Figure 1D and E; Supplementary material online, Video S1). Within a final pull-back manoeuvre all devices (i.e. atrial-septal sheath, snare, and WM device) were retrieved retrogradely and out of the body via the inferior vena cava and femoral vein (Figure 1F). Access site closure was performed by a Z-suture and manual compression.

The second patient was an 83-year-old man with known persistent atrial fibrillation (CHA₂DS₂-VASc score: 3; HAS-BLED score: 4) and a history of severe upper gastric bleeding under oral anticoagulation with phenprocoumon. The decision was made to implant an AMPLATZER™ Amulet™ (AA) device (St. Jude Medical, Plymouth, MN, USA) into the double-lobed LAA with cauliflower morphology (Figure 2A). The landing zone width was measured with a diameter of 18 mm and an AA device of 21 mm size was chosen for implantation for the very small and flat double-lobed LAA. However, after initial

successful implantation (Figure 1B), tug-testing and final release, the AA device dislodged spontaneously after some minutes, which was also documented on fluoroscopy and TOE (Figure 2C–E; [Supplementary material online, Video S2](#)). The AA device progressed into the left atrium, while the arterial blood stream flushed the device further on into the left ventricle over the mitral valve. It remained in the left ventricle for about 10 seconds and finally migrated through the aortic arch down to the descending aorta, where the device was finally detected by fluoroscopy. An arterial 8 Fr access sheath was introduced into the right femoral artery. A snare (20 mm) was created with a double-fold exchange wire. The snare was introduced retrogradely into the descending aorta (Figure 2F) and the AA device was caught within the snare (Figure 2G). Within one pull-back manoeuvre the snared AA device was retrieved extracorporally without any further harm to the arterial puncture site.

These two cases demonstrate a possible complication of percutaneous LAA occlusion. The rate of early device embolization is low,² but the intervention needs to be performed by experienced operators to prevent or, if necessary, to handle this severe periprocedural complication. Additionally, preprocedural TOE is essential for selection of patients with favourable LAA morphology and appropriate device sizing. Periprocedural TOE plays a pivotal role in guiding device implantation and handling of procedural complications.

Supplementary material

Supplementary material is available at *European Heart Journal - Case Reports* online.

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Consent: The author/s confirm that written consent for submission and publication of this case report including image(s) and associated text has been obtained from the patient in line with COPE guidance.

Conflict of interest: none declared.

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