

Twine and Twine or Lose the Plug- Dislodged Left Atrial Appendage Closure Device

Atul Mathur¹ and Ranjan Modi^{2*}

¹Senior Consultant, Fortis Escorts Heart Institute, India

²Associate Consultant, Fortis Escorts Heart Institute, India

*Corresponding author: Ranjan Modi, Associate Consultant, Fortis Escorts Heart Institute, India

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Abstract

Embolization is a known complication of LAA closure. It may be caused by insufficient anchoring of the device to the appendage or to the delivery system. We present a case of embolization of amplatz cardiac plug.

Keywords: Amplatz cardiac plug; Left atrial appendage occlusion; Device embolization

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A 70-year-old hypertensive male, post CABG and post PTCA presented with permanent AF and history of cardio embolic stroke (CHA₂DS₂-VASc score 5) with a significant bleeding risk (HAS BLED score 4). The patient was planned for percutaneous Left Atrial Appendage occlusion (LAAO) using a 28mm Amplatz cardiac plug (ACP). The device after being loaded on the cable, was advanced into the sheath that was placed trans-septally into the Left Atrial Appendage (LAA) (Figure 1). A final check before advancing the device into LAA was a mandatory tug to the cable to ensure that the plug was securely connected to it. During this tug the ACP device was found disconnected from the cable shaft (Figure 2). At this moment we were left with two options: first was to entirely withdraw the

sheath along with the dislodged plug followed by a fresh vascular access as well as a repeat puncture of the atrial septum; or the second option was to snare the plug out while retaining the trans-septal position of the sheath. We chose the second option and using a snare (Figure 3) we retrieved the device by holding its proximal hub, and once out we were able to reload it securely on the cable shaft for reuse. Device embolization is a well-known complication of LAA closure with an average reported rate of less than 4% [1,2] mainly caused by insufficient anchoring. Most of them could be retrieved by snares looping techniques [3]. Embolization of the device can also happen if it is inadequately mounted on the cable shaft. A final mandatory tug given before advancing the plug out of the sheath prevents such eventuality.

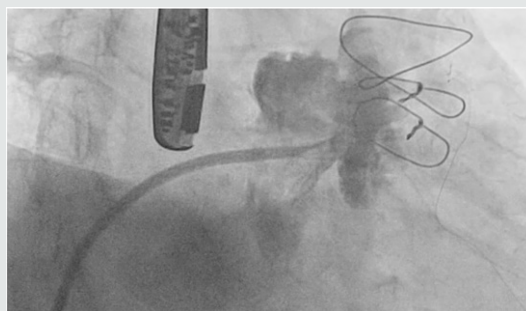


Figure 1: The sheath placed trans-septally into the Left Atrial Appendage (LAA).

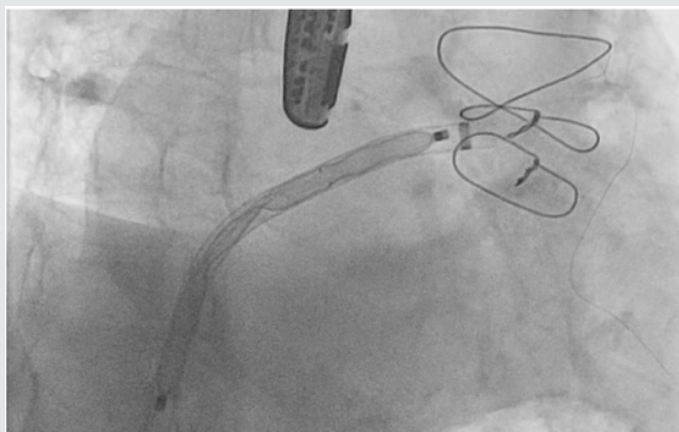


Figure 2: The ACP device found disconnected from the cable shaft.



Figure 3: Retrieval of the device by snare.

The following are the defined steps for ACP plug preparation:

- a) Immerse device & hub end of loader in sterile saline to remove air.
- b) Actively manipulate device in saline by hand to eliminate air bubbles on device.
- c) Pull loading cable vice until lobe is fully retracted within loader, & stop before disc is recaptured
- d) Insert distal end of delivery cable through haemostasis valve.
- e) Connect delivery cable to exposed proximal end screw of device.
- f) Grasp hub & rotate delivery cable clockwise until device is fully threaded on delivery cable.
- g) Rotate delivery cable counter clockwise 1/8 of one turn to ensure that cable is not over tightened.

Numerous complications can be avoided if these steps are the done carefully and with utmost attention to every minute detail. In our case, we assume that excessive reverse rotation of the cable might be responsible for the device being loosely connected to the cable which got easily disconnected by the tug.

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