

IMAGES IN INTERVENTION

First Experience With Successful Percutaneous Retrieval of Retained-Fractured Impella Device



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A 50-year-old man underwent successful high-risk percutaneous coronary intervention in the setting of non-ST-segment elevation myocardial infarction and cardiogenic shock. An Impella CP device (Abiomed Inc., Danvers, Massachusetts) was implanted via the right femoral artery. Soon after the case was finished, the patient became agitated and was moving forcefully on the cath lab table causing the Impella alarm to be set off, indicating that it had moved out of the left ventricle.

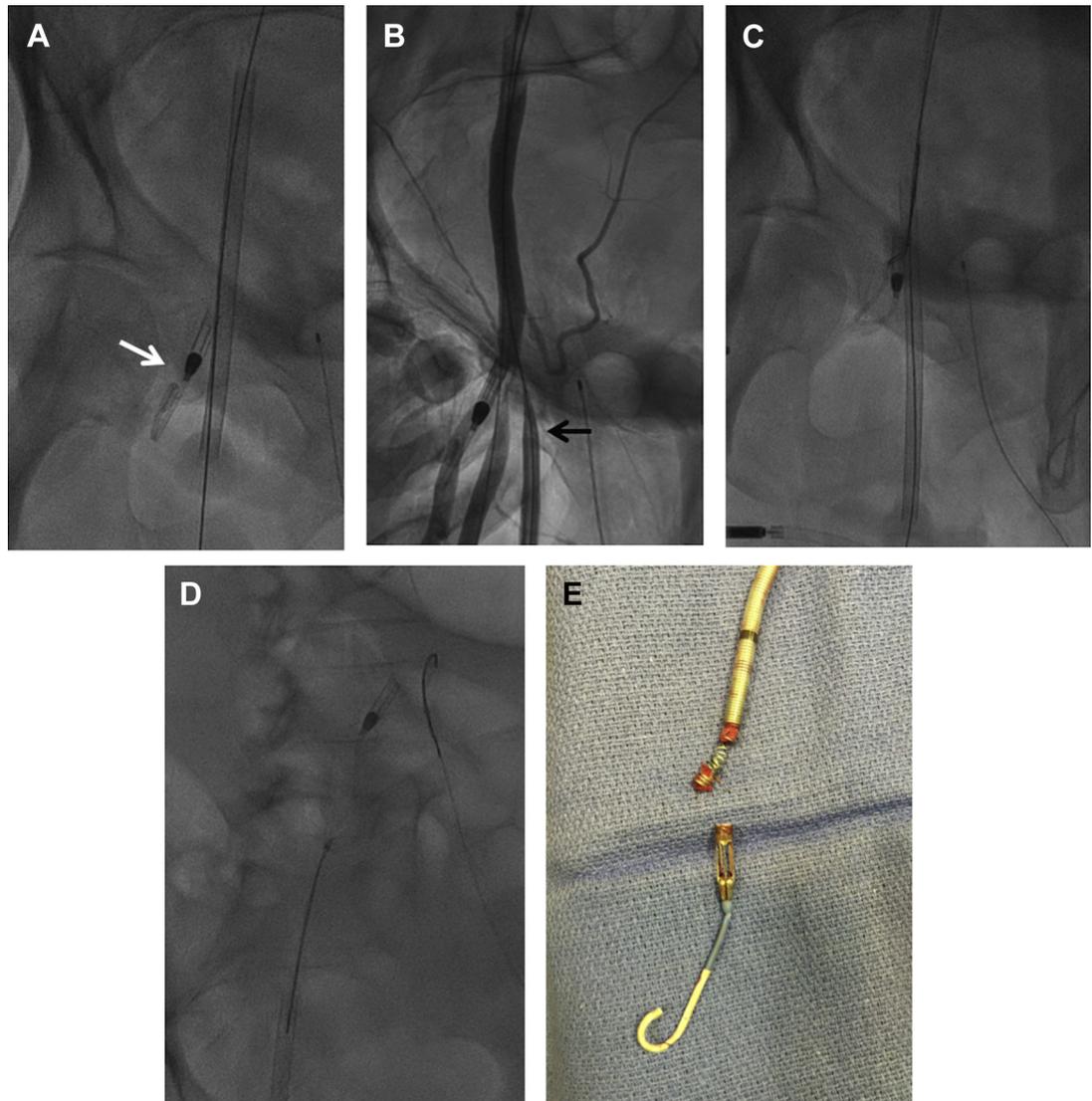
Multiple attempts to advance the Impella device back into the left ventricle were unsuccessful. During one such attempt, the Impella device buckled at the angle between the inlet and outflow areas. The decision was then made to remove the Impella device and exchange it for a new one. As the Impella device was being pulled out through the repositioning sheath (a tapered sheath from 15-F to 9-F), the tip was fractured at the junction of the cannula and the inlet area and retained in right common femoral artery. The retained fragment subsequently

embolized into the proximal right deep femoral artery (**Figures 1A and 1B**).

In an attempt to percutaneously retrieve the fractured Impella tip, the left common femoral artery was accessed. A 6-F 45 cm Destination sheath (Terumo Interventional Systems, Somerset, New Jersey) was advanced over a wire and positioned in the right common iliac artery. The repositioning sheath in the right common femoral artery was then exchanged for a 14-F Impella sheath. A 12 to 20 EN Snare device (Merit Medical Systems, Inc., South Jordan, Utah) was advanced through the 6-F Destination sheath and used to snare the Impella tip up to the right common iliac artery (**Figure 1C, Online Video 1**). A 27 to 45 EN Snare system was then advanced through the 14-F sheath into the right common iliac artery. After multiple attempts, we were able to successfully snare the Impella tip and externalize it through the 14-F sheath (**Figures 1D and 1E, Online Video 2**). A new Impella CP device was then successfully placed through the right common femoral artery.

From the Tulane University Heart and Vascular Institute, New Orleans, Louisiana. Dr. Abi Rafeh has served as a consultant, speaker, and proctor for Abiomed and Boston Scientific. All other authors have reported that they have no relationships relevant to the contents of this paper to disclose.

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FIGURE 1 Percutaneous Retrieval of Retained Fractured Impella Device

(A) Fluoroscopy showing the retained fractured tip (**white arrow**) in the right deep femoral artery. (B) Angiography through contralateral access with the 14-F sheath (**black arrow**) withdrawn and manual compression at the access site. (C) Snaring of the fractured tip through contralateral access ([Online Video 1](#)). (D) Successful capture and snaring of the fractured tip in the right common iliac artery ([Online Video 2](#)). (E) Fractured Impella device after retrieval.

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KEY WORDS foreign body, left ventricular assist device

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