

## IMAGING VIGNETTE

ADVANCED

## CLINICAL VIGNETTE

# Impaction of a Percutaneous Heart Pump in Iliac Artery and Its Removal Using Snare



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## ABSTRACT

In the process of forceful pulling out of an entangled placement guidewire, the percutaneous heart pump catheter folded in on itself and, on withdrawal farther down in the aorta, became impacted in the right common iliac artery. We describe the removal of this impacted catheter with the help of snare. **(Level of Difficulty: Advanced.)** (J Am Coll Cardiol Case Rep 2021;3:1610-1611) © 2021 The Authors. Published by Elsevier on behalf of the American College of Cardiology Foundation. This is an open access article under the CC BY-NC-ND license (<http://creativecommons.org/licenses/by-nc-nd/4.0/>).

A 74-year-old man presented with exertional angina and congestive heart failure. Coronary angiography showed high-grade stenosis of the left anterior descending artery (LAD)-first diagonal branch (D1) bifurcation with severe left ventricular (LV) dysfunction and an ejection fraction of 25%. We decided to perform protected percutaneous coronary intervention.

After positioning of the 0.018-inch diameter, 260-cm placement guidewire in the left ventricle, we advanced the Impella CP catheter (Abiomed) into the LV chamber. On pulling out the guidewire, we felt undue resistance. More forceful pulling led to a sudden snapping movement as the wire became severed near the spring end. Fluoroscopy revealed a twisted catheter in the descending aorta, folded in on itself distal to the motor housing with the entangled radiopaque broken end of the placement wire jutting out in the outlet area. On pulling the catheter down farther, it bent again at the cannula region and became impacted in the right common iliac artery (**Figures 1A and 1B, Video 1**).

The only way to unfold and straighten the catheter was to untangle it from the iliac artery by snaring the pigtail and pulling it back millimeter by millimeter into the aorta (which could offer more space) and then unfold it by pulling the pigtail upward while fixing the catheter shaft outside the introducer sheath. This we did by using an EN Snare (Merit Medical Systems) 18- to 30-mm snare in a 7-F multipurpose guide catheter through right brachial access (**Figures 1C to 1E, Videos 2, 3, and 4**). We then removed the straightened catheter through the introducer sheath. The extracted catheter revealed the detached spring end of the placement wire projecting out of the catheter at the outlet area near the motor housing and a kink in the white shaft just distal to the motor housing (**Figure 1F**). Our backup plan in case of failure to extract the catheter interventionally was surgery.

To conclude, never pull the placement guidewire blindly if inexplicable resistance is encountered. Fluoroscopic guidance should be used liberally during the entire introduction and removal of the device. Avoid

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kinking the guidewire by pushing it too deeply around the LV apex, and fix it properly at the sheath during catheter advancement. Meticulous attention should be paid to the indication for large-bore mechanical circulatory support devices. In this case, we chose to use a percutaneous LV support system because of the highly reduced LV function and a large area of supply of the LAD and D1.

**ABBREVIATIONS  
AND ACRONYMS**

**D1** = first diagonal branch  
**LAD** = left anterior descending artery  
**LV** = left ventricular

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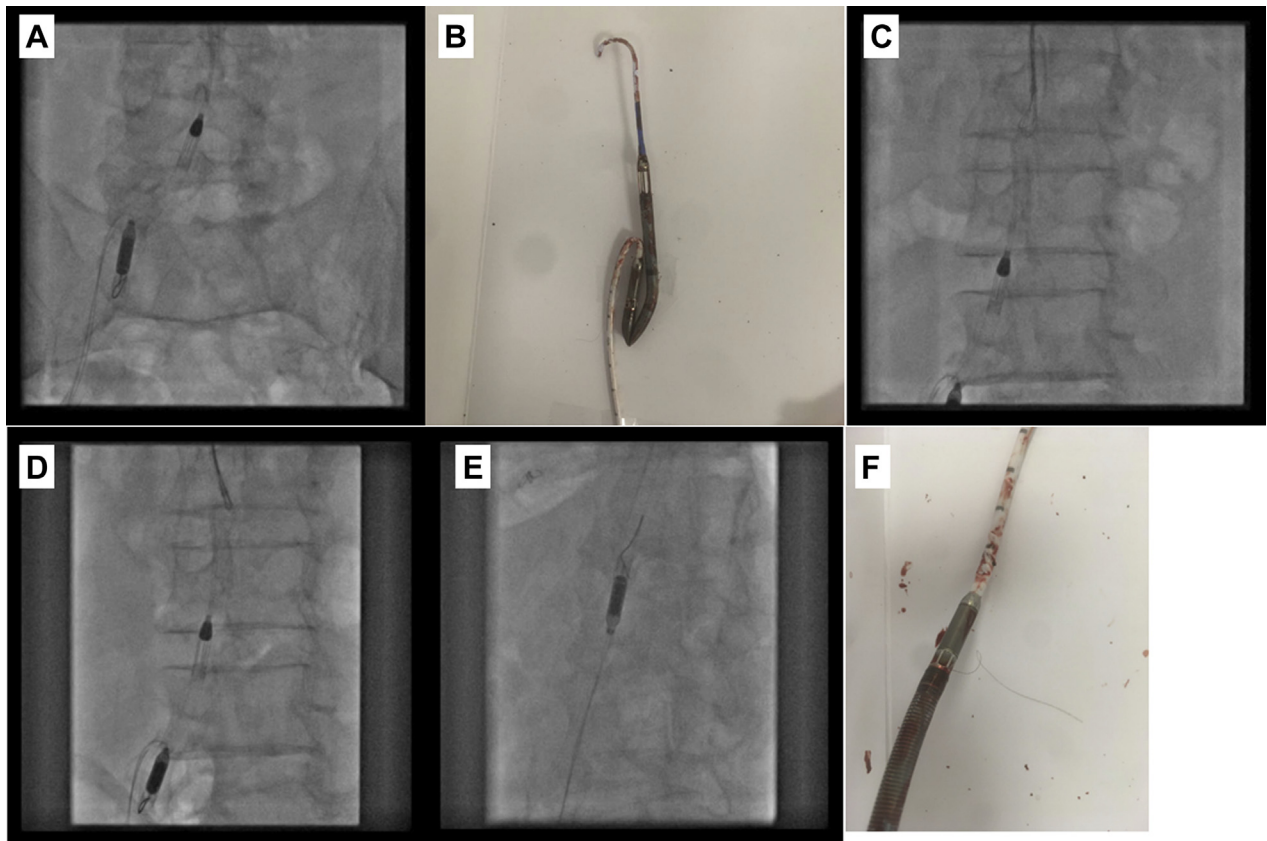
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**KEY WORDS** catheter, impaction, PCI, percutaneous coronary intervention, percutaneous heart pump

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

**FIGURE 1** Impaction and Removal of a Percutaneous Heart Pump



**(A)** The impacted percutaneous heart pump catheter in the right common iliac artery. **(B)** The extracted catheter folded to simulate the manner in which it became impacted in the iliac artery. **(C)** Placement of snare at the pigtail. **(D)** The snared heart pump pigtail being pulled upward. **(E)** The straightened heart pump catheter. The detached radiopaque spring end of the placement guidewire is seen entangled at the outlet area near the motor housing. **(F)** The extracted heart pump catheter.