

## Title: More Than Meets The Eye: An Unusual Presentation of Axillary IABP Complication

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Background and aim: Intraaortic balloon pump (IABP) support is used in patients with cardiogenic shock as a method of hemodynamic support to maintain adequate organ perfusion until clinical recovery, cardiac transplant or left ventricular assist device.<sup>1</sup> IABP placement via the axillary artery is a safe and effective alternative approach that is utilized to minimize deconditioning and enable ambulation.<sup>2</sup> The most encountered complication is malposition occurring in 44%<sup>1</sup> of all patients and early recognition of IABP complications is key to avoid adverse patient outcomes.

### Case presentation:

A 52-year old male presenting with cardiogenic shock following an acute anterior myocardial infarction was found to have multivessel coronary artery disease not amenable to percutaneous coronary intervention, an EF of 10% and abundant scar on cardiac MRI. He was stabilized with a transfemoral intraortic balloon pump as mechanical circulatory support pending evaluation for advanced heart failure therapies. Unfortunately, his hospital course was prolonged due to lack of insurance. To improve mobility and limit deconditioning, he was transitioned to a balloon pump via the right axillary artery while awaiting authorization of emergency Medicaid. Position of the IABP was confirmed daily with surveillance x-rays. Days later, he developed low augmented mean arterial pressures on the IABP without evidence of hypoperfusion and normal mean arterial pressure on arterial line. Given persistently low augmented MAPs and sensor errors on the IABP, a chest CT was obtained that demonstrated the distal portion of the IABP terminating approximately four centimeters within the superior mesenteric artery. The malpositioning was not demonstrated on single view surveillance x-rays due to the posterior take-off of the SMA from the abdominal aorta. Given concern for impending mesenteric ischemia, he was urgently taken to catheterization laboratory for IABP repositioning without complication. Weeks later, he subsequently underwent successful LVAD implantation.

### Conclusion:

This case reports highlights an uncommon presentation of a common complication of IABP. Practitioners should have a low index of suspicion and understand the limitations of the methods utilized to diagnose these complications to reduce adverse events and improve patient outcomes.

### References:

1. Estep JD, Cordero-Reyes AM, Bhimaraj A, et al. Percutaneous placement of an intra-aortic balloon pump in the left axillary/subclavian position provides safe, ambulatory long-term support as bridge to heart transplantation. *JACC Heart Fail* 2013;1:382–8
2. Jerry D. Estep, Andrea M. Cordero-Reyes, Arvind Bhimaraj, et al. Percutaneous Placement of an Intra-Aortic Balloon Pump in the Left Axillary/Subclavian Position Provides Safe, Ambulatory Long-Term Support as Bridge to Heart Transplantation. *J Am Coll Cardiol HF*. 2013 Oct, 1 (5) 382-388.
3. Cheng J.M., den Uil C.A., Hoeks S.E., et al. (2009) Percutaneous left ventricular assist devices vs. intra-aortic balloon pump counterpulsation for treatment of cardiogenic shock: a meta-analysis of controlled trials. *Eur Heart J* 30:2102–2108