**Introduction**

Intra-aortic balloon pumps (IABP) are mechanical support devices used to mitigate the effects of cardiogenic shock. Axillary placement is utilized to promote ambulation and prevent deconditioning. When placed via the axilla, however, there are complications that are unique to its anatomical position, including neurologic and extremity ischemia.

The following case illustrates a rare consequence of axillary placement: migration of the IABP in the setting of venoarterial extracorporeal membrane (VA-ECMO) cannulation.

**Case Presentation**

A 66-year-old male with mantle radiation-induced and subsequent ischemic cardiomyopathy presented with progressive dyspnea on exertion and was found to be in cardiogenic shock. The patient was started on a Milrinone infusion. An expedited heart transplant evaluation was initiated. After a screening colonoscopy, he developed angina refractory to nitroglycerin infusion therefore an axillary IABP was placed to improve coronary perfusion. He subsequently had a PEA arrest and was emergently placed on VA-ECMO.

Six hours later, he became hemodynamically unstable with increasing pressor requirements and low-flow alarms noted on his ECMO circuit. Initial chest radiograph was non-diagnostic. A bedside echocardiogram performed approximately ten hours post VA-ECMO cannulation showed the IABP traversing the aortic valve with evidence of ventricular migration (Figure 1). A repeat chest radiograph confirmed that the IABP had migrated into the left ventricle (Figure 2). Once recognized, the IABP was removed. His clinical status improved significantly following removal. His pressor requirement gradually decreased.

**Discussion**

This case illustrates potential outcomes of axillary IABP use in patients cannulated on VA-ECMO. The anatomic location of axillary IABPs has previously been noted to have higher rates of device migration, particularly with increased movement. Another group has suggested that retrograde flow from the ECMO circuit may increase the likelihood of device migration, something that we believe contributed to its occurrence in our patient, as IABP migration was temporally associated with VA-ECMO cannulation.

The misplaced IABP caused a decrease in left ventricular end-diastolic volume and therefore in cardiac output, explaining the patient’s hypotension. It is important to maintain a high index of suspicion for IABP migration in hemodynamically unstable patients on VA-ECMO as they are critically ill and may have multiple etiologies for clinical deterioration.

We suggest the use of bedside echocardiograms in addition to chest radiographs as a means of confirming IABP device migration. This case report hopes to shed light on rarer complications of IABP use and encourage clinicians to use easily-accessible tools to promptly evaluate decompensating patients for potentially reversible causes.

**References**


**Clinical Images**

Figure 1. Echocardiogram displaying migration of the balloon pump (yellow) through the aortic valve (red) at the level of the aortic root.

Figure 2. Presence of balloon pump within the left ventricular cavity with the inflated pump outlined in red with a red circle designating the radiopaque marker.