

IMAGES IN INTERVENTION

Case of Percutaneous Extracorporeal Femoro-femoral Bypass for Acute Limb Ischemia From Large Bore Access

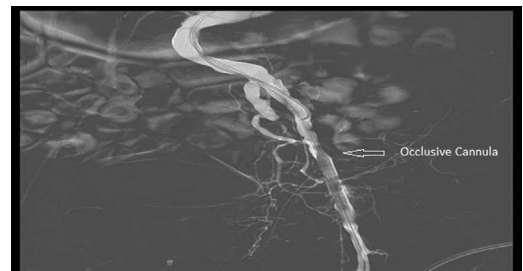
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An 80-year-old man presented with acute inferior ST-segment elevation myocardial infarction and cardiogenic shock. Cardiac catheterization revealed 99% stenosis in the mid-right coronary artery, a 95% focal severe stenosis in mid-left anterior descending coronary artery and a 60% to 70% stenosis in the proximal circumflex artery. Given advanced age and unstable hemodynamics, emergent multivessel PCI with complete revascularization was performed. An intra-aortic balloon pump was initially placed, but cardiogenic shock persisted despite this and multiple vasopressors. His femoral arteries were <5 mm bilaterally. Despite borderline access vessels, hemodynamic support with an Impella CP (Abiomed, Danvers, Massachusetts) was instituted via left common femoral access. The patient was only 4 feet 9 inches tall, weighed 50 kg with a body surface area of 1.4 m². Lack of flow distal to the common femoral arteriotomy was confirmed on duplex ultrasound exam (1). The patient was, however, completely dependent on the Impella CP and could not be weaned off despite maximal doses of 4 vasopressors (2,3).

It had already been established noninvasively and with a lower extremity angiogram (Figure 1) that the

patient had no antegrade distal flow beyond the site of insertion of the cannula, hence conservative management could threaten the viability of the limb. We thus decided to proceed with percutaneous temporary femoro-femoral bypass establishment by placing an antegrade sheath in the left superficial femoral artery and connecting it male-to-male with

FIGURE 1 Lower Extremity Angiogram showing Occlusive Impella Cannula



The fluoro-masked "roadmap" image shows that the 13-F Impella CP cannula was occlusive for the common femoral artery of the diminutive index patient.

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FIGURE 2 Successful Placement of Fully Percutaneous Extracorporeal Femoro-Femoral Bypass for Acute Limb Ischemia From Large-Bore Access



We were able to successfully establish flow distal to the insertion site of the occlusive arterial cannula by a temporary, novel percutaneous femoro-femoral bypass circuit.

the contralateral common femoral sheath. This was achieved via careful antegrade access in the left superficial femoral artery, distal to the common femoral arteriotomy, and placement of a 6-F bright tip sheath. This sheath was then connected male-to-male with the contralateral 6-F right common femoral artery retrograde sheath (Figure 2), thereby creating a temporary, novel percutaneous femoro-femoral bypass circuit (4). Subsequently, the left popliteal pulse was confirmed on physical exam, and duplex ultrasound suggested flow re-establishment in the left lower extremity.

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