**The Novel Use of Biventricular Impella Support for Spontaneous Coronary Artery Dissection Related Cardiogenic Shock**

**Background:**

Spontaneous coronary artery dissection (SCAD) is commonly seen in women with fibromuscular dysplasia (FMD) compounded with environmental or physiologic stressors.

**Methods:**

A 39-year-old Caucasian female presented in cardiogenic shock with an anterior ST- elevation myocardial infarction. Emergent catheterization showed a type 2B SCAD of the left main (LM) and left anterior descending (LAD) arteries, with distal LAD occlusion (Fig 1A-C). Femoral angiography revealed the string-of-beads appearance of FMD (Fig 1D).

**Results:**

Due to hemodynamic instability, epinephrine was started and an Impella CP placed. After refractory chest pain, a multidisciplinary team deemed she did not have good targets for bypass grafting; a more conservative, non-interventional approach was taken. With concern for possible LM occlusion, ventricular arrhythmias, and right ventricular failure if only the left ventricle was supported, an Impella RP was placed before the guidewire was removed. The patient did remarkably well on percutaneous biventricular support with rapid recovery of her cardiac function and angina resolution within a week. The Impella RP followed by the Impella CP were weaned and removed after confirming patency of the LM with a coronary computed tomography angiography (CTA). CTA also confirmed FMD involvement of the carotid, vertebral, and renal arteries (Fig 1D). Aspirin, clopidogrel, lisinopril, and metoprolol succinate were continued at discharge. Follow up CTA revealed resolution of the SCAD.

**Conclusions:**

This was a successful, novel use of biventricular Impella support in a patient with SCAD presenting with cardiogenic shock to support the myocardium during the period of catecholamine surge and thereby avoiding high risk ad-hoc revascularization.

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