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Salvage mitraclip implantation for postmyocardial infarction mitral regurgitation: 2 case reports

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Introduction: Acute mitral regurgitation (MR) secondary to AMI is associated with a poor clinical outcome. The role of MitraClip implantation (MCI) in this population is still not well established. We report two successful cases of salvage MCI in acute ischaemic MR.

Case Report 1: A 66-year-old diabetic woman was admitted to our institution due to extensive anterior STEMI with cardiogenic shock. Urgent cardiac catheterization (CC) revealed 100% occlusion of the left anterior descending and critical stenosis of the obtuse marginal artery, with successful PCI of both vessels and implantation of an intra-aortic balloon pump. Early transthoracic echocardiogram (TTE) revealed a dilated left ventricle with severe systolic dysfunction (LVEF – 35%), apical and anterior wall akinesia and functional grade IV MR (EROA - 40mm² and regurgitant volume - 45mL), that was later confirmed by transesophageal echocardiography (TEE). 48h after AMI, the patient developed an arrhythmic storm requiring multiple shocks and a prolonged period of mechanical ventilation. Due to an extremely slow clinical improvement, with the need for prolonged inotropic support and refractory pulmonary congestion (NYHA IV), she was submitted to MCI, resulting in post-procedural grade I MR (EROA 7mm² and regurgitant volume 11mL) and a marked clinical and hemodynamic improvement. An ICD for secondary prevention was implanted. At the 3 month follow-up the patient presented in NYHA II functional class without congestive symptoms.

Case Report 2: An 82-year old female patient was admitted with an inferior STEMI, with CC documenting severe 3 vessel disease with a calcified occlusion of the right coronary artery, not amenable to PCI, so the patient was submitted to emergent CABG. There was a prolonged period of post-operative mechanical ventilation with an extremely difficult weaning process, including the need for re-intubation due to acute pulmonary edema. TTE revealed LVEF of 39% with a large inferobasal aneurysm and severe eccentric MR due to tendinous cord rupture. The patient was submitted to MCI with immediate significant improvement of the MR, allowing successful extubation 36 hours after the procedure. In the end of first month of follow-up, the TTE revealed a well-positioned clip with mild-to-moderate MR (EROA – 21.5mm² and regurgitant volume – 38mL) with the patient being completely asymptomatic.

Conclusion: Treatment of acute MR following AMI with MCI may be a safe and effective approach in critically ill patients. In our experience, it can lead to a rapid clinical recovery and resolution of cardiogenic shock.