

# Primary Angioplasty to Left Main Coronary Artery in an Octogenarian with Acute Myocardial Infarction and Cardiogenic Shock

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**P**rimarily angioplasty is the preferred method of reperfusion in the setting of acute myocardial infarction. However, the prognosis of elderly patients presenting with acute myocardial infarction and cardiogenic shock is dismal, and the efficacy of primary angioplasty in these patients has been questioned [1]. Unfortunately, non-invasive treatment also leads to extremely poor clinical outcomes in these patients. We present a case of primary angioplasty to the left main coronary artery in an octogenar-

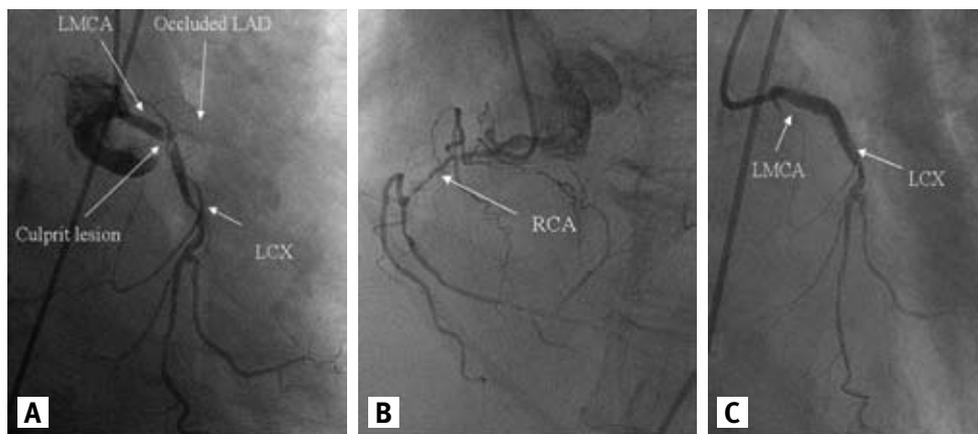
ian who presented with myocardial infarction and cardiogenic shock. The patient subsequently recovered and was discharged to her home. This case highlights the excellent results and favorable clinical outcome that can be achieved by urgent coronary revascularization in individual elderly patients, despite the low overall survival rate reported for cardiogenic shock in this population.

## PATIENT DESCRIPTION

An 81 year old woman presented to her family physician complaining of prolonged chest pain lasting 10 hours. The electrocardiogram showed acute anterior ST-elevation myocardial infarction with Q waves in the chest leads and right bundle branch block. During

transport to the hospital she had cardiac arrest and underwent resuscitation. On admission she was unconscious, the blood pressure was 60/35 mmHg and heart rate 90 beats per minute, and she required mechanical ventilation. Echocardiography revealed severe global hypokinesis with an estimated left ventricular ejection fraction of 15%. Urgent coronary angiography revealed a critical stenosis of the distal left main coronary artery involving the origin of the left circumflex artery, total occlusion of the origin of the left anterior descending artery [Figure A], and severe diffuse narrowing of the right coronary artery [Figure B]. Percutaneous angioplasty to the severely calcified left main coronary artery resulted in balloon rupture, but inflation of a cutting balloon (4 x 10 mm) and subsequent coronary stenting (bare metal stent, 4 x 15 mm) achieved a good angiographic result [Figure C]. The patient made a complete hemodynamic and neurologic recovery and was discharged home 12 days later.

**[A,B]** Coronary angiography. **[A]** Left coronary system: critical stenosis of the distal left main coronary artery (LMCA) involving the origin of the left circumflex artery (LCX) and total occlusion of the origin of the left anterior descending artery (LAD) is shown. **[B]** Right coronary angiography revealed diffuse disease of the right coronary artery (RCA). **[C]** Coronary angioplasty: the angiographic result achieved after stenting the LMCA into the left circumflex artery.



## COMMENT

The poor prognosis of cardiogenic shock complicating acute myocardial infarction may be improved with primary angioplasty. However, elderly patients with this condition were consistently excluded from randomized trials of reperfusion therapy in acute myocardial infarction. A concern that primary angioplasty achieved worse outcome than medical management in elderly subjects ( $\geq 75$  years of age) was raised

in the SHOCK trial, which randomized cardiogenic shock patients to emergency revascularization or initial medical stabilization [1]. Of note, only 56 participants in the study (18.5%) were elderly. Reanalysis of the SHOCK trial data suggested different baseline characteristics as the underlying cause for the worse outcome in elderly patients with primary angioplasty. Elderly patients enrolled to the emergency revascularization group had significantly lower left ventricular ejection fraction, and were more likely to have an anterior infarct than those randomized to initial medical stabilization. [2].

Valente et al. [3] showed good results of primary angioplasty in very old people ( $\geq 85$  years of age) and STEMI (ST segment elevation myocardial infarction), but concluded that this strategy was unable to improve the poor prognosis in the subgroup of patients with cardiogenic shock (90% in-hospital mortality) [3]. Conversely, several regis-

tries have reported survival benefit with revascularization in the elderly with cardiogenic shock [4]. Furthermore, primary angioplasty is considered an acceptable treatment option in elderly patients with this condition according to the ACC/AHA/SCA guidelines (New York Heart Association class IIa indication, level of evidence B) [5].

Considering the poor outcome and increased risk of intracranial hemorrhage in the elderly with cardiogenic shock treated with thrombolytic therapy, we believe that these patients should be considered for urgent revascularization as a potentially life-saving procedure. Policy regarding health care resource allocation for intervention and intensive cardiac care in these patients should be made at an institutional and societal level.

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ACC/AHA/SCAI = American College of Cardiology/American Heart Association/Society for Cardiac Angiography and Interventions

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