Effective management of lateral STEMI with cardiogenic shock

Background
Low cardiac output, combined with severe hypotension and respiratory failure, are hallmarks of cardiogenic shock. Patients can experience dramatic and rapid changes in their condition such as cardiac arrest. Therefore, the speed at which diagnosis and treatment are carried out can be a potentially life-saving factor.1

In this case report, we present a patient in whom cardiogenic shock was managed with urgent angioplasty of all significant lesions identified by coronary angiography. The follow-up at three months confirms the effectiveness of this treatment strategy.

Case presentation
An 80-year-old male patient who had experienced chest pain in the resting state for one hour (a feature that is typical of cardiogenic shock) was referred to our institution with a diagnosis of lateral ST-elevation myocardial infarction (STEMI) with cardiogenic shock. Coronary risk factors were hypertension and severe peripheral artery disease. The patient had comorbid chronic obstructive pulmonary disease.

On admission, the patient had persistent chest pain, blood pressure of 90/60 mmHg, 90% oxygen saturation, S3 gallop rhythm and age-related pulmonary crackles (rales) in both lung fields (pulmonary oedema). Moreover, the ECG showed ST elevation in lateral leads and echocardiography showed an ejection fraction of 20% and anterior lateral hypokinesis.

Diagnosis
Based on the results of the ECG and echocardiography, it was decided that the most appropriate treatment would be the use of haemodynamic support and transradial coronary angiography as a matter of urgency.

The positioning of the intra-aortic balloon pump had failed because of bilateral femoral occlusion, so treatment with vasopressor agents was started.

Coronary angiography was performed, revealing right coronary artery dominance without significant stenotic lesions. The culprit lesion was the ostial thrombotic occlusion of the intermediate artery, bifurcated in the mid segment. Furthermore, the angiography showed severe ostial stenosis of the left anterior descending (LAD) artery, extending into the proximal and mid segments (TIMI 3), and a severe and calcific stenosis of the mid left circumflex artery (LCX; figures 1 and 2).
Questions

*Answers can be found at the end of the article*

1. According to the clinical presentation and the diagnostic exams performed, which other diagnosis was possible?
2. Which treatment should be recommended: medical, surgical or percutaneous?
3. In the case of percutaneous treatment, would you treat only the culprit lesion or other lesions too?
4. Given the age of the patient and the lesions observed, should bare metal stents (BMS) or drug-eluting stents (DES) be used?

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Take home messages

Results of the follow-up confirmed the effectiveness of this treatment strategy, in particular with regard to the following points:

- In the case of cardiogenic shock, revascularization should be as complete as possible.\(^1\)
- For long lesions or multivessel disease, treatment with DES is preferred\(^2\) in the absence of absolute contraindications, especially considering the recent clinical trials in which premature discontinuation of dual antiplatelet therapy does not put the patient at an increased risk of stent thrombosis.\(^3\)
- The Resolute Integrity stent, as well as having safety and reliability as demonstrated in clinical trials,\(^4–8\) has excellent mechanical qualities that facilitate performance of complex angioplasty.

**References:**

3. Pooled analysis presented during TCT 2012 by Prof. Sigmund Silber, M.D., 5000 patients from Resolute clinical program.

**Disclosures:** The opinions and factual claims herein are solely those of the authors and do not necessarily reflect those of the publisher, Editor-in-Chief, Editorial Board and supporting company. KVF has no disclosures or conflicts of interest concerning this case study.

**Answers**

1. The clinical presentation was characterized by chest pain, blood pressure of 90/60 mm Hg, 90% oxygen saturation and S3 gallop rhythm. Moreover, the ECG showed ST elevation in lateral leads and echocardiography showed an ejection fraction of 20% and anterior lateral hypokinesis. No other diagnosis was possible.

2. Percutaneous. The mortality rate for surgical treatment during myocardial infarction is very high and thrombolysis has been shown to be less effective than primary PCI.

3. In the case of infarction with cardiogenic shock, it is recommended that revascularization should be as complete as possible.

4. Given the age of patient and the high risk of bleeding, normally BMS are preferred. However, in this case it was necessary to use more stents with high risk of restenosis, so we preferred to use DES.