Images in...

Survival of acute ST-elevation myocardial infarction with total occlusion of the left main coronary artery

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Summary

This image demonstrates the survival of a patient with total acute occlusion of the left main stem, which was treated by primary percutaneous coronary intervention (PCI). Before the patient was referred to the emergency room, she had already suffered from chest pain for about 11 h. Remarkably, the patient survived the acute myocardial infarction despite extreme myocardial necrosis of >60% of the left ventricle as demonstrated by delayed enhancement MRI. The attached images show angiography before and after PCI, the impressive initial ECG and delayed enhanced MRI with mainly transmural contrast enhancement.

BACKGROUND

This image demonstrates the survival of a patient with total acute occlusion of the left main stem, which was successfully treated by primary percutaneous coronary intervention (PCI).

The most remarkable feature was that the patient survived this acute myocardial infarction, a disease with in-hospital mortality of 36–55%, despite extreme myocardial necrosis of >60% of the left ventricle as demonstrated by delayed enhancement MRI. The attached images show angiography before and after PCI, the impressive initial ECG and delayed enhancement MRI.

CASE PRESENTATION

A 67-year-old woman was referred to emergency room because of chest pain, lasting for approximately 11 h. The prehospital ECG showed ST-elevation in the leads characterising the anteroapical and basolateral ventricle segments (figure 1A). At admission, the patient was in cardiogenic shock. Coronary angiography revealed total thrombotic occlusion (thrombolysis in myocardial infarction (TIMI) flow grade 0) of the left main coronary artery (figure 1B). Emergency angioplasty was successfully performed with stenting and final kissing-balloon dilation resulting in TIMI flow grade III (figure 1B), followed by intensive care unit (ICU) treatment with mechanical ventilation, high-dose catecholamines and intra-aortic balloon pump. Antibiotic therapy due to hospital-acquired pneumonia, acute renal failure requiring haemodialysis and critical illness polyneuropathy complicated the mobilisation process.

After successful ICU treatment, MRI was performed, confirming echocardiographic findings of an extremely

reduced left ventricular ejection fraction of 24% (figure 1C). Delayed enhancement images after application of gadolinium-based contrast media visualised extensive mainly transmural contrast enhancement in the infarct regions (figure 1C, arrows). Infarct size was 65% of total left ventricular mass.

Left ventricular ejection fraction did not recover substantially after 6 months. However, the patient survived fulminant myocardial infarction with total occlusion of left main stem – a disease with in-hospital mortality of 36–55%^{1 2} – after suffering from chest pain for 11 h. Left main stem occlusion need not be accompanied by pulmonary oedema, cardiogenic shock or cardiac arrest. Also worth mentioning is the alternative treatment option of emergent surgical revascularisation.

OUTCOME AND FOLLOW-UP

After 4 weeks of ICU management, the patient could be mobilised and released from the hospital. Left ventricular ejection fraction did not recover substantially after 6 months. But she survived myocardial infarction with total occlusion of the left main stem, a disease with in-hospital mortality of 36–55%,^{1 2} after suffering from chest pain for 11 h.

DISCUSSION

The patient survived fulminant myocardial infarction with total occlusion of left main stem – a disease with in-hospital mortality of 36–55%^{1 2} – after suffering from chest pain for 11 h. Left main stem occlusion need not be accompanied by pulmonary oedema, cardiogenic shock or cardiac arrest. Also worth mentioning is the alternative treatment option of emergent surgical revascularisation.

Figure 1 Prehospital ECG with ST-elevation in the leads characterising the anteroapical and basolateral ventricle segments (A). Angiography before and after PCI (B). Delayed enhancement MRI images after application of gadolinium-based contrast media (C).

Learning points

- Survival of acute myocardial infarction with thrombotic occlusion of the left main stem.
- The possible options of PCI and surgical revascularisation.
- Importance of high-effort ICU management.

Competing interests None.

Patient consent Obtained.

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Please cite this article as follows (you will need to access the article online to obtain the date of publication).

Friedenberger J, Thiele H. Survival of acute ST-elevation myocardial infarction with total occlusion of the left main coronary artery. *BMJ Case Reports* 2010;10.1136/bcr.11.2009.2467, date of publication

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