

Recurrent Chest Pain in a 77-Year-Old Male: A Case Report on the Role of Timely Primary PCI and Management Considerations

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Abstract:

A 77-year-old male with a history of diabetes mellitus and hypertension presented with acute chest pain and subtle ST-segment elevations on electrocardiogram (ECG). Initial medical management resulted in transient symptom relief, but he re-presented the following day with worsening chest pain and extensive ST-segment elevations, necessitating emergent primary percutaneous coronary intervention (PCI). This case underscores the importance of early recognition of evolving myocardial infarction, adherence to guideline-directed revascularization strategies, and vigilance for complications such as the no-reflow phenomenon.

Key words: clinical research; clinical trials; electronic health records

Introduction

Acute coronary syndromes (ACS) remain a leading cause of morbidity and mortality, particularly in elderly patients with multiple cardiovascular risk factors. Primary PCI is the gold standard for ST-segment elevation myocardial infarction (STEMI), significantly reducing mortality when performed in a timely manner. However, the dynamic nature of ACS, particularly in cases with initially subtle electrocardiographic changes, necessitates a high index of suspicion for ongoing ischemia. Additionally, post-PCI complications, including microvascular dysfunction and the no-reflow phenomenon, pose therapeutic challenges that warrant consideration.

Case presentation:

77-year-old male, known case Diabetes and Hypertension, presented to us with history of severe chest pain for 1 day. He initially went to a periphery hospital where his ECG showed 1.5mm ST elevations in V2, V3 and 0.5mm elevations in AVR, he was given Dual Antiplatelets, heparin and painkillers and discharged home when pain subsided.

His ECG was done in ER, showed ST elevations in V2-V4 and hyperacute T waves in V5-V6.

He was immediately taken to cath lab.

Diagnostic assessment:

His angiographic assessment revealed a bifurcation lesion with Medina 1,1,1 classification involving Distal left main and ostial LAD and ostial LCX with thrombus. Since it was a true bifurcation lesion (with angle <90), upfront 2 stent strategy was chosen and Culottes was opted.

Therapeutic intervention:

LAD and LCX were wired. LAD lesion was predilated using a 2.5*15 balloon which resulted in sluggish flow progressing to no reflow. (Figure. 1) Patient went into asystole, high quality CPR was done and he was intubated, inotropic support was started. Thrombus was aspirated and adenosine was injected selectively (using a thrombuster) after which blood flow improved and inotropic demand decreased.

LM to LCX was stented using 3.5*18 DES & LAD wire was jailed. LAD wire was recrossed and struts of LM to LCX were dilated. LM to LAD was stented using 3.5*23 DES. 1st POT wasn't done as LCX was wired easily. Before KBT, mid LAD was stented using 3.0*38 DES, overlapping with LM to LAD. Since the flow was good, mid LAD stent was post dilated. KBT was performed using 2 balloons of 3.5*12. Final POT was performed using 4.5*10 balloon upto 22 atm.

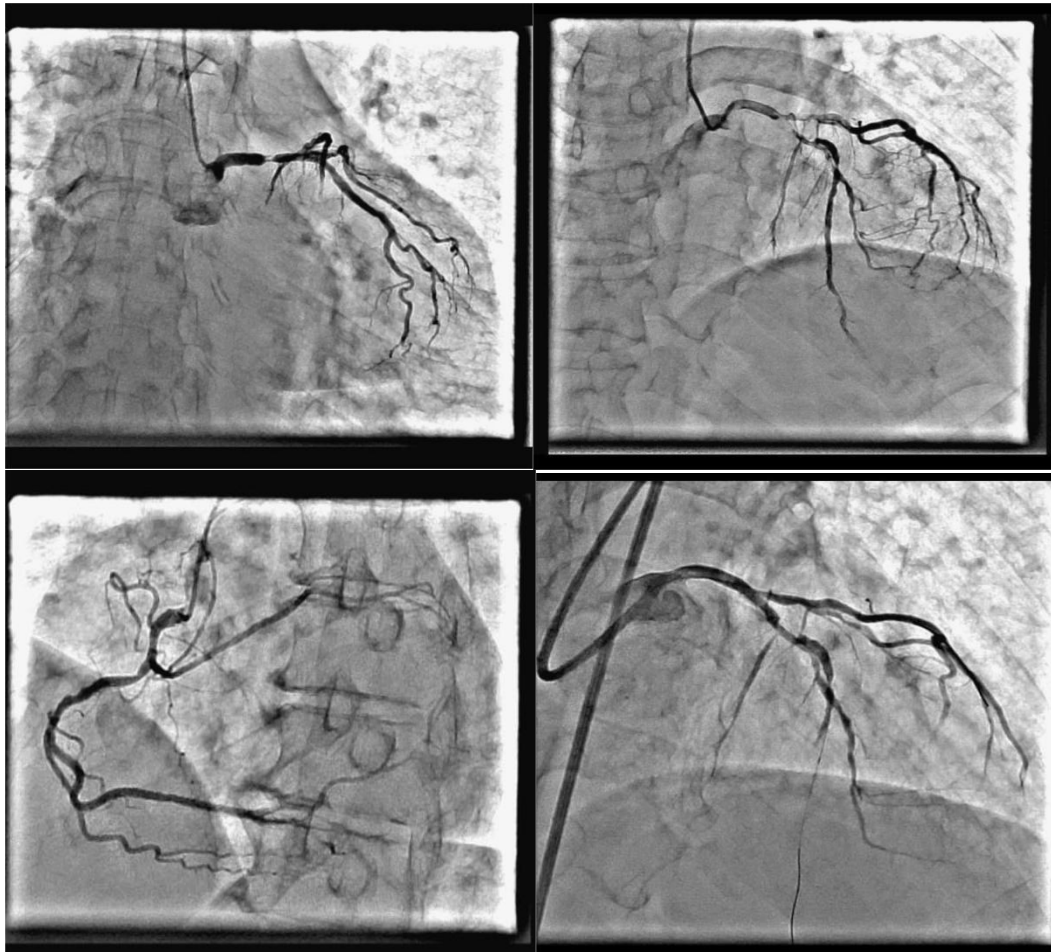


Figure 1

Follow up & outcomes:

The patient remained stable post PCI and was discharged home after cardiac rehabilitation. He is doing well and has been regular with his follow up visits

Discussion:

1.The Importance of Early Recognition and Intervention

Transient symptom relief in ACS does not necessarily indicate infarct resolution. High-risk patients, particularly those with diabetes, may present with atypical or fluctuating symptoms, necessitating prolonged monitoring and serial ECG assessments. Current guidelines emphasize early invasive strategies in patients with ongoing ischemia or dynamic ECG changes, even in the absence of persistent ST-segment elevation. Missed opportunities for early intervention can result in infarct progression and increased myocardial damage (1)

2.Primary PCI as the Preferred Revascularization Strategy

Primary PCI remains the preferred reperfusion strategy for STEMI, provided it can be performed within the guideline-recommended time frames. Meta-analyses have demonstrated superior outcomes with PCI compared to fibrinolysis, particularly in elderly and high-risk populations (3). In this case, the delay in definitive management highlights the need for stringent adherence to risk stratification algorithms to optimize outcomes.

3.No-Reflow Phenomenon: Pathophysiology and Management

The no-reflow phenomenon, characterized by impaired microvascular perfusion despite successful epicardial artery revascularization, is a critical determinant of post-PCI outcomes. Contributing mechanisms

include distal embolization, microvascular spasm, and endothelial dysfunction. Advanced therapeutic strategies, such as intracoronary adenosine, nitroprusside, or glycoprotein IIb/IIIa inhibitors, have shown efficacy in mitigating no-reflow and preserving myocardial perfusion (2). Recent studies suggest that pre-PCI thrombectomy and ischemic preconditioning may further enhance microvascular recovery (4).

4.Evolving Literature on STEMI Management

Contemporary studies emphasize an individualized approach to ACS management. Recent trials have explored the role of intracoronary imaging, such as optical coherence tomography (OCT) and intravascular ultrasound (IVUS), in optimizing stent deployment and mitigating complications (5). Additionally, emerging evidence supports the adjunctive use of SGLT2 inhibitors in post-MI patients with diabetes for cardioprotective effects beyond glycemic control (6).

Conclusion:

This case highlights the necessity of prompt recognition and management of evolving myocardial infarction, particularly in elderly patients with multiple risk factors. Primary PCI remains the cornerstone of STEMI treatment, and vigilance for complications such as no-reflow is essential to optimizing patient outcomes. Advances in adjunctive therapies and intravascular imaging may further refine PCI strategies, underscoring the importance of continuous integration of evidence-based practices in interventional cardiology.

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