Case Report

Acute Coronary Syndrome with Total Occlusion of LMCA in Cardiogenic Shock — Keep it Simple to Save Life?

Ajay Raj, Siva Subramaniyan*, and Athar Kamal
Department of Cardiology, Guru Gobind Singh Indraprastha University, India

Abstract

Significant left main coronary artery (LMCA) stenosis is not rare, occurring among a reported 3% to 10% of patients undergoing coronary angiography. unprotected LMCA intervention remains a clinical challenge and have poor prognosis. If this happen in acute STEMI then it usually results in death of the patient even before reaching the hospital. In this case we report a 50-year-old patient with acute anterior wall STEMI in cardiogenic shock because of LMCA 100% occlusion and the patient improved and discharged in stable condition after a successful angioplasty followed by stenting.

ABBREVIATIONS

ACS: Acute Coronary Syndrome; CABG: Coronary Artery Bypass Grafting; IABP: Intra-Aortic Balloon Pump; LMCA: Left Main Coronary Artery; STEMI: ST Elevation Myocardial Infarction

INTRODUCTION

Acute occlusion of the left main coronary artery is rare and generally fatal. The mechanism is mostly acute thrombosis and the clinical presentation shows an extensive infarction usually with cardiogenic shock. In patients with LMCA culprit lesions in ACS, the optimal revascularization strategy is not obvious [1]. Most patients usually present with hemodynamic instability and cardiogenic shock. Even after successful revascularization either in the form of angioplasty or coronary artery bypass, the mortality rate is higher when compared to stable patients. The crucial step in saving the life and how rapid we restore the coronary blood flow.

CASE PRESENTATION

A 50-year old male patient was admitted to our hospital with complains of chest pain and sweating for 2hrs with cardiogenic shock. The cardiovascular risk factors were hypertension and smoking. In the emergency he was on full inotropic support of adrenaline, noradrenaline and dopamine and after that also his arterial blood pressure was 70/38 mmHg. His ECG was suggestive of extensive anterior wall STEMI (Figure 1). He was immediately taken to Cath lab for primary percutaneous transluminal coronary angioplasty (PTCA) and the coronary angiography was done which showed left main 100% stenosis.

IABP machine was not working at that time and immediately we planned to restore the flow. PTCA wire (.014" wire) was passed into left coronary artery and immediate thrombosuction was done with 6F export catheter in the view of thinking high thrombus burden. After thrombosuction his arterial blood pressure started improving immediately. PTCA wire was in ramus intermedius and we put one more PTCA wire in left anterior descending artery (LAD). After that XIENCE Expedition LL 3.5x38 mm stent was placed from left main to LAD. Post dilatation with non-complaint balloon of size 3.5x15 mm and 4x8 mm (for left main) was done.

Patient shifted to CCU and the echocardiography showed severe hypolinesia of anterior wall with severe reduced left ventricular ejection fraction (EF-25%). After 3hrs of procedure patient was out of all inotropic support. Patient was discharged after 5 days of hospital stay in stable condition (Figure 2).

DISCUSSION

Acute obstruction of the left main coronary artery is not frequently encountered. A large part of the myocardium of the left ventricle is perfused by the LMCA, and its acute obstruction thus causes severe hemodynamic deterioration, frequently resulting in rapid fatality. There are only few case reports in literature with left main occlusion with 100% in ACS (Table 1) [2-5].

Flugelmann et al [2] reported the first case of survival after sudden left main coronary occlusion treated with balloon counter..
Figure 1: 12 lead ECG at the presentation.

Figure 2: (A) – RAO caudal view showing LMCA 100% stenosis (B) – showing thrombosuction being done (C) initial wire was in ramus and one more wire was placed in LAD (D) final angiogram after stenting showing TIMI III flow.

Table 1: Cases Reported of left main artery 100% stenosis in acute coronary syndrome.

<table>
<thead>
<tr>
<th>Author</th>
<th>Age/sex</th>
<th>Cardiogenic shock</th>
<th>IABP used</th>
<th>Treatment</th>
<th>survived</th>
</tr>
</thead>
<tbody>
<tr>
<td>Flugelmann et al [1], (1983)</td>
<td>55/M</td>
<td>yes</td>
<td>yes</td>
<td>IABP</td>
<td>yes</td>
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<tr>
<td>Sigwart U et al [5], (1986)</td>
<td>72/F</td>
<td>yes</td>
<td>No</td>
<td>Angioplasty</td>
<td>yes</td>
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<tr>
<td>Yuda S et al [6], (1998)</td>
<td>78/M</td>
<td>yes</td>
<td>yes</td>
<td>CABG</td>
<td>yes</td>
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<tr>
<td>Burgazli KM et al [7], (2013)</td>
<td>50/M</td>
<td>yes</td>
<td>yes</td>
<td>CABG</td>
<td>no</td>
</tr>
<tr>
<td>Present case</td>
<td>45/M</td>
<td>yes</td>
<td>no</td>
<td>Angioplasty and stenting</td>
<td>yes</td>
</tr>
</tbody>
</table>

Abbreviations: CABG: Coronary Artery Bypass Grafting; F: Female; IABP: Intra-Aortic Balloon Pump; M: Male
pulsation alone. The mechanical support and afterload reduction permitted recovery of this patient, who remained severely disabled but alive 12 months later.

Treatment strategies of LMCA disease associated with acute coronary syndromes, particularly acute myocardial infarction is depends on clinical condition of the patients. In the presence of the following clinical features, PCI may be the preferred option [6,7] (1) Cardiogenic shock, 2) left main disease with TIMI 0/1 flow 3) Critical LMCA stenosis which complicates secure PCI of culprit lesion placed either in LAD or LCX, 4) Isolated LMCA ostial and/or shaft lesion accompany culprit lesion, 5) Elderly with favourable anatomy providing complete revascularization if elective procedure is not possible (patient demands).

1) In the management of left main occlusion in ACS two things is important to save the life of the patient. The duration of coronary occlusion is crucial for the amount of myocardial salvage and Sigwart et al. [3,4] Demonstrated absence of detectable left ventricular dysfunction if revascularization was achieved within the first 2 hours after the onset of occlusion. In this case our patient came to hospital within two hours of chest pain.

2) How rapid we achieve TIMI III flow is also important to save patient life. In this case, in whom no time was lost for awaiting temporary ventricular assist device but all strategy were directed toward a rapid recanalization of the obstructed coronary artery (like putting wire in any branch followed by rapid thrombosisuction as thrombus burden more in LM occlusion), appears to underline the importance of this strategy.

In this case even without using IABP the hemodynamics of patient improved and discharged in stable condition. So this highlights the importance of prompt restoring the flow by simple technique rather than waiting for temporary ventricular assist device.

REFERENCES


