Chronic Total Occlusion of Left Main Coronary Artery-
Surviving a Widow Maker

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Abstract Surviving a Left Main coronary artery (LMCA) total occlusion depends upon the presence of well-developed collaterals. We report a 44 year male patient, with past history of Ischemic heart disease, who underwent Angioplasty to Left Anterior Descending Artery (LAD) in 2009, and presented with Acute Coronary Syndrome (ACS)-Non ST Elevation of Myocardial Infarction (NSTEMI). Subsequently, cardiac catheterization revealed a total occlusion of the LMCA with dominant right coronary artery (RCA) giving collaterals to the left coronary arteries. The patient was immediately referred for coronary artery bypass surgery (CABG) and was symptom free on follow up. This case demonstrates the power of collateral circulation in protecting the patient from symptoms and death despite total occlusion of the LMCA.

Keywords Coronary Artery Disease, Left Main Coronary Artery Disease, Total Occlusions, Diagnostic Cardiac Catheterization, Widow Maker

1. Introduction

LMCA total occlusion, otherwise known as widow maker has a grave outcome if not recognised and intervened in time. It is an unusual manifestation of coronary atheromatous disease, with unknown prevalence and a frequency between 0.04% to 0.1%. Presentation can be either recurrent angina or myocardial infarction (MI). Myocardial function and survival depends upon the presence of well-developed collaterals.

2. Case Report

A 44 year old male with past history of type II Diabetes Mellitus, Systemic Hypertension and anterior wall myocardial infarction, who underwent PTCA with stent to LAD five years back, presented with history of rest angina of 24 hours duration with elevated cardiac troponin T levels. There was no history of dyspnea or syncope. His blood pressure on admission was 140/90mmhg, heart rate of 80 beats per minute, Body mass index of 22 kg / m2, and clinically normal cardiovascular and respiratory system on examination.

His electrocardiogram (ECG) on admission showed no fresh ST-T changes compared to the past ECG. His Hemoglobin was 14.3 gm/dl, renal and liver function tests were normal, lipid profile showed hypertriglyceridemia. 2D echocardiogram showed akinetic left ventricular (LV) anterior, septal and apical segments, LV apical aneurysm, with LV ejection fraction of 35%.

His coronary angiography(CAG)(FIG 1-2) showed left main coronary artery occluded at its origin along with the stented proximal LAD and Left circumflex coronary artery(LCX) being opacified retrogradely by heterocollaterals from a dominant RCA (Rentrops II).

Figure 1. Left Coronary Angiogram-Showing Total LMCA Occlusion and LAD stent (arrows)

The patient was immediately referred for CABG and underwent a successful off pump coronary artery bypass grafting (OPCAB) with a left internal mammary artery (LIMA) graft to LAD and saphenous vein graft to diagonal branch of LAD and obtuse marginal branch (OM) of LCX.
Post-operative stay was uneventful and he was discharged in a hemodynamically stable state. On first follow up after one month he was free of angina symptoms, but significant improvement in LV function was not yet appreciated.

4. Conclusions

The coronary collateral supply is important in freedom from symptoms and survival of a patient with total occlusion of left main coronary artery.

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