

### **Chronic total left main coronary artery occlusion**

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#### **Abstract**

A 65 year old man, smoker, presented with a history of exertional shortness of breath over the last 4 months. He denied any chest discomfort. On examination jugular venous distension was noted with bilateral basal crackles.

He got symptomatic relief after treatment with diuretics and nitrates. His echocardiogramme revealed global hypokinesia of left ventricle with severe mitral regurgitation.

He was planned for mitral valve replacement and pre

procedural diagnostic angiogramme was performed which showed occluded left main coronary artery. Aortogramme showed filling of left coronary system from right coronary artery. He was sent for urgent aortocoronary bypass surgery with mitral valve replacement.

#### **Introduction**

Complete occlusion of left main coronary artery is an unusual manifestation of coronary atheromatous disease. Prevalence of complete left main occlusion is unknown.

Review by D E Ward showed 6 patients (0.04%) out of 11900 patients undergoing angiography had complete left main occlusion.<sup>1</sup> The majority of patients with chronic left main coronary artery occlusion complained of recurrent typical chest pain and had a history of myocardial infarction.<sup>2</sup> Right coronary artery was dominant in these cases and provided extensive collaterals to left system.

This is an interesting case as he denied any prior cardiac symptoms and had recent onset dyspnoea attributed to mitral regurgitation. His angiographic findings were contrary to his symptoms.

### Case Report

A 65 year old man, former smoker, presented with a history of shortness of breath over the last 4 months. There was progressive worsening and significant exaggeration of symptoms for the last 1 week accompanied with paroxysmal nocturnal dyspnoea. He denied any chest discomfort or prior cardiac illness.

On examination he was haemodynamically stable with jugular venous distension and bilateral basal crackles. A 3/6 pansystolic murmur was audible at apex which was radiating towards axilla.

He made significant clinical improvement with diuretics. His echocardiogram revealed dilated left atrium, normal sized left ventricle with global hypokinesia and severe left ventricular systolic dysfunction with severe mitral regurgitation.

He was planned for Mitral valve replacement and pre procedural diagnostic angiogram was performed. Left main stem could not be cannulated. Non selective angiography



Figure 1: Non selective coronary angiogram showing occluded left main stem stump.



Figure 2: Rao view of right coronary artery showing filling of left circumflex and left anterior descending artery upto occluded left main stem.

visualized the occluded left main coronary artery (Fig 1). Right coronary artery was normal with extensive, well developed Rentrop grade III collaterals filling left anterior descending artery and left circumflex artery up to the left main stem (Fig 2). Aortogramme showed filling of left system via right coronary artery upto occluded left main stem (Fig 3).

Considering extensive coronary artery disease, he was

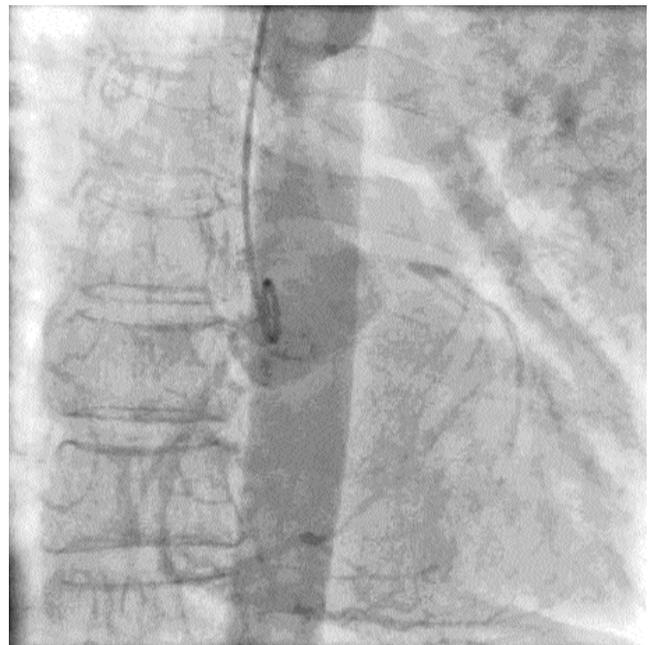


Figure 3: Aortogram showing filling of left coronary system upto occluded left main stem through right coronary artery.

referred for urgent coronary artery bypass grafting with mitral valve replacement.

## Discussion

An acute occlusion of the left main coronary artery often leads to sudden cardiac death and myocardial infarction with cardiogenic shock.<sup>3</sup> There are some reports about the successful treatment of these patients with thrombolytic therapy,<sup>3</sup> urgent bypass surgery, or through percutaneous coronary intervention leading to recanalization of left main coronary artery.<sup>4,5</sup>

Complete occlusion of left main coronary artery is an unusual manifestation of coronary atheromatous disease. Prevalence of complete left main occlusion is unknown. Review by D E Ward showed 6 patients (0.04%) out of 11900 patients undergoing angiography to have complete left main occlusion.<sup>1</sup>

Left main stem disease is usually associated with significant disease in major epicardial coronaries which accounts for symptoms before total left main coronary artery occlusion.

The majority of patients with chronic left main coronary artery occlusion complain of recurrent typical chest pain and have a history of myocardial infarction. They may also present with symptoms of heart failure.<sup>2</sup>

Disease of left anterior descending and left circumflex is difficult to demonstrate because of sluggish filling via collaterals. In patients with normal or near normal left ventricular functions, it is unlikely that significant distal left coronary disease is present.

Right coronary artery was dominant in these cases and provided extensive collaterals to the left system. Right coronary artery disease in these situations is variable. A review of published reports showed that 20 out of 40 patients had more than 50% stenosis of right coronary artery.<sup>6</sup>

Surgery is the treatment of choice in cases with left main

disease as collaterals cannot be relied upon. Main problem in surgery is visualization of distal left coronary arteries and to decide whether these vessels are graftable and where the distal insertion should be sited.<sup>7</sup>

This case is unusual in a way that he had no prior history of ischaemic heart disease and had recent onset of symptoms which are attributed to mitral regurgitation. On pre surgical evaluation of coronary artery disease, his angiogramme showed chronic total occlusion of left main coronary artery. Such a situation was made possible because of the development of natural collateral circulation joining the right coronary artery with the left system.

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