

Total occlusion of left main coronary artery in a patient with chronic, stable angina

C. S. Soo, MRCP

M. Choo, FRCP

E. Sim, FRCS

L. H. Ling, MRCP

K. Tan, BSc

C. N. Lee, FRCS

Cardiac Department, National University Hospital, Lower Kent Ridge Road, Singapore 0511

Summary

We report a case of total occlusion of the left main coronary artery (LMCA) in a patient with chronic, stable angina. Total occlusion of the LMCA is rare and survival depends on the existence of collateral circulation. In LMCA disease, there is usually also disease in other parts of the coronary arterial tree.

Key words: Total occlusion, left main, angina.

Introduction

Total occlusion of the left main coronary artery (LMCA) diagnosed on coronary arteriography is rare. Our patient presented with chronic, stable angina. His survival depended on collaterals from the right coronary artery.

Case Report

A 64 year old Chinese male presented with a twelve-year history of stable angina pectoris. There was no history of prior myocardial infarction. Coronary risk factors were Type IIa hypercholesterolaemia and smoking (20 cigarettes/day for 50 years). He was neither hypertensive nor diabetic. His medications were diltiazem, acebutolol, simvastatin and isosorbide dinitrate.

On physical examination, he was of normal build. The pulse was 70/min, regular and the blood pressure 130/90 mmHg. The apex beat was not displaced and there were dual and regular heart sounds, and no murmurs. He was not in heart failure. There were no stigmata of hyperlipidaemia. All the pulses were palpable and equal; and there was no carotid bruit.

His resting 12-lead ECG and CXR were normal. The serum cholesterol was 6.5 mmol/L, LDL-cholesterol 5.0 mmol/L, HDL-cholesterol 0.7 mmol/L, and triglycerides 1.8 mmol/L (on simvastatin). The fasting blood sugar was 5 mmol/L. The exercise stress test was strongly positive for myocardial ischaemia; the patient experienced angina with 2.4 mm horizontal ST depression at three minutes exercise (Bruce Protocol).

The coronary angiogram showed calcified coronary arteries with total occlusion of the left main coronary artery, and a large right coronary artery with minor stenoses supplying extensive collaterals to the left anterior descending artery and the left circumflex artery (Fig. 1 & 2). Left ventriculogram showed moderate anterolateral and apical septal hypokinesia. Overall left ventricular function was satisfactory. The left ventricular end-diastolic pressure was 11 mmHg (post-angiogram).



Fig. 1
LAO view of the left coronary artery showing total occlusion of the left main coronary artery

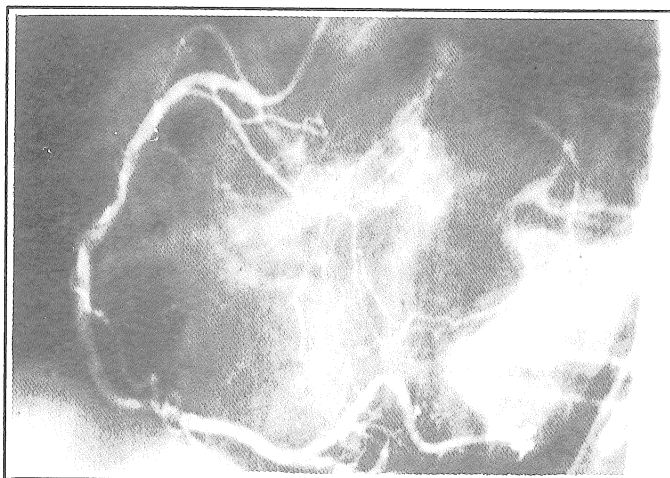


Fig. 2
LAO view of the right coronary artery showing minor stenoses and supplying extensive collaterals to the left anterior descending and left circumflex arteries

He underwent coronary artery bypass graft surgery, and saphenous vein conduits were grafted to the left anterior descending artery and the second obtuse marginal branch. Post-operatively, on one year follow-up, he has remained well and asymptomatic.

Discussion

Left main coronary artery (LMCA) occlusion is extremely rare; its incidence varying from 0.01% to 0.1% of catheterized patients.¹ Survival probably depends on the rate of occlusion and the development of collateral circulation.² Our patient had chronic angina, and extensive collaterals.

In most patients with LMCA disease, associated lesions are found in the rest of the coronary tree.¹ Prognosis in medically treated patients with LMCA stenosis or complete occlusion is poor (5-year mortality of 51%)³ and urgent coronary bypass surgery is advised.

Conclusion

This case of total occlusion of the LMCA shows that it can present as chronic stable angina if adequate collateral circulation develops.

References

1. Herregods MC, Piessens J, Vanhakks J, et al: Complete occlusion of the main left coronary artery: A clinical study. *Acta Cardiol* 1987; 42 : 23 - 5.
2. Frye R, Gura GM, Chesebro JH, et al: Complete occlusion of the left main coronary artery and the importance of coronary collateral circulation. *Mayo Clinic Proc* 1977; 52: 742 - 5.
3. Lim JS, Proudfit WL, Sones FM, Jr: Left main coronary arterial obstruction: Long-term follow-up of 141 nonsurgical cases. *Am J Cardiol*, 1975; 36: 131.