

Giant aneurysms of the major coronary arteries

A 48-year-old woman with a history of hypertension and hypercholesterolaemia presented with a history of progressive exertional angina for 3 months and rest angina for 3 days. Her ECG showed deep T wave inversion in precordial leads, but the cardiac enzymes were negative. Coronary angiography was performed and it revealed triple-vessel coronary artery disease with large aneurysms of the proximal left anterior descending coronary artery (figures 1 and 2; supplementary video 1) and the right coronary artery (figure 3; supplementary video 2) with poor distal flow. She was stabilised on medical therapy and subsequently underwent ligation of the aneurysms and coronary artery bypass surgery using three grafts on cardiopulmonary bypass. She was asymptomatic after the surgery and she has been doing well on her fourth year of follow-up.

Coronary artery aneurysm is an uncommon disease with an incidence of 0.15–4.9% of patients undergoing coronary angiography.¹ Coronary artery aneurysm is defined as coronary dilatation that exceeds the diameter of adjacent normal segments or the diameter of the patient's largest coronary vessel by 1.5 times. A coronary artery aneurysm grows progressively large and is termed a giant coronary aneurysm when the diameter is larger than 20 mm². Giant coronary aneurysm is very rare with an incidence of 0.02–0.04% in surgical patients in a series of 30 268 patients undergoing heart surgery which included 5707 with coronary artery disease, 16 423 with congenital heart disease, and 85 with coronary artery fistula.² Atherosclerosis is the most common cause of coronary aneurysms accounting for more than 50% of the cases. Other causes include Kawasaki disease, vasculitis, connective tissue disorders, congenital defects, infections, trauma, dissection, cocaine abuse and iatrogenic. Matrix metalloproteinase have been implicated in the pathogenesis of aneurysms through increased proteinolysis of



Figure 1 Coronary angiogram in the lateral view showing giant aneurysm of the proximal left anterior descending coronary artery with very poor distal flow.

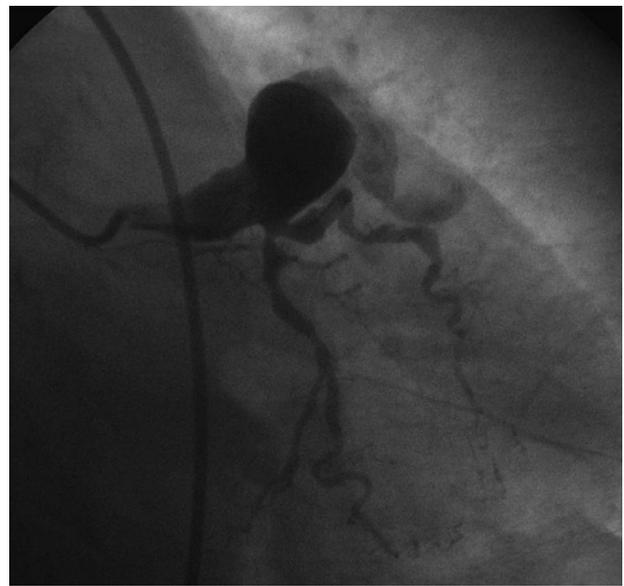


Figure 2 Coronary angiogram showing left anterior descending (LAD) coronary artery in the right anterior oblique view. Large giant coronary aneurysm is seen in the LAD, and it starts from the distal left main coronary artery.

extracellular matrix proteins and various collagen plaques in the vessel wall during the course of atherosclerotic vascular remodelling.³

A coronary artery aneurysm may lead to thrombus formation and embolisation with ischaemic manifestations, or may rupture leading to cardiac tamponade. Surgical treatments should be considered in order to prevent potential complications in such large giant coronary artery aneurysms. There have been reports of successful treatment of coronary artery aneurysms with the use of polytetrafluoroethylene (PTFE) covered stents.^{4 5} PTFE covered stents are reported to be safe and effective for coronary atherosclerotic aneurysms in individual case reports, but the long-term outcome is not known.

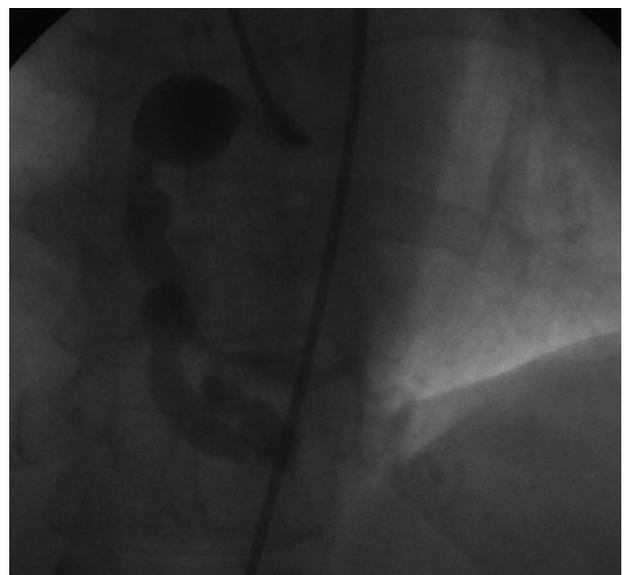


Figure 3 Coronary angiogram of right coronary artery (RCA) in the postero-anterior view. Giant aneurysmal RCA involving the proximal mid and distal segments.

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