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Brief Report

Stenosis of the main stem of the left coronary artery in a teenager with Takayasu's Arteritis

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Abstract Coronary arterial involvement is rare in Takayasu's arteritis. We describe successful coronary arterial bypass grafting in a 15 year teenager with Takayasu's arteritis and unstable angina because of stenosis of the main stem of the left coronary artery.

Keywords: Coronary arterial stenosis; aortitis syndrome; aortocoronary bypass

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Coronary arterial involvement is rare in Takayasu's arteritis. We have recently treated a 15 year teenager with this syndrome who had stenosis of the main stem of the left coronary artery causing unstable angina.

Case report

A 15-year boy with documented history of Takayasu's arteritis, hypertension, and bilateral renal arterial stenosis presented to our institute with symptoms of progressively increasing chest pain and unstable angina lasting for 1 month. Clinical examination, including chest X-ray, was unremarkable. A 12-lead electrocardiogram showed significant ST segment depression in the anterolateral leads. Blood biochemical and haematological parameters, including cardiac enzymes, were with in the normal range. Transthoracic cross-sectional echocardiography revealed moderate ventricular dysfunction and no regional abnormalities of wall motion. Conventional coronary angiography (Figs 1 and 2) revealed a normal right coronary artery, but total occlusion of the main stem of the left coronary artery at its orifice, with retrograde filling through collateral vessels from the right coronary artery. The patient was referred for emergency coronary arterial bypass grafting.

Intra-operative findings included an oedematous, thickened, and inflamed aorta, and oedematous myocardium and epicardial fat. We performed bypass grafting using reverse saphenous venous grafts to the anterior interventricular, first diagonal, and first obtuse marginal arteries. Both the intra-operative and post-operative course were uneventful. Post-operatively, the patient was commenced on oral prednisolone at a dose of 2 mg/kg/day for six weeks, which was then slowly tapered over a period of 6 months. Because subclinical exposure to tuberculosis is common in the Indian subcontinent, and an association of tuberculosis with Takayasu's arteritis has been shown,[1] the patient was been given antitubercular treatment for 6 months. At follow-up 5 years later, the patient remains asymptomatic, and is doing well. Computed tomography showed the saphenous venous grafts to be patent.

Discussion

Takayasu's arteritis, a chronic inflammatory arterial disease of unknown aetiology occurring predominantly in young women of south East Asia, primarily involves elastic arteries such as the aorta and its main branches, and sometimes the pulmonary arteries.[2]

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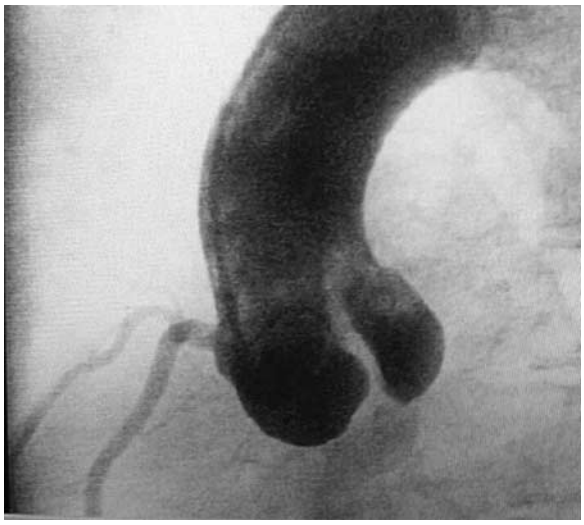

Figure 1.
The aortic root angiogram is shown in left anterior oblique view, revealing a normal right coronary artery, but total occlusion of the main stem of the left coronary artery.

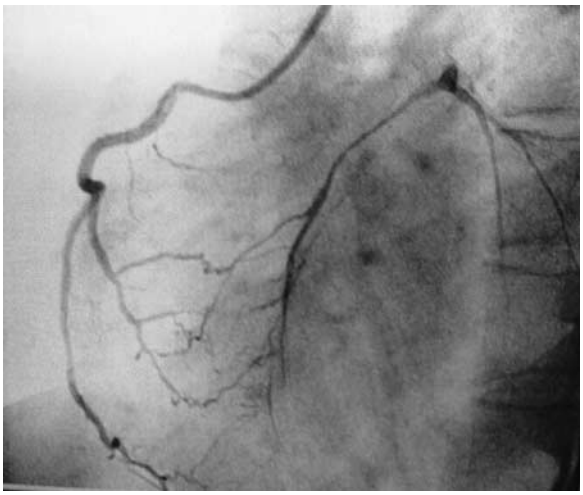

Figure 2.
A right coronary angiogram, in left anterior oblique view, confirms the findings of the root angiogram, and shows retrograde filling of the left coronary artery through collaterals from the right coronary artery.

Coronary arterial involvement, albeit uncommon, can be a fatal complication of this disease.[3] Angiographic and pathological studies have revealed coronary arterial lesions in around one-tenth of cases.[2,4]

The coronary arterial lesions, when present,[5] include ostial stenosis as a result of extension of inflammation induced intimal proliferation and fibrous contraction from the acending aorta, and result in myocardial ischaemia. Other uncommon lesions include nonostial proximal obstructive lesions, aneurysmal coronary ectasia, and rarely, anastomoses between the coronary arteries and either the bronchial or pulmonary arteries, which can result in a coronary steal phenomenon. The coronary steal phenomenon in has usually been associated with occluded pulmonary arteries and pulmonary hypertension, whereas aneurysmal coronary ectasia is related to severe aortic hypertension with or without aortic regurgitation, atypical coarctation and calcification of the aorta.

Although immunosupression primarily with corticosteroids is the treatment of choice in patients with noncritical vascular involvement, patients with stenosis of the main stem of the left coronary artery require surgical intervention.[5] The timing of operation is important, as surgery should be avoided during the active stage of inflammation. In a patient with unstable angina, such as ours, nonetheless, surgery must be performed without delay, as myocardial infarction is one of the major causes of death in these patients.[6]

The therapeutic options include coronary arterial bypass grafting, patch angioplasty using autologous pericardium with or without glutaraldehyde treatment, saphenous vein or internal thoracic artery, [5,7,8] transaortic coronary ostial endartectomy,[9] a hybrid procedure,[5] or percutaneous transluminal coronary angioplasty[10] in isolated cases. On the basis of safety first, coronary arterial bypass grafting using saphaneous vein conduits is usually recommended.[5] Although, it is well known that the long term patency of internal thoracic artery graft is significantly higher than that of saphaneous venous grafts, the internal thoracic artery should not be used as a conduit in patients with Takayasu's arteritis, as the disease process is often progressive and recurrent, leading to compromise of the graft. Coronary arterial involvement in Takayasu's arteritis, therefore, is a distinct and a rare clinical entity. It should be considered in the differential diagnosis in young patients who present with angina. Once diagnosed, early surgical treatment is recommended.

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