Type A aortic dissection with partial ostial occlusion of left main coronary artery

Narayanan Namboodiri* and K. M. Krishnamoorthy

Department of Cardiology, Sree Chitra Tirunal Institute for Medical Sciences and Technology, Trivandrum 695 011, India

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A 48-year-old hypertensive male presented with acute retrosternal pain and aortic regurgitation. The electrocardiogram showed ST-segment depression with T-wave inversion in anterolateral leads. Transesophageal echocardiography in long axis view of aorta revealed a spiral intimal flap in ascending aorta extending to the arch, diagnostic of Type A aortic dissection. The short axis view of the aorta showed partial obstruction of the left main coronary artery (LMCA) by the intimal flap with turbulent flow at its ostium. An emergency repair of aortic dissection with reconstruction of aortic wall was done. Postoperative period and ECG were normal. At 12-months of follow up, patient was doing well.

KEYWORDS
Left main coronary; Transesophageal echocardiography

Introduction
Coronary malperfusion associated with aortic dissections is relatively infrequent.1,2 As this complication increases the mortality rate considerably, it should be actively looked for in patients with proximal aortic dissection. Here we describe this uncommon complication of type A aortic dissection in an adult male which was managed successfully with emergency surgery.

Case report
A 48-year-old hypertensive male presented with acute retrosternal pain. At admission his pulse was 90 bpm with blood pressure of 100/70 mmHg. A short early diastolic murmur was noted at aortic area. The electrocardiogram showed ST-segment depression with T-wave inversion in anterolateral leads. Transthoracic echocardiogram revealed moderate aortic regurgitation (AR) with suspicion of dissecting flap in the ascending aorta. Transesophageal echocardiography (TEE) in long axis view of aorta revealed a spiral intimal flap in ascending aorta extending to the arch, diagnostic of Type A aortic dissection (Figure 1). The short axis view of the aorta showed partial obstruction of the left main coronary artery (LMCA) by the intimal flap with turbulent flow at the ostium of LMCA (Figures 2 and 3). A diagnosis of Type A aortic dissection with partial obstruction of LMCA ostium resulting in anterolateral ischemia was made. An emergency repair of aortic dissection with reconstruction of aortic wall was done. Aortic valve was not replaced as it was intrinsically normal. TEE findings were confirmed at surgery. Postoperative period and ECG were normal. At 12 months of follow up, patient was doing well.

Discussion
Coronary involvement has been described in 12 (6.1%) of 196 patients with acute Type A aortic dissection undergoing surgery.2 Extrinsic compression of LMCA by the intimal flap, the mechanism of coronary ischaemia seen in our patient was found in only 2 (1%) of these patients. Although the dynamic compression of LMCA by the false channel created by the dissection has been described by a few previously,3,4 we could not demonstrate any dynamic variation in the degree of compression with phases of cardiac cycle in our patient. Decreased blood pressure and the presence of AR accelerating the collapse of true lumen during diastole in the ascending aorta had been postulated to result in functional obstruction of LMCA by the intimal flap. Other causes of coronary malperfusion in these patients are coronary dissection and coronary disruption.2

The involvement of ostia of coronaries can be visualized on TEE, aortogram or MR angiogram. As up to one-third of the patients with this rare coexistence are known to have in-hospital mortality, its detection aids in planning an aggressive coronary revascularization and early aortic repair.

References