A rare case of natural bypass from LIMA to LAD

A 55-year-old male, diabetic, smoker, presented with sudden onset severe retrosternal chest pain along with sweating. His pulse was 96/min, Blood pressure140/90 mm Hg: chest was b/l clear, Cardiovascular system examination revealed no abnormality. Electrocardiography showed gross ST segment depression in lead 2, 3, augmented vector foot and V5, V6 and tropinin-T was elevated. Echo showed no regional wall motion abnormality. With ejection fraction 60% he was diagnosed as unstable angina. He was managed medically with heparin, aspirin, clopidogrel, β blocker, ACE-inhibitor and nitrates. He had undergone angiography 18 h after his presentation. His coronary angiography showed 30% stenosis of distal left main coronary artery (LMCA), left anterior descending artery (LAD) total cut-off in proximal part, and left circumflex-90% stenosis in proximal part, 80% stenosis of OM1 and 90% stenosis of OM2; right coronary artery also showed diffuse disease. As the patient had triple-vessel disease, we performed angiography of left internal mammary artery (LIMA) with Judkin's right catheter; what was surprising was that a branch from LIMA provided good collateral to the significant part of LAD (figures 1 and 2).

The coronary collateral circulation has been recognised for a long time as an alternative source of blood supply to a myocardial area jeopardised by ischaemia. More than 200 years ago, Heberden described a patient who had been nearly cured of his angina pectoris by sawing wood each day, a phenomenon called 'warm up' or 'first effort angina' which was traditionally ascribed to coronary vasodilation with opening of collateral vessels to support the ischaemic myocardium. Collaterals serve as conduits that bridge severe stenoses or connect a territory supplied by one epicardial coronary artery with that of another. Collaterals, therefore, provide an alternative source of blood supply to myocardium jeopardised by occlusive coronary artery disease, and they can help to preserve myocardial function in the setting of a chronic total coronary occlusion.[1 2]

In coronary artery bypass surgery, due to longevity of arterial graft in comparison with venous graft, LIMA is often used as arterial bypass for LAD. Here, by providing adequate collateral to LAD, LIMA has provided natural bypass, and this type of case has never been found in literature.

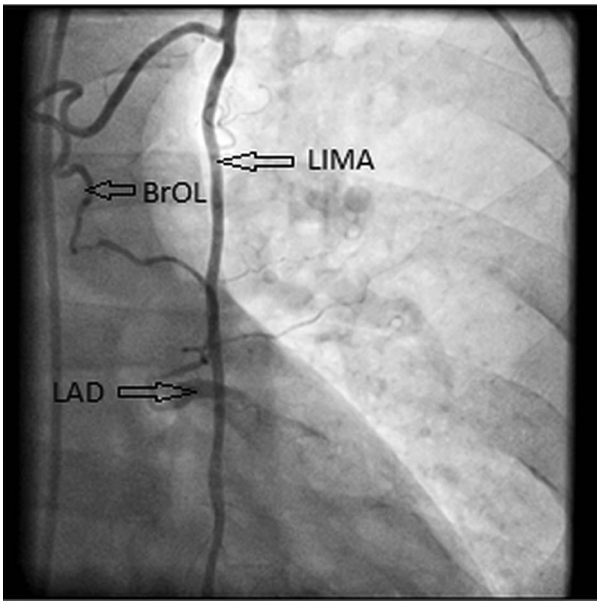

Figure 1 CAG-RAO caudal view, shows a branch of LIMA giving collateral to LAD: the frame has shown that LAD just started filling from LIMA. LIMA, left internal mammary artery; BrOL, branch of LIMA; LAD, left anterior descending artery.

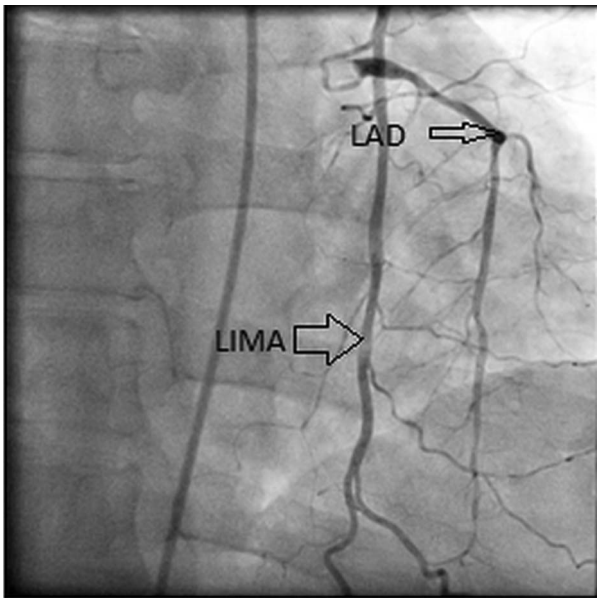

Figure 2 CAG-RAO caudal view: whole LAD filled from a branch of LIMA.

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