

Complex Bypass Graft Anatomy: Deciphering the Puzzle

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Deciphering complex coronary anatomy can be challenging, particularly in post-CABG patients. CABG surgery using conduits with multiple distal anastomoses has the potential to lead to graft failure, largely related to bypass graft flow dynamics.^{1,2} Recognizing conventional, as well as anomalous, coronary artery patterns in specific angiographic views is paramount in understanding elaborate graft anatomies. We present herein an interesting case of complex bypass graft angiography with multiple anastomoses supplying the entire myocardium.

Case

A 75-year-old male with history of coronary artery disease, prior 3-vessel coronary artery bypass graft surgery (CABG) in 2001, peripheral arterial disease, hypertension, and prior tobacco use was admitted for elective cardiac catheterization due to progressive symptoms of chest pain with an abnormal nuclear stress test. The details of his CABG surgery, performed at an outside institution, were unknown at the time of his coronary angiography.

Right common femoral artery access was obtained, and selective coronary artery and bypass graft angiography performed. The right coronary artery (RCA) was proximally occluded. The left main coronary artery demonstrated mild disease, with 100% occlusions of the mid left anterior descending (LAD) and left circumflex (LCX) coronary arteries (Figure 1). Selective saphenous vein graft (SVG) to distal RCA angiography demonstrated a patent graft with a side-to-end anastomosis to the RV marginal artery, and distal anastomosis to the posterior lateral artery, which had mild disease (Figure 2). Interestingly, there was also an end-to-end vein graft

limb, originating mid graft, extending to an SVG to left posterior descending artery (LPDA). The SVG-LPDA graft was widely patent, and originated from the left internal mammary artery graft (LIMA) to LAD. The LIMA-LAD arose from the left subclavian artery, and had mild disease in the distal native LAD (Figure 3). ■

References

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Figure 1. Selective angiogram of the left main coronary artery, left anterior descending artery (arrow), and left circumflex artery (star).

We present herein an interesting case of complex bypass graft angiography with multiple anastomoses supplying the entire myocardium.

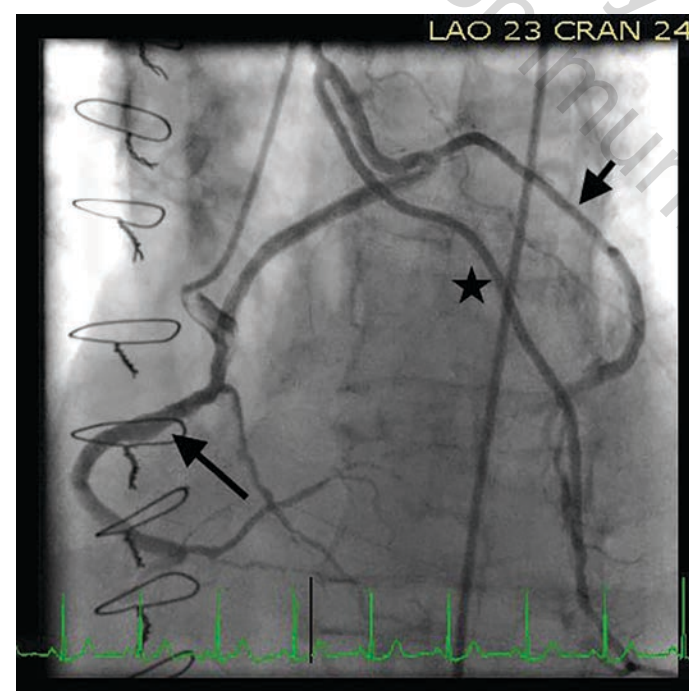


Figure 2. Selective SVG-RCA graft angiogram demonstrates antegrade filling of the SVG-RCA limb (long arrow), end-to-end graft limb to the SVG-LPDA (short arrow), and retrograde filling of the LIMA-LAD graft (star).

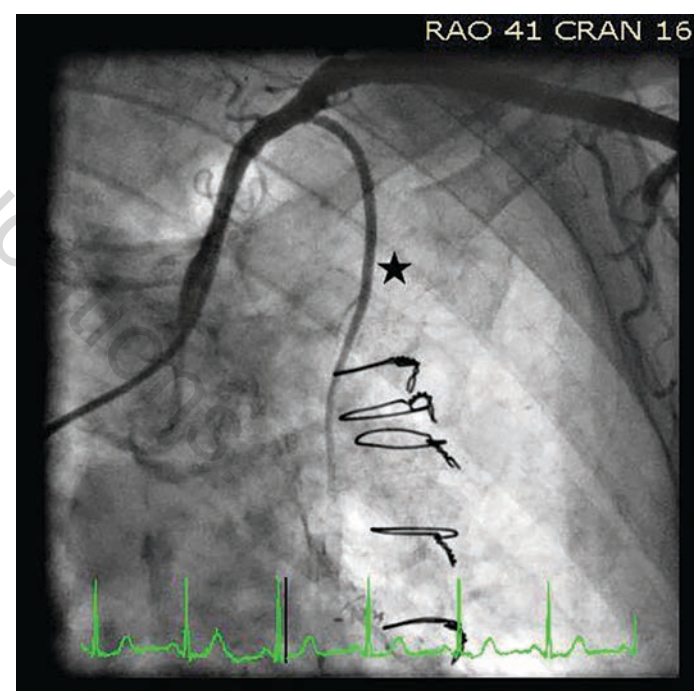


Figure 3. Selective angiogram of the LIMA-LAD graft (star).

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