Commentary: If all else fails…

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Central Message

The descending branch of the lateral circumflex femoral artery may be an option for use as a CABG arterial conduit.

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Coronary artery bypass graft (CABG) surgery has long been successful in improving the quantity and quality of life for patients with significant coronary artery disease. The success of this procedure is closely linked to the continuing patency of bypass graft conduits as well as control of risk factors that otherwise lead to atherosclerotic disease progression and adverse clinical events. The left internal mammary artery to left anterior descending CABG remains the gold standard in terms of long-term patency associated with the best clinical outcomes. Greater saphenous vein tends to have lower long-term patency than other arterial conduits, including right internal mammary artery (RIMA) or radial artery. The use of arterial conduits is a goal in many situations.[1] CABG candidates may have limited conduit options, particularly if they have had previous surgery.

Luo and colleagues[2] describe preoperative computed tomographic angiography (CTA) assessment of the descending branch of the lateral circumflex femoral artery (DLCFA) for use as a potential CABG conduit. CTA provides an assessment of the presence or absence of arterial disease in the potential bypass graft conduit. Useful length (9.9 ± 1.7 cm noted) and luminal diameter (>2.0 mm distally stated as acceptable) as well as abnormalities of the arterial course can be determined by CTA. Assessment of the remaining lower-extremity arterial circulation is useful to avoid harvest of the DLCFA if it serves as a critical collateral supply for lower-extremity perfusion.

The mean age of the 40 patients undergoing CABG with a DLCFA as described in this study was 49.1 ± 7.5 years. There were 8 patients of an original cohort of 44 patients for whom the DLCFA was not suitable by CTA criteria, 32 to 56 years of age. The relatively young age of these patients suggests the presence of a significant number and/or severity of atherosclerosis risk factors in their population. Five additional patients had nonscheduled DLCFA exploration because of lack of conduit determined intraoperatively; one of these DLCFA conduits was not usable.

Patency data are presented for 22 of the 40 patients for whom DLCFA was used and who underwent CTA imaging of coronary bypass grafts at 1 year: left internal mammary artery 95.4% (21/22), radial artery 88.9% (16/18), DLCFA 86.4% (19/22), in situ RIMA 87.5% (7/8), and free RIMA 75% (3/4). Information is not provided on the presence or absence of a ''string sign''; patency of nonarterial conduits (used in 25% of the patients); clinical outcomes of the patients other than the apparent absence of problems related to DLCFA harvest; or compliance with recommended secondary prevention measures.[3]

Examples of images showing ''optimal'' versus ''acceptable'' versus ''not acceptable'' selection criteria would be helpful. The large incision and muscular retraction required for DLFCA harvest might result in some activity limitations. Additional information on conduit and bypassed target arteries as well as imaged patency and clinical outcomes, both short and long term, will help define the rank position and potential value of the DLCFA as a CABG conduit. Until then, the DLCFA could be considered an option if other conduits are not readily available.

References

1. Aldea GS, Bakaeen FG, Pal J, Fremes S, Head SJ, Sabik J, et al. The Society of Thoracic Surgeons Clinical Practice Guidelines on Arterial Conduits for Coronary Artery Bypass Grafting. *Ann Thorac Surg*. 2016;101:801-9.
2. Luo XJ, et al. Application of the descending branch of the lateral circumflex femoral artery in coronary artery bypass grafting. *J Thorac Cardiovasc Surg*. 2021;161:1266-71.
3. Hillis LD, Smith PK, Anderson JL, Bittl JA, Bridges CR, Byrne JG, et al. 2011 ACCF/AHA guideline for coronary artery bypass graft surgery: a report of the American College of Cardiology Foundation/American Heart Association Task Force on Practice Guidelines. *Circulation*. 2011;124:e652-735.