

**Abstract 1****The Case for a *In Situ* Lesser Saphenous Vein Bypass**

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**Background:** *In situ* lesser saphenous vein graft has been advocated in cases where the greater saphenous vein is not available and the arteries requiring bypass are confined to the lower leg. This is often the case of patients with diabetes and end-stage renal disease, whose disease pattern typically affects the tibioperoneal vessels, sparing the femoropopliteal segment. The use of an *in situ* technique offers the potential advantages of decreasing surgical trauma to the vein and its vasa-vasorum, size-matching of vein and artery at the anastomoses and improving patency rates. We reviewed the use of *in situ* lesser saphenous vein graft with special attention to its technical requirements.

**Cases:** A 76- and a 73-year-old man presented with critical limb ischemia. Both had a history of diabetes, end-stage renal disease and previous use of the greater saphenous veins for coronary or peripheral bypasses. Both had tibioperoneal disease and single run-off through the common plantar artery and distal peroneal artery, respectively. Venous mapping showed diminutive veins, with exception of the ipsilateral lesser saphenous veins, which appeared appropriate for graft purposes. The patients were placed in prone position for a posterior approach. Using a longitudinal incision, the lesser saphenous veins was exposed. Proximal anastomosis was based on the popliteal artery, which was exposed through the same incision. Separate incisions were made to expose the run-off vessels, and a fibulectomy was required to expose the distal peroneal artery. We successfully performed an *in situ* lesser saphenous vein bypass using the common plantar and the distal peroneal artery as target vessels. Both bypasses were patent at 18 and 24 -months follow up, respectively.

**Conclusion:** The presence of an appropriate lesser saphenous vein, with a diameter of 3 to 4 mm and adequate length to reach the target artery, is usually appropriate for an *in situ* lesser saphenous vein bypass. Criteria include patent femoral arteries, adequate popliteal arteries to base the graft and, preferentially, target vessels approachable in prone position through a medial or lateral approach. Anastomosis to peroneal, tibial, dorsalis pedis or plantar arteries have all been described using this technique. In our experience, this approach can be used safely for bypasses from the popliteal to distal arteries.