Arm vein bypass from distal deep femoral to superior medial genicular artery for limb salvage

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Bypass to the perigeniculate collateral arteries is an option for limb salvage. Lack of usual distal runoff or suitable, long lower limb vein for reconstruction are conditions that justify this option. Increased flow through collaterals, mainly nurtured by the perigeniculate arteries, is the rationale for this operation. Raised perfusion pressure, even though no pulsatile flow may be attained at the foot, may be enough to ensure healing of limb-threatening ischemic lesions.

Initial attention to this possibility was brought to light by Barral et al.\(^1\) The need to harvest arm veins because of the absence of lower limb veins and the use of the distal portion of the deep femoral as a donor artery, to reduce the need of vein, and due to incisions at the inguinal area from previous attempted revascularizations, are corollaries to explain technical aspects of these unusual reconstructions.\(^2\)

The present case illustrates these features. A 59-year-old woman presented with fifth toe gangrene, ischemic pain, and an ankle-brachial index of 0.4. The patient had an occluded nonreversed saphenous vein bypass from the left common femoral to dorsalis pedis artery done 4 years earlier and a right transfemoral amputation.

An arteriogram (A) showed extensive occlusion of the superficial femoral, popliteal, and major leg arteries. The dorsalis pedis was still patent, but this area had undergone a previous operation. No suitable lower limb vein was available because the homolateral vein had been used for the initial revascularization, and the other limb had a thigh amputation. A medial descending genicular artery was observed communicating with a large group of collaterals and was the foundation for the procedure that was performed.

A basilic vein was harvested from right arm, and a nonreversed bridge from a distal zone of the profunda femoral up to the medial superior genicular artery was created. Relief of the ischemia was achieved, and ultimate healing of the foot was obtained after fifth toe amputation. The ankle-brachial index increased to 0.7. Control computed tomography angiography at the 6-month follow-up shows patency of the graft (Cover) and details of the proximal (B) and distal anastomosis (C), with collateral filling of leg arteries.

REFERENCES

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