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Re: Laurila et al.

The finding, by Laurila et al.,1 of no impact on the patency of crural bypasses employing PTFE, an interposition vein cuff and an arterial-venous fistula, requires critical assessment. The authors acknowledge the potential of bias in this small patient sample but several other factors may be operative. I previously suggested that the lack of compliance in PTFE limits the blood volume provided to a compromised distal circulation when the least resistance is in the venous return component of the AVF. Ascer2 banded the cephalad component of the venous interposition and used hemodynamic parameters to redirect the flow distally. Our experience with human umbilical vein graft under these circumstances showed increased volume flows in addition to velocity without need for banding. There is a critical difference when one uses different materials for the conduit in that a more compliant graft will enable increased flow resulting in improved distal perfusion.

Another concern is the technique employed for construction of the dAVF. We went through a number of phases and have reported the change in technique over time.3 We currently emphasize the absolute need to avoid outflow constriction. This is best accomplished with interrupted sutures in each quadrant of the dAVF. Continuous suture technique can result in stenosis and does not permit adequate expansion of the ostium once flow is reestablished.

Finally, it is vital to use a tourniquet to decrease dissection time and obviate the need for clamps.4 As a consequence, clamp damage and subsequent development of intimal hyperplasia is prevented. There is need for a randomized study that would require multiple experienced investigators skilled in crural revascularization as well as the construction of distal fistulas. I urge the authors to continue their investigations but consider altering some of their methodologies in order to truly appreciate the value of the dAVF. We continue to feel that the dAVF does indeed alter hemodynamics favorably and, as a consequence, graft patency and limb salvage rates.

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References


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Response to Dr Herbert Dardik

We thank Dr Dardik for his comments on our hemodynamic results (Laurila et al. 2005). The pioneering work of Dr Dardik as a proponent for adjuvant av-fistula on the field of vascular surgery is well known. His impressive results have been the reason for us to employ the same method when no other alternatives are available. Our initial results of infrapopliteal redo bypass surgery suggested that an adjuvant distal arteriovenous fistula may improve PTFE graft patency.1 Knowing the pitfalls of uncontrolled case series we wanted to embark on

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the randomized Scandinavian multicentre trial 1996.2 Our results were in line with another randomized trial by Peter Harris’ group.3 Neither of these studies could prove the benefit of combining an av-fistula to cuffed PTFE anastomosis. The inclusion criteria were strict and, therefore, the patient samples remained small, which, of course, is a potential source of statistical type II error in both studies.

We have had limited experience on the use of human umbilical vein and cannot comment its usefulness. We believe that streamlining the distal anastomosis between PTFE graft and a crural artery with venous collar gives acceptable patency. The beneficial role of venous collars and cuffs has been shown by a number of studies.4–6 The lack of compliance of the PTFE graft has always been an issue and we agree that PTFE is far from an optimal graft, but so are all artificial conduits.

In our hands the distal anastomosis between a vein cuff and a common ostium av-fistula yields best technical result and anastomosis configuration. We acknowledge the fact that in the hands of an experienced surgeon the surgical technique of the distal anastomosis is better than in a randomized study with multiple surgeons. In our study a tourniquet was used on surgeon’s discretion while performing the distal anastomosis. This technique is widely used in our institution when operating on calf or pedal vessels.

Two randomized studies on the use of a PTFE graft, distal vein cuff and an adjuvant av-fistula have failed to show difference in patency between anastomosis with or without an av-fistula. An international randomized study to prove that patency is similar irrespective of the use of adjuvant av-fistula would necessitate hundreds of patients and would be, though welcome, very hard to conduct.

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