Brachiocephalic Fistulas for Vascular Access

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Dear Sir,

Radiocephalic fistula [1] is the vascular access less prone to complications and having the best long-term results. When this fistula cannot be made or salvage is impossible after thrombosis [2], antecubital veins at the elbow crease may be used before bridged graft A-V fistulas are considered.

Because of the deep and medial location of the basilic vein, a superficializing and transposition procedure [3] or, alternatively, the creation of a reverse flow fistula [4] are necessary if this vein is to be used as a vascular access. If a cephalic vein is used for end-to-side anastomosis [5], the possibility of using distal segments of this vein is lost as a result.

We report the technical aspects and long-term results of brachiocephalic fistulas created using a modified technique which consists of inserting a short PTFE (Goretex) bridge graft (6 mm diameter) between the brachial artery and the cephalic vein, forming an H-shaped A-V fistula at the distal portion of the arm (fig. 1). The procedures were made under local anesthesia. The anastomoses were done using 6/0 polipropylene suture using magnification with a $2.5 \times$ optical lens.

Thirty-four fistulas were made in 33 patients. In 22 patients this procedure was chosen after recurrent and nonrecoverable occlusion of a previous radiocephalic fistula; in 11 patients the brachiocephalic fistula was constructed because no adequate veins were found in the forearm. All the fistulas functioned satisfactorily, and puncture for hemodialysis was initiated 1–2 weeks after the surgical procedure. The proximal cephalic vein was adequate for puncture in all cases. The distal cephalic vein and other veins in the elbow crease were used in 82% of the patients. No associated aneurysms, high-output cardiac failure or significant distal venous hypertension were

Fig. 1. Brachiocephalic A-V fistula ('H' fistula) using 6 mm PTFE graft. CV = Cephalic vein; BA = brachial artery.

seen. Twelve episodes of late thrombosis have been observed; all of them were produced by venous stenosis in the perianastomotic area. In 5 patients the angioaccess was recovered using short segments of PTFE interposed between the graft and the nonstenotic segment of the cephalic vein. In other 4 patients conversion to a brachi-oxillary bridge fistula was performed using the preexisting segment of the H graft as arterial source. In the 3 remaining patients another vascular access was created.

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advantages in this

dissection of the vein, especially difficult in cases with a preexisting radiocephalic fistula and multiple punctures at the antecubital fossa. (2) Proximal and distal blood flow is adequate in most patients, which makes it possible to use the cephalic vein at both levels, together with other antecubital veins if communicating veins exist connecting the cephalic and basilic systems. (3) Simplicity of repair in cases of venous stenosis at the perianastomotic area, by interposition of segments of PTFE anastomosed to the proximal nonstenotic vein. (4) Easy conversion to a brachioaxillary bridge fistula if extensive venous stenosis is present.

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