Salvage of Upper Arm Access Graft in the Presence of Symptomatic Subclavian Vein Thrombosis

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Dear Sir,

The upper graft fistula using the expanded polytetra-fluoroethylene graft (Goret-Tex) is an excellent form of hemodialysis access when adequate forearm veins are no longer available [1]. Causes of failure include thrombosis, arterial stenosis, venous outflow stenosis, hypotension, infection, and more recently proximal central venous thrombosis or stenosis related to more widespread utilization of the subclavian vein catheters for acute-phase hemodialysis [2].

Furthermore, axillary-subclavian vein thrombosis has presented as a relatively benign lesion with a low incidence of associated pulmonary embolism [3]. Functional disability remains the major sequela related to the involved extremity, occurring in approximately 75% of affected patients [3].

We present herein a patient with proximal subclavian vein thrombosis ipsilateral to an upper-extremity Gore-Tex graft hemoaccess, treated by surgery to salvage the graft and correct the functional disability.

A 47-year-old white man affected with chronic renal failure secondary to nephronophthisis, and on maintenance hemodialysis since 1980.

The patient has had multiple angioaccess problems, with several upper-extremity accesses (Cimino-Brescia fistula, Gore-Tex), many of which had become infected or thrombosed and required removal. In July 1987, the patient was admitted because of thrombosis of the left Gore-Tex forearm, and a right jugular venous catheter was placed. A new hemoaccess was performed by a right Gore-Tex graft on the forearm. Two months later, the patient presented with insidious onset of massive right upper-extremity edema and pain. The graft functioned without problems. Physical examination disclosed the presence of collateral circulation on the right upper arm. A digital intravenous angiography showed occlusion of the right prox-

Fig. 1. Three months after surgery, a digital intravenous angiography disclosed a permeable Gore-Tex graft (arrows).

imal subclavian vein, with profound collateral circulation and a permeable graft.

He underwent a terminal lateral right Gore-Tex to terminal lateral right internal jugular bypass with a 6-mm subcutaneous supported Gore-Tex graft. Over the next 3 weeks, marked edema of the right upper extremity resolved completely. The arm has remained free of edema and the graft

has remained patent for 5 months. A digital intravenous angiography disclosed a permeable graft (fig. 1).

552

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The standard type of arteriovenous fistula described by Cimino-Brescia is the preferred choice for primary hemoaccess. Creation of such an access is not always possible for several reasons, and in these patients alternative methods are required. The different techniques that have been used include autogenous saphenous veins, bovine, Dacron velours graft, and, recently, polytetrafluoroethylene graft (Gore-Tex) has gained wide acceptance [4]. Complete failure of hemodialysis fistula or graft is usually the result of thrombosis, preceded by a period of diminished thrill and venous congestion [5]. The most common angiographic finding is stenosis or thrombosis of the proximal vein close to the anastomosis site [3]. This problem of proximal subclavian stenosis or thrombosis complicating hemoaccess function is being recognized with increasing frequency as more widespread acute dialysis is performed via subclavian vein catheters [6]. The etiology appears to be directly related to the subclavian catheter itself and especially to the methods of insertion and maintenance as well to the length of time it is left in place [6]. Symptoms associated with proximal vein thrombosis/stenosis usually do not become manifest until the collateral venous system is challenged by the placement of a hemoaccess and the resulting increased venous flow [6]. Recently, several authors have described different techniques to salvage upper-graft fistulas using expanded polytetrafluoroethylene grafts by subcutaneous extension to various central veins [3, 7]. We have described a new successful technique, and we think that in the future this procedure for the salvage of the hemoaccess could become a routine technique.

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