Internal Arteriovenous Fistula Saved by an Arm Splint

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Dear Sir,

Vascular access partially determines the quality of life and on occasions the survival of a patient on periodic hemodialysis. There are two theoretical reasons for undertaking vascular access for hemodialysis by means of a radiocephalic arteriovenous fistula on the nondominant arm: less possibility of local traumatism and greater ease for self-injection [1].

We report the case of a right-handed woman who despite having a functioning left radiocephalic fistula, presented with problems when it was used due to residual hemiparesis on this side, a secondary effect due to stroke 14 years previously.

A 55-year-old woman was admitted to the Nephrology Department when in a routine investigation an elevation of nitrogenous products were detected (creatinine was 5.6 mg/dl and BUN 102.4 mg/dl). She was previously asymptomatic. The only noteworthy finding in physical examination was the neurological affection picture. There was left hemiparesis without affection of the cranial nerves, flexion of the metacarpal phalange joints of the 2nd and 3rd fingers and an inability to extend the left arm which formed an angle of 120-130° when at rest. Hyperreflexia and hypermyotonia were also present. Chronic renal failure of unknown etiology was diagnosed. During her stay in hospital, she presented deterioration of renal function, maintaining the elevations in the BUN and creatinine figures. Consequently, a left radiocephalic arteriovenous fistula was made and she was placed in the hemodialysis program. Once the vascular access was mature, puncture was possible but dialysis could not be undertaken due to the appearance of slow involuntary hypertonic movements that determined flexion and external rotation of the left hand and arm. These movements occurred when the arm was at rest and extended some 10 to 15 min after the commencement of dialysis, breaking the vein and producing large hematomas.

Due to the characteristics of muscular weight load in the dominant arm, with which she used a walking-stick, and to the fact that the fistula was functioning adequately, we tried to save this vascular access. We devised a splint to maintain the forearm and final fingers extended. The latter were held back by a catch which acted as a brace preventing flexion of the forearm. We thus managed to avoid rupture of the fistula vein and movement of the needles. However, the forced extended position during dialysis caused acute episodes of intense pain in the limb at every session. The patient described this pain as searing. Muscular relaxation was administered orally with 2 separate doses of Diazepam, 10 mg given the night prior to an 10 min before

dialysis. Since then, dialysis has been carried out without any further problems. The artificial limb centre of this hospital later made a definitive splint (fig. 1a,b).

We wish to stress with this case the importance of accessory methods that can facilitate conservation of a vascular access apparently unusable due to reasons unrelated to the actual arteriovenous fistula.

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Fig. 1. a Forearm and fingers of the patient maintained extended by a splint. b Isolated picture of the splint developed by the artificial limb department of our Hospital.

Reference

Raja RM: vascular access for haemodialysis; in Daugirdas JT, Ing TS (eds): Handbook of Dialysis. Boston, Little, Brown, 1988, pp 40-58.