SURGICAL TECHNIQUE OF INSERTION OF ARTERIOVENOUS SHUNTS FOR REGULAR DIALYSIS THERAPY

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Arteriovenous shunts for regular dialysis therapy are inserted under regional block anaesthesia (Urban et al., in press). Either axillary brachial block for the arm shunt or unilateral spinal anaesthesia for the leg shunt are used in order to provide adequate anaesthesia and a maximal degree of venous dilatation. Usually the radial artery in the arm or the posterior tibial artery in the leg are selected. Any satisfactory vein in proximity to the cannulated artery is used.

The skin incision is parallel to the vessels to be cannulated on the side opposite to the planned skin exit site. The artery and the vein to be cannulated are tied off distal to the point of cannulation in respect to the extremity with 3-0 Tevdek® (Fig. 1, 1) and a longitudinal incision is made in the vessel to be cannulated (Fig. 1, 1 and 2). Prior to cannulation of an artery 30 mg of papaverine is injected onto the artery for about ten minutes in order to provide relaxation of the artery. In order to obviate tearing of the vessel intima with use of instruments, each vessel is held open with three fine silk stitches in order to facilitate threading the cannula tip into the vessel (Fig. 1, 3 and 4). In placing the cannula tip into the silastic portion of the shunt just prior to cannulation it is important to have either a metal obturator or a wooden stick

![Fig. 1.](image)

* Deknatel, Inc., Queens Village, New York 11429, U.S.A.
inside of the cannula tip in order to prevent kinking of the teflon tip (Fig. 2, 1). The obturator is of course removed after the tip is in position in the silastic cannula (about 1 cm) (Fig. 2, 2).

No crimp rings or joint rings are used anywhere in the shunt. A satisfactory subcutaneous tunnel is needed to provide an adequate place for the subcutaneous bend of the silastic cannula for a proper alignment to exist between the vessel and the teflon tip. The same suture is used to secure the cannula in position as is used to tie off the vessel distally (Fig. 3). The subcutaneous tissue is closed with buried knot interrupted sutures and the skin is closed with 3-0 subcuticular nylon.

Fig. 2.

Fig. 3.
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Good shunt alignment in reference to the cannulated vessel is essential. While the teflon tip in the vein may be slightly larger than the vein at the time of cannulation, it is essential that the teflon tip in the artery just fits the internal lumen. Care should be exercised to have the cannula and cannula tip aimed in the precise direction that the vessel is directed. A single break silastic shunt with a piece of teflon connecting the break point is used whenever possible (Fig. 4). External silastic stabilizers are glued onto the shunt after the skin closure has been completed in order to provide good external stabilization.

Fig. 4.

REFERENCE