TECHNIQUE OF INSERTING THE SCRIBNER SHUNT FOR INTERMITTENT HAEMODIALYSIS

F.M.Parsons and P.B.Clark*

The shunt designed by B.H.Scribner of Seattle consists of a tube of inert plastic materials, which is usually inserted between the radial artery and cephalic vein to create an artificial arterio-venous fistula (Figure 1); when dialysis becomes necessary the U tube joining the arterial and venous limbs is removed and these limbs are connected to the dialyser.

Certain modifications to the procedure described by Scribner et al. (1962) have been made. Before operation, the positions of the subcutaneous loops of the shunt are marked out on the skin (Figure 2); this ensures adequate subsequent undercutting. Transverse incisions have been used as these heal best, and lie at right angles to the cannulae which pulsate and tend to interfere with healing.

It is important that the artery should be fully dilated before insertion of the cannula to avoid damage to its intima. Papaverine 2.5% is applied externally and also internally by retrograde injection of 0.2 ml. (diluted with aspirated blood) up the artery after distal ligation.

The joint rings, originally described by Scribner, have been found unnecessary as arteriography showed a smooth lumen at the junction of silastic and teflon tubes without their support and clotting has not been traced to this site. Instead two crimp rings are applied to the external silastic-teflon union (Figure 3).

It was difficult, initially, to obtain a satisfactory joint between the teflon extension tubes and the U tube, because of variability in contraction after autoclaving. This was overcome by inserting stainless steel formers 1.5 inches long and 0.127 inches in diameter (0.0005 ins. less than the external diameter of the teflon tube) into the dilated ends of the U tube prior to autoclaving.

The stabiliser has been improved. A second clamp has been added to grip either the U tube or the teflon connection for the dialyser (Figures 1 and 3). This eliminates the need for the small pieces of strapping originally used to hold these tubes in place; these were tedious to apply and easily soiled. The patients themselves said that the new stabilisers provided additional security. The new stabiliser also protects the extension tube from accidental damage and holds the teflon-to-teflon joint so rigidly that partial separation and subsequent clotting is eliminated.

Bacterial contamination of the wound and prosthesis has been reduced by soaking the dressings in chlorhexidine 1:2,000 in 70% alcohol before application. Wound sepsis has not occurred.

The saving in cannulation time where dialysis is required more than once and the increased safety of performing repeated short dialyses initially on patients with dangerous degrees of uraemia, make the introduction of the Scribner shunt one of the major advances in haemodialysis in recent years.

*Renal Research Unit and the Department of Urology, General Infirmary at Leeds.
Suppliers

Silastic Tube

Lusterlite Products Ltd., 56 Devon Road, Leeds, 2.
  Teflon extension tubes
  Teflon cannulae
  Mandrel for dilating teflon
  Stainless steel formers for teflon loops.

Linskey Bros., 72 Holloway Road, London, N.7.
  Crimp rings

C.F. Thackray Ltd., Park Street, Leeds, 2.
  Stabilisers
  Stainless steel screwdriver
  Cannula clamps

REFERENCE

Figure 1. The Scribner arterio-venous shunt with new stabiliser.

Figure 2. Squares marked on skin to indicate position of subcutaneous loops.

Figure 3. Connection of shunt to haemodialyser using new stabiliser.

Figure 4. Stainless steel formers used during autoclaving of teflon U tubes.