ARTERIOVENOUS SUBCUTANEOUS FISTULA PERFORMED BY MEANS OF THE FIBRIN TUNNEL NON-SUTURE ANASTOMOSIS

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For regular dialysis therapy, Michielsen (1966) used a subcutaneous shunt using a side-to-side or end-to-end connection of the radial artery and suitable vein. Two cannulas or needles are inserted into the vein, one for conveying blood to the artificial kidney, the other taking blood back to the patient. Construction of the anastomosis, however, is complicated and must be undertaken by a vascular surgeon.

We propose a new simple technique:

1. A fibrin tunnel (Hejhal et al., 1959) is used.

2. The most distal part of the artery is isolated over a length of 4 cm and the adventitia is removed. The clamped artery is passed through the tunnel, the margin of the artery is turned over the edge of the tunnel and fixed by a fine catgut ligature.

3. The suitable subcutaneous vein is placed without pulling and bending over the fibrin tunnel and fixed near its end by a catgut ligature, so that a recess would not form between the vein and the tunnel.

Fig. 1. Fibrin tunnel.
Fig. 2. Diagram of the fibrin tunnel non-suture anastomosis.

Fig. 3. Anastomosis before putting a fibrin tunnel into the vein. The artery is clamped and passed through the tunnel. The margin of the artery is turned over the edge of the tunnel and fixed by a ligature.
Fig. 4. Fibrin tunnel non-suture anastomosis is prepared. Above is the artery, below is the vein. Fibrin tunnel is placed on the artery side, so that the bend of the anastomosis is made only by a vein.

Fig. 5. X-ray picture of the anastomosis.
Fig. 6. Section of the radial artery with the fibrin tunnel. A: radial artery; V: cephalic vein; F.T.: fibrin tunnel.

Advantages of the method:

1. In the anastomosis, the endothelium is not injured, so that there is a greater probability that the anastomosis will remain open.
2. The fibrin tunnel becomes soft owing to the body temperature, so that the pulse wave can be transmitted.
3. The fibrin tunnel will be absorbed in six months, so that then the anastomosis is made only by the tissue of the vessels.
4. The method is relatively easy and quick.

REFERENCES