

## Delayed excision of a defect after free omental transfer with uncertain viability; a case report

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**Summary**—We present the case of a 45-year-old man with an extensive radionecrotic ulcer of the anterior aspect of the thigh and exposure of the femur.

Difficulty in the revascularisation of a free omental transfer due to radiation damage to the recipient vessels led us to delay excision of the defect and to store the flap temporarily in a plastic bag close to the recipient site; 48 hours later its satisfactory appearance allowed excision of the defect and successful final inset of the omentum. Advantages of this procedure are discussed.

Despite a steady improvement in the results of free tissue transfer, the technique remains in some instances an adventure that careful pre- and perioperative planning cannot always anticipate. This is particularly true in the lower limb where mild degrees of post-traumatic, post-radiotherapeutic or atherosclerotic damage to the vessels can be overlooked by the usual methods of investigation (Doppler, angiography).

Failure of a free tissue transfer can be followed by general or local complications which in some instances may jeopardise the vitality of a limb or even life itself. For these reasons, whenever such a risk exists should the revascularisation of the transfer not be fully satisfactory, we advise that the defect should not be created until the viability of the tissue transfer is established.

### Case Report

A 45-year-old man was referred to our department for treatment of severe radionecrosis of the anterior aspect of the left thigh with exposure of the femur (Fig. 1).

The patient had suffered from osteomyelitis in childhood which was treated by radiotherapy. At the age of 40 he was admitted to a cardiovascular department with an acute occlusion of the common femoral artery, which was successfully treated by a femoropopliteal venous bypass. This occlusion was directly related to the radiation damage. X-ray examination of the femoral shaft showed extensive bony changes and an arteriogram confirmed the excellent patency of the bypass and an apparently normal profunda femoris artery (Fig. 2A and B).

A decision was made to excise the radionecrotic ulcer widely, together with the deeply irradiated surrounding

skin and dead underlying muscles down to bone, and coverage by free omentum was planned.

At operation a 2 mm diameter vessel (lateral circumflex femoral artery), arising from the profunda femoris artery, was selected for anastomosis. However, when it was transected the vessel wall appeared thick and rigid and the intima very friable and detachable. Nevertheless a good flow was present. An end-to-end anastomosis was done between it and the right gastro-epiploic artery, supplying the omentum.

On release of the clamp no flow was observed through the anastomosis. This was redone unsuccessfully three times. A Fogarty catheter was finally used, which removed clot and intimal fragments from the lumen at the origin of the profunda femoris artery. This complication was probably related to the damage by the clamp to the diseased vessel at the time of the previous bypass and was confirmed by a closer examination of the arteriogram which revealed the existence of a foreign body in the lumen (Fig. 2). An excellent outflow was finally obtained and a patent anastomosis achieved. Anastomosis of the right gastro-epiploic vein was then completed with a deep venous tributary (Fig. 3).

Uncertainty remained as to the outcome of the procedure. If the defect had been excised, a subsequent failure of the transfer might have exposed the arterial bypass, risking a blow-out and jeopardising the limb. It was therefore decided to delay the excision of the recipient site and to postpone the inset of the flap. The omentum was placed in a transparent sterile plastic bag which was fixed to the skin of the anterior aspect of the thigh above the diseased area with an adhesive ring (Fig. 4). The transfer was then delayed for observation for 48 hours. Warmth of the bag, colour of the omentum as well as pulsation of the vascular arcades were checked regularly and by palpation.

After 48 hours, when it was judged that risks of



Fig. 1

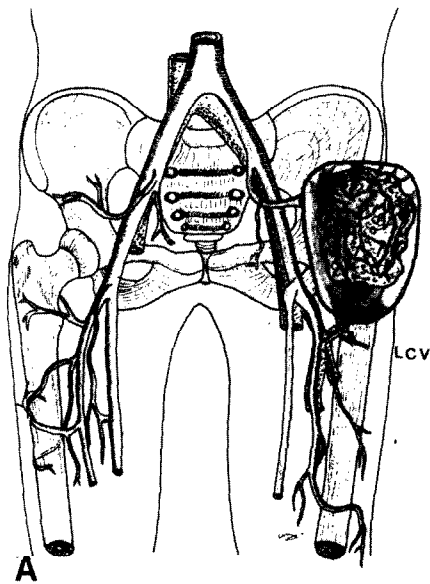


A



B

Fig. 2



A



B

Fig. 3

Figure 1—Radionecrotic ulcer of the anterior aspect of the left thigh exposing the femur in a 45-year-old man. Figure 2—(A) X-ray of the femoral shaft showing extensive radionecrotic damage. (B) Arteriogram showing satisfactory patency of a previous bypass performed on the superficial femoral artery and foreign body in the lumen at the origin of the deep femoral artery (upper arrow). The lateral circumflex artery selected as recipient vessel (lower arrow). Figure 3—(A) Anastomosis of the right gastroepiploic artery and vein to the lateral circumflex vessels (LCV). (B) Appearance of the revascularised omentum.

complications were eliminated, the recipient site (15 × 12 cm) was finally excised and the omentum plugged into the deep defect surrounding the femur which had been adequately debrided of superficial necrotic bone (Fig. 5). It was left for a week and the granulations were then skin grafted.

The postoperative course was uneventful and a good final result was achieved (Fig. 6).

### Discussion

The *advantages* of delaying the excision of a defect and the inset of a free flap whenever there is a

doubt about the vitality of the tissue transfer are obvious. It allows easy visual control of anastomosed vessels, permitting early diagnosis of an arterial thrombosis (disappearance of pulsations) or venous problems (distension of venous network) and it makes possible a fast reoperation if needed. But the main interest is certainly to diminish the severity of local complications if the flap should fail since important structures are not exposed until the viability of the flap is established.

*Disadvantages* such as risks of displacement of



Fig. 4



Fig. 5



Fig. 6

Figure 4—Peroperative view showing the omentum in the plastic bag fixed to the thigh for delayed inset. Figure 5—Wide excision of the radionecrosis to be followed by the inset of the flap. Figure 6—Satisfactory final result.

the flap with traction on the pedicle and local infection are more theoretical than practical, providing the flap is carefully anchored to the skin by key sutures. The warmth and sterile atmosphere of the plastic bag are biologically adequate conditions for tissue preservation.

We have not found any reports in the literature of the technique we describe, but Anderl in 1977 published a case where extreme vessel spasm in the lower extremity compelled the author to postpone the transfer of a groin flap which was banked at a temperature of 4°C for 30 hours and then successfully revascularised. Servant (1985, personal communication) has advised delayed inset of a latissimus dorsi musculocutaneous flap folded on itself in the form of an "apple turnover" and later opened and applied to the excised recipient site. Godina (1985, personal communication) has, on several occasions, carried out delayed replantation of an amputated hand which was revascularised and stored temporarily in an ectopic site (axilla or groin).

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