A Method of Immobilisation for the Cross-Leg Flap

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THE success of a cross-leg flap operation is to a large extent dependant on satisfactory post-operative immobilisation of the legs. The commonest method of immobilisation employed today is to place the legs within a Plaster of Paris cast at the end of the operation. Though fairly satisfactory this method has many disadvantages. It increases anaesthesia time, it is expensive and pressure sores are all too common, resulting in prolonged hospitalisation and slow convalescence. In addition, part or whole of the grafted area is covered by the plaster cast making dressings almost impossible whilst serosanguinous or purulent discharge soaks into the plaster cast and encourages infection. Possibly, the greatest disadvantage is the inability to change the position of the legs once the plaster of Paris has set. Quite often the position in which the legs are immobilized under anaesthesia proves to be extremely uncomfortable for the patient or results in kinking of the base of the flap or causes tension on the suture line. In most cases the only way of redeeming the situation is to remove and reapply the cast, a laborious, painful and time consuming process.

A modification of this method consists in placing the legs in a cast and joining them together with aluminium rods and universal joints. The other method less frequently used employs osseous screws which are joined together with metal bars and universal joints. This method was first described by Hoffman for fixation of fractures of the tibia and used for immobilisation of the cross leg flap by Eriksson et al in 1966. The method is useful when there is a concommitant fracture of the tibia but it has its own disadvantages. It is even more expensive than the plaster cast method, and local osteitis is fairly common at the site of the screws. Besides, it is very difficult to immobilise the ankle satisfactorily by this method.

The method about to be described has obviated most of the above disadvantages and we at the Tata Department of Plastic Surgery, J.J. Hospital, Bombay, have used it exclusively for the last one year. The method is not new. It was developed at the Frenchay Hospital in Bristol, England and has been in use there for many years. The method employs a box $30'' \times 24'' \times 18''$, which is open above and at one end, and blocks of polyurethane foam of various sizes (Fig. 1). The legs are strapped with elastoplast immediately after the operation at one or

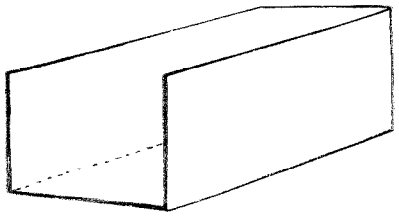


Fig. 1—The 'box' is open from above and from the front

two strategic places and the Patient is carefully transfered onto his bed. A responsible person must be present at this stage. The box is filled with foam blocks to the desired height depending on the angle of flexion at the hip and knee that is required and the legs are placed on them. Then the legs are wedged between the sides of the box by placing foam pieces between the legs and the sides of the box (Fig. 2). It is amazing how effectively the legs are immobilized in this

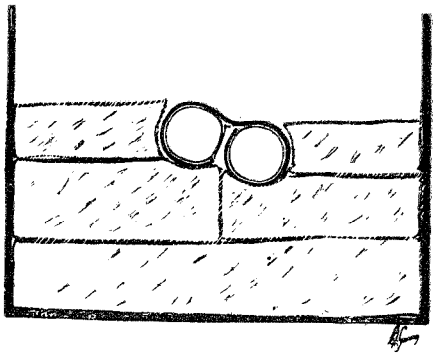


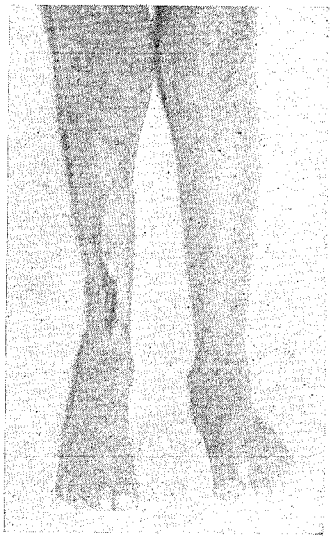
Fig. 2—Diagrammatic representation of the legs with the X-leg flap in place and immobilised by blocks of polyurethane foam within the 'box'.

manner which is not dissimilar in principle to the air-bag used to immobilise fractured extremities.

Good post-operative care is necessary till the patient is completley out of anaesthesia. A smooth recovery is a great advantage. Once the patient is awake no restraint is necessary though the elastoplast strapping may be left in place for a few days. If the position needs to be changed at any time it is a simple matter to shift a little bit of foam from one side and place it on the other.

Fig. 3 shows an unstable scar on the leg of a nine year old boy. The scar was excised and defect covered with a X-leg flap. The legs were immobilised by the method described above. Immobilisation was perfectly adequate and the child was so comfortable that we had no trouble with him at all. Infact, no additional fixation was necessary.

The greatest advantage of this method is the ease with which the legs can be removed and replaced. It is therefore our practice to remove the legs from the box 48 hrs. after operation for gentle physiotherapy. This minimises pain and improves circulation in both legs.

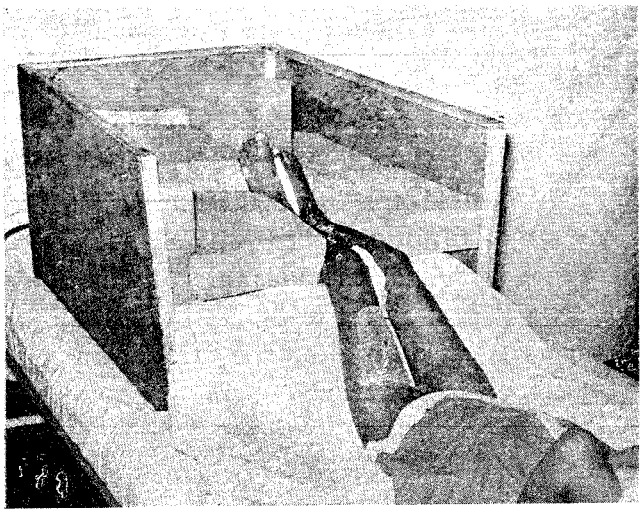


3a—Unstable, adherant scar on the right leg treated with a cross-leg flap.

Since the legs can be taken out and put into the box as often as necessary, dressings pose no problems and for the same reason, pressure sores are rare indeed.

The 'box' method of immobilisation is indeed excellent when a cross-leg flap is used to cover skin defects of the leg but it can be used with advantage for other sites as well (Fig. 4).

Though this method has not been tried



3b—The legs immobilized in the 'box'

3c—The final result.

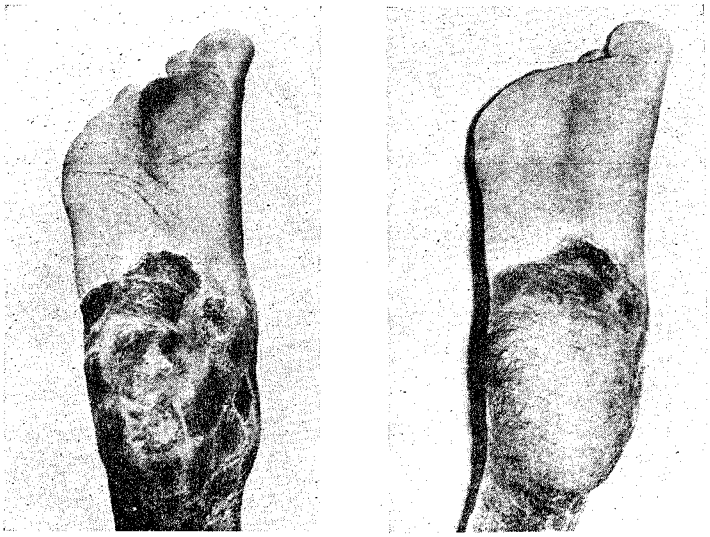


Fig. 4a & b—Pre-operative and post-operative photographs of a patient with an unstable skin graft on the heel which was replaced by a X-leg flap. This patient was also immobilised in the 'box'.

for a cross thigh flap, there is no reason why it should not be feasible if the dimensions of the box were altered accordingly.

Conclusion

The 'box' is comfortable for the patient and convenient for doctors and nursing staff. Success of this method is due to the fact that it offers adequate immobilisation, yet allows early physiotherapy. It is thus conducive to a quick recovery of function when immobilisation is discarded. It has the added virtue of being inexpensive since the foam blocks can be washed and autoclaved as often as necessary.

Summary

A method for immobilisation of the cross-leg flap is described. Its advantages over conventional methods are discussed. Pre and post-operative photographs of patients treated in the 'box' are shown to emphasize its efficiency.

REFERENCE

Eriksson, F., Eriksson, G. and Nylen, B. : Plast. & Reconst. Surg., 38 : 5, 410-413, 1966.