A simple method for pedicle protection in flap surgery for posterior heel defects

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ABSTRACT

A simple method is being described to avoid pressure over the pedicle of the flaps that are being used to cover the posterior aspect of the heel, using two 5/8 Ilizarov rings. This adjuvant procedure in the difficult area of reconstructive surgery ensures safer early postoperative care and better patient comfort.

KEY WORDS

Pedicle protection, Ilizarov rings

INTRODUCTION

Resurfacing of lost skin and soft tissue over the heel has always been a challenging task for reconstructive surgeons. The need for protection of the graft, local flap or free flap used to cover the posterior heel in the early post-operative period is most important for the success of the surgery. Conventional method of using bulky dressing with plaster of paris is unpredictable in protecting the graft or the flap. Moreover, monitoring the flap will be difficult and it becomes cumbersome for wound care.

Although Hoffmann external fixators have been used by Buford et al. to avoid pressure over the free flap for the posterior heel, there are no reports in the literature of ring fixators being used for this purpose. The simple method of using two 5/8 Ilizarov rings with 2 K wires has been described to avoid pressure over the graft and/or pedicle used to cover the posterior heel defect.

MATERIAL AND METHODS

After the flap cover [Sural artery flap, distally based posterior Tibial artery flap or Local perforator based flap], 2 K wires of 1.5 or 1.8 mm size are passed transversely and parallel to each other through upper tibial metaphysis proximally and distal tibial metaphysis or calcaneus distally. These two K wires are now incorporated into a preassembled frame of the two 5/8 Ilizarov rings connected by 3 long threaded rods in the posterior, posterior medial and posterior lateral part of the 5/8 ring. K wires are then tensioned using dynamic tensioner. Care must be taken to see that there is at least a three-finger breadth gap between the calf and the frame. Minimal protective dressing over the flap and the pedicle is now given allowing enough room for repeated flap inspection. Patient is then put in supine position.
DISCUSSION

The beneficial role of external fixators in flap surgery has been very well documented and practiced in cross leg flaps. The Ring fixators commonly used for bone lengthening and transportation is being used and described for the first time for pedicle protection in flap surgery for defects in the posterior heel.

This simple Ilizarov frame will not only help in avoiding pressure over the pedicle and the grafted donor area but also allows the surgeon for easy and repeated flap inspection. Patient’s comfort is also taken care of. The frame when rested over a pillow allows adequate elevation of the operated site.

This Ilizarov frame does not preclude the usage of anterior or antero-medial tubular external fixator if required to treat the concomitant skeletal injury of the leg or ankle. The frame also enhances the external skeletal stabilization. Removal of this frame is easy and can be done as an outpatient procedure without any anaesthetic agent after 2 or 3 weeks.

This method of external fixation will be more advantageous than the previously described Hoffmann fixator, in that the 5/8 ring allows easy positioning of the limb both in supine and lateral positions. Only two thin K wires rather than multiple Schanz pins obtain the purchase of the skeleton. As this frame is used only for a short period of 2-3 weeks, the incidence of pin tract infections is negligible and definitely ignored when compared to the advantages provided by the frame in terms of flap monitoring, avoiding the pressure over pedicle, patient’s comfort and easy lateral positioning of the patients.

REFERENCES