

## **The Keystone Flap: A revolution in closure?**

### **Case report of a radial forearm flap defect closed by a keystone flap**

Mr Alexander Graham,  
St. George's, University of London

A 45 year old man presented to the Accident and Emergency department in Sunshine Hospital, Melbourne following a motorcycle accident. He had sustained a deep fascio-cutaneous wound on the lateral dorsum of his right foot, measuring 6 cm by 5 cm. The plan was to repair the ankle defect with a free radial forearm flap.

After wound debridement the anterior tibial vessels and great saphenous vein were exposed. The radial forearm flap was taken as a fascio-cutaneous flap and after insertion, the radial forearm defect could not close directly. The next step was to close this defect with a keystone flap.

The keystone flap was based on the ulnar artery perforators and the overlying skin and subcutaneous tissues were mobilised. The flap was inset into the defect providing excellent cover for the remaining anterior forearm structures. A literature search showed this to be the first instance where a radial forearm flap defect has been closed by a keystone flap.

The keystone flap is a curvilinear trapezoidal flap based on subcutaneous, fascial and muscular perforators. There are 4 subcategories. The flap can contain skin, subcutaneous tissues and fascia. Mobilisation of the flap allows large defects to be closed easily with relatively little laxity due to the two corners being closed with a V-Y advancement. The benefits of the keystone flap are that it is quick and easy to perform, prevents the need for skin grafting, has a better aesthetic outcome and a very low incidence of post-operative pain<sup>1</sup>.

#### References

<sup>1</sup> Behan FC. The keystone design perforator island flap in reconstructive surgery. ANZ J Surg 2003;73: 112-120.