British Journal of Plastic Surgery (1980), 33, 242–244 0007-1226/80/00530242802.00

AN ISLAND FLAP FROM THE FIRST WEB SPACE OF THE FOOT TO COVER PLANTAR ULCERS

By HARRY J. BUNCKE, Jr., M.D. and LAWRENCE B. COLEN, M.D.
Microsurgical Unit, Ralph K. Davies Medical Center,
Castro and Duboce Streets, San Francisco, California 94114, USA

There are many ways of resurfacing defects of the sole which can be found in most textbooks of plastic surgery. When the defect is anterior, use has frequently been made of skin from the toes usually after filleting them or at least shortening them (Greeley, 1945; Pangman and Gurdin, 1950; Giannini, 1954). The technique to be described

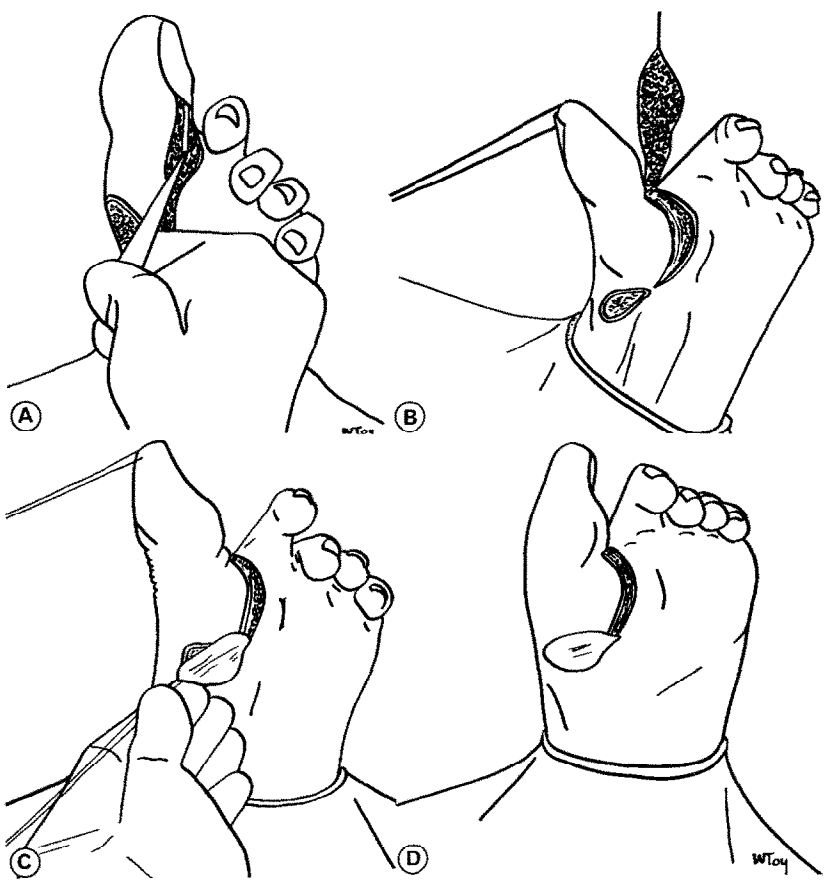

FIG. 1. A. The neurovascular bundle to the lateral side of the great toe exposed in the first web space. B. The neurovascular island flap raised from the web and adjacent side of the great toe. C. The pedicle is accommodated in an incision joining the primary and secondary defects. D. The flap is in place and the secondary wounds are ready for closure directly or with split skin grafts.

Address for reprints: Lawrence B. Colen, M.D., Microsurgical Unit, Ralph K. Davies Medical Center, Castro and Duboce Streets, San Francisco, Ca. 94114, U.S.A.

uses toe skin but without loss or shortening of the toes and the secondary defect may be closed directly or with a split skin graft.

Operative Technique

Figure 1 shows the various stages of the procedure. Since the blood and nerve supply come from the dorsum, the transverse metatarsal ligaments are divided to allow mobility to the neurovascular bundle. After debriding the ulcer and mobilising the flap, an incision connecting the primary and secondary defects is made to accommodate the vascular pedicle. When the flap is sutured in position the secondary defect is closed either directly or with a split skin graft.

The technique has been used in 2 patients (Figs. 2 and 3). So far the follow-up periods have been short but it is hoped that the introduction of well vascularised tissue into the ulcers will result in permanent success.

Both patients had anaesthetic feet and the neural part of the neurovascular bundle was superfluous. In certain instances it would be most valuable in supplying sensation as well as blood supply.

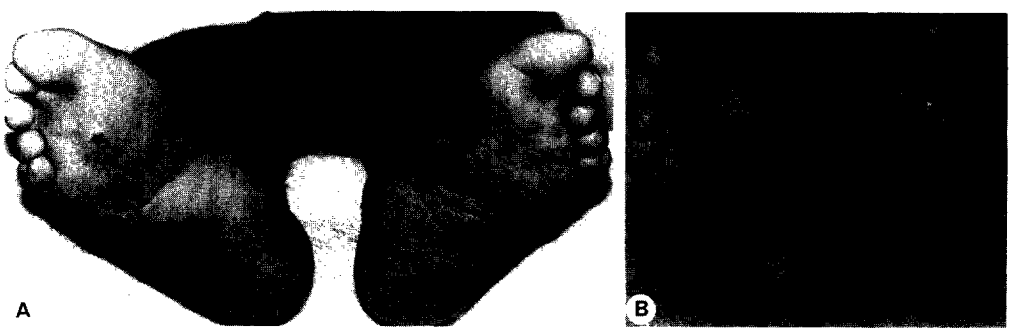

FIG. 2. A. A 28-year-old paraplegic man with bilateral deeply penetrating ulcers of the anterior sole, eroding the underlying metatarsals. B. On the right foot the flap is 2 weeks postoperative; the left ulcer had been closed several weeks before. The donor site was closed directly on the right and with a split thickness graft on the left.

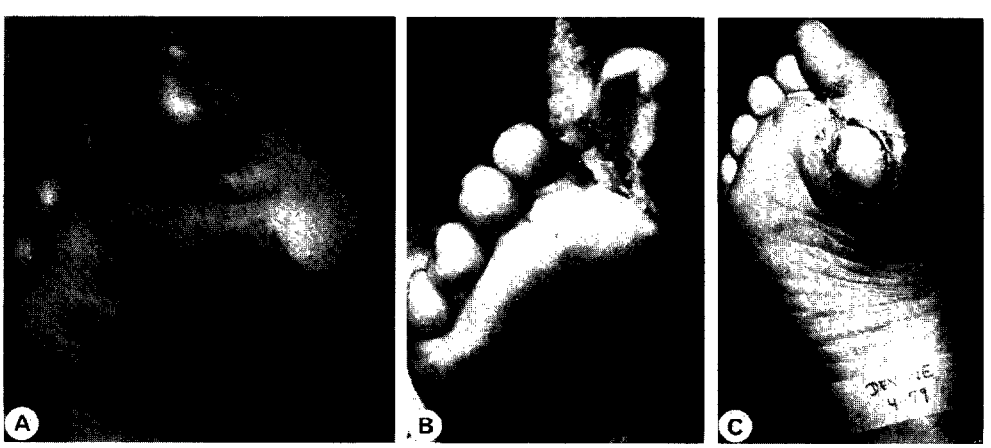

FIG. 3. A. Deeply penetrating ulcer eroding the first metatarsal head. The patient was a 51-year-old man suffering from Charcot-Marie-Tooth disease. B. The flap raised on its neurovascular pedicle. C. Early postoperative result.

REFERENCES

GIANNINI, J. T. (1954). Surgical treatment of plantar warts, callosities and ulcers. *Plastic and Reconstructive Surgery*, **13**, 130.

GREELEY, P. W. (1945). Plastic repair of radiation ulcers of sole. *U.S. Naval Medical Bulletin*, **45**, 827.

PANGMAN, W. J. and GURDIN, M. (1950). The treatment of complicated plantar lesions. *Plastic and Reconstructive Surgery*, **5**, 516.