BUTLER'S OPERATION FOR AN OVER-RIDING FIFTH TOE

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The dorsally adducted fifth toe is a common familial deformity which causes disability in half of the affected patients. The phalanges of the fifth toe are laterally rotated and the capsule of the metatarso-phalangeal joint is contracted on the dorsal aspect. The toe has an extended, adducted, lateral rotation deformity at the metatarso-phalangeal joint. This paper describes an operation for this deformity which was devised by Mr R. Weeden Butler of Cambridge and has been used in the United Bristol Hospitals for the past seventeen years.

OPERATION

The skin is incised by a dorsal racquet incision (Fig. 1). A second handle is then added to the racquet on the plantar aspect (Fig. 2). The plantar handle should be a little longer than the dorsal handle, and should be inclined laterally. Skin flaps are raised to reveal a tight extensor tendon (Fig. 3). The neurovascular bundles are carefully preserved (Fig. 4). The extensor tendon to the toe is cut and the dorsal capsule of the metatarso-phalangeal joint is widely divided (Fig. 5). In most cases the toe will now swing freely downward and laterally into the correct position.

If the deformity is longstanding the toe may not rotate freely around the metatarsal head into the correct position but may hinge, leaving a slight incongruity at the metatarso-phalangeal joint (Fig. 6). This is due to adherence of the plantar part of the capsule of the metatarso-phalangeal joint to the metatarsal head. This adherent capsule is separated from the metatarsal head by blunt dissection and the toe is then able to rotate freely (Fig. 7). The toe lies in its fully corrected position without any tension (Fig. 8), having been moved downwards into the plantar handle of the incision; and the skin sutured round it holds it there securely (Figs. 9 and 10). The mechanics of the operation are illustrated in Figures 11 to 14.

Treatment after operation—No splints are needed as the toe lies correctly at the end of the operation without any tension. The sutures are removed between the tenth and fourteenth day and normal activity is allowed.
Figure 3—Skin flaps elevated. Figure 4—Neurovascular bundles identified and carefully preserved.

Figure 5—Wide dorsal capsulotomy and extensor tenotomy. Figure 6—Showing incongruity of the metatarso-phalangeal joint surfaces.

Figure 7—The incongruity of metatarso-phalangeal joint has disappeared after separating plantar capsule adhesions. Compare the position of the toe with its position in Figure 6. Figure 8—Position of the toe before skin suture.
RESULTS

From 1953 to 1963, seventy operations were done on nineteen male and thirty-six female patients. The age at operation was from five months to forty-five years; forty-five of the fifty-five patients were under fifteen years of age. Fifty-nine operations were done for congenital dorsally adducted fifth toe and eleven for dorsally adducted fifth toe with clawing. 

Follow-up—Patients were examined after a period of one to ten years after operation. Forty-three of the operations had been done three years or more before and twenty-one more than five years before.

Figure 9—The dorsal aspect of the final position of the toe after suturing.
Figure 10—The plantar aspect of the final position of the toe after suturing.

Figure 11—Initial position showing that the toe can be swung downwards within the elliptical skin incision, the proximal phalanx gliding smoothly over the metatarsal head. Figure 12—Adherent plantar capsule of the metatarso-phalangeal joint causing the toe to hinge at the joint, producing incongruity of the articular surfaces and preventing full correction of the deformity. Figure 13—After release of the plantar capsule the toe glides freely around the metatarsal head and the deformity is fully corrected. Figure 14—Showing how correction is held by skin sutures.

Results were graded “good,” “fair” and “failed.” A good result was obtained in sixty-four operations (91 per cent). The criterion was a result which was satisfactory to both surgeon and patient, with full correction of the deformity.

A fair result was recorded in four patients (6 per cent). This was a toe which, although satisfactory to the patient, had an element of deformity uncorrected, usually a rotational deformity.

There were two failures (3 per cent). These two failures were in girls of thirteen and sixteen with congenital dorsal adduction deformity. The deformity in both cases recurred rapidly within a year and was then treated by amputation.
Wound infection occurred in two cases (3 per cent). In a further three operations there was delay in wound healing. This occurred when the sutures were removed at ten instead of fourteen days. Circulation in all toes examined at follow-up was normal and sensation and skin texture was also normal. There were no cases of keloid formation, the scar in all cases being hardly visible.

DISCUSSION

Many of the operations described for the correction of this deformity have serious drawbacks. Probably the most widely practised is V-Y plastic elongation of the skin. A significant number result in an ugly scar and keloid formation and recurrence of the deformity (Scrase 1954).

McFarland's operation of syndactyly of fourth and fifth toes and excision of the base of the proximal phalanx (McFarland 1950, Scrase 1954), and the Ruiz-Mora operation of proximal phalangectomy with plantar syndactylism (Straub 1951), whilst giving good results replace one deformity by another.

Practically all operations require immobilisation after operation, including those of Lapidus (1942) and Colonna (1950).

Butler's operation can be likened to changing gear in a car. The whole toe is swung downwards and laterally to lie in the plantar part of the wound. It is not simply a combined dorsal V-Y and plantar Y-V plastic procedure, but a complete realignment of the whole toe.

It is to be stressed that splints are unnecessary after Butler's operation as full correction of the deformity is obtained without tension. It is, however, possible to produce traction on the neurovascular bundles if adduction is severe and this can produce embarrassment to the circulation of the toe. This, however, is usually temporary. Butler (1964) warns against this and is careful to guard against it.

In this series there has been no circulatory damage to the toe and wound healing has not been a problem. A full and normal circulation usually returns in the toe within one to two minutes after release of the tourniquet. The two failures almost certainly occurred because correct joint surface alignment at the metatarso-phalangeal joint was not obtained by separating the adherent plantar capsule from the metatarsal head.

SUMMARY

1. Butler's operation for the correction of the dorsally adducted fifth toe is described.
2. It is a simple and safe operation not needing splints, and giving good reliable results.
3. The results of seventy operations performed over ten years are studied.

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REFERENCES