THE SURGICAL TREATMENT OF DUPUYTREN'S CONTRACTURE

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This paper is based upon experience in the treatment of sixty-eight patients with Dupuytren's contracture who were subjected to operation. Of these, thirty-one had both hands operated upon, and thirty-seven each had one. In fifty-two of these ninety-nine hands the operation consisted of radical excision of the palmar fascia, which is generally accepted as the treatment of choice.

Excision of the palmar fascia is not necessarily an easy operation. The chief difficulties are those associated with severe flexion deformities of the fingers and with densely adherent skin. A simple standard technique will, however, overcome these.

TECHNIQUE OF RADICAL EXCISION OF THE PALMAR FASCIA

Skin incisions—In no case of Dupuytren's contracture is there any loss of skin. In the worst deformities the skin may have shrunk severely but, if the fascia is adequately excised, the skin will stretch in time. Recovery of normal extension is never prevented by contracture of skin, hence there is never any need for Z-incisions (Palmén 1932), V-Y-incisions (Skoog 1948), skin flaps (Seemen 1938) or skin grafting (Orbach 1934). There is, however, absolute necessity for properly planned incisions, for the gentle handling of skin and the avoidance of toothed forceps, towel clips, and other heavy instruments. Skin retraction must be performed only with fine skin hooks. The operation is performed under a tourniquet, which is removed before the wounds are closed.

The incisions employed are shown in Figure 1. The transverse palmar incision is that of Gill (1919). The long flap incision, illustrated here on the ring finger, is used in a finger in which the contracted fascia extends down one margin only. The base of the flap lies on the unaffected side. "Trap-door" flaps, as shown on the middle finger, are used when contracted bands run down both sides of the digit. The flaps are so designed as to give them the best possible blood supply.
Removal of the fascia—In all cases, however localised the lesion may appear, it is essential to remove all the fascia in the palm, however normal some may appear, all its vertical prolongations down the metacarpals, and all abnormal extensions into the fingers. To do less invites recurrence. The palmar fascia is attached not only to the metacarpals or phalanges, particularly the middle phalanges (Fig. 2), but also to the extensor expansions in the fingers (Fig. 3). The extensor expansions are not often involved in the pathological process but, when they are, a hyperextension deformity is produced at the distal joint (Fig. 4).

It is not always appreciated that the vertical extensions of the fascia which pass down on either side of the tendons to become attached to the metacarpals (Fig. 5), if not removed at the time of excision of the palmar fascia, may later become involved in the pathological process in association with the extension of the fascia into the adjacent finger and will then form a point of purchase whereby a flexion contracture of the adjacent finger can be produced (Fig. 6).

Treatment of joint changes—In severe cases the fingers cannot immediately be fully extended on the operating table even after thorough removal of fascia. The residual deformity is due partly to plication of the anterior part of the capsule of the joints, particularly of the proximal interphalangeal joints, and partly to contracture of the capsule and of the collateral ligaments. Being attached to the middle phalanx, the shrunken fascia exerts its greatest pull just distal to the proximal joint. This is illustrated by the frequent formation of new bone at that level (Fig. 7), which new bone will disappear after removal of the fascia as the finger straightens.

The mixture of plication and of contracture in the anterior capsule of the proximal interphalangeal joint is shown in Figure 8, but neither the capsule nor the articular surfaces show changes that are necessarily permanent.

Articular cartilage which, because of the flexed position, has had no contact with its fellow for a long period, loses some of its sheen and opacity, but histologically it remains potentially normal. There is no loss of substance and no more fibrillation than can be found in fingers of individuals of comparable age who have not suffered from Dupuytren’s contracture. The joints, given time in which to overcome the contracture of the capsule, will usually develop a full or almost full range of movement. Capsulotomy is unnecessary. If it is done, the finger can certainly be fully extended on the
After local excision of the fascia and skin, recurrence has occurred. The skin graft which was applied has contracted to produce a tension band between thumb and index finger. In cold weather this band split and produced a small, painful, chronic ulcer.

The dressing and the plaster holding the fingers in the deformed position for fourteen days after radical excision of the fascia. The forearm is suspended within a roller towel for the first three days.
operating table, but, immediately the passive extending force is released, the finger springs back to its flexed position. This may be due to a relative weakness of the extensor mechanism, or to a potentially recoverable contracture of the flexor tendon. Whatever the reason, capsulotomy has certainly not increased the rate of recovery of extension in the joints in the cases in which it has been performed.

Wound closure and splintage—The tourniquet is removed and all bleeding stopped before the skin is closed. The skin is sutured with fine nylon. Mattress sutures are not to be used as they tend to cause skin necrosis. The skin is closed with the fingers in the deformed position, so that there is no tension on the suture line. Split-skin (Thiersch) grafting is not only unnecessary, it is bad, for such grafts themselves contract and can produce tension bands such as are seen in between the thumb and the index (Fig. 9).

To avoid tension on the suture-line and tenting of the skin which predisposes to serous oozing and haematoma, a firm pressure-dressing of gauze, wool and a crepe bandage is applied to the palm, and the fingers and hand are splinted in flexion with a posterior plaster slab (Fig. 10). The arm is kept elevated in a suspended roller towel for three days, and then carried in a sling until the fourteenth day after operation. Active flexion of the fingers is begun the day after operation, but extension is prevented by the plaster splint until the fourteenth day, when the plaster and sutures are removed and active extension is begun.

The patient goes back to work as soon as the skin is soundly healed, although the deformity has only just begun to improve.
RESULTS OF EXCISION OF THE PALMAR FASCIA

In the fifty-two hands on which this operation was performed, it was possible fully to correct the deformity at the time of operation in twenty-five. All regained a full range of movement within six months. In the other twenty-seven, such immediate correction was not possible. All were much improved: twelve have regained a full range and the others are still improving, but, as improvement in this group continues for as long as two years, not all are yet at their best. Only eleven of them have been followed up for eighteen months or more. There have been no recurrences so far.

OTHER OPERATIONS

Of the remaining forty-seven hands, twenty-seven had had subcutaneous fasciotomy performed before they reached the author. Of these, twenty-five showed recurrence in less than eighteen months, and two were not traced.

In twenty other hands, local excisions of palmar fascia had produced four good results without recurrence. Four were not traced. Twelve showed recurrence within eighteen months.

The only operation of value, apart from radical excision of the fascia, is amputation. This is necessary in grotesque deformity (Fig. 4) but the deformity must be really grotesque, for very severe deformities will yield well to radical excision (Figs. 11 and 12).

I wish to express my thanks to the consultant orthopaedic surgeons of the London Hospital and of the Robert Jones and Agnes Hunt Orthopaedic Hospital for allowing me to treat their patients, and to Dr J. Ball for help with histology.

REFERENCES