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What is This?
Radical Digital Dermofasciectomy in Dupuytren’s Disease

A. M. LOGAN, H. G. BROWN and P. LEWIS-SMITH
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Fifteen dermofasciectomies, the excision extending from the distal palmar crease to the distal interphalangeal crease and carried out to the midaxial line on either side are reviewed, stressing the good take of skin graft in well vascularised fingers. The technique is strongly recommended as the first line of treatment in recurrent digital Dupuytren’s contracture.

Hueston (1963) reviewed 224 fasciectomies and found a 28% recurrence rate. Patients in their late twenties had a 100% recurrence rate. This dropped to 50% by the early forties, and was zero in the over seventies. However, numerically the total numbers of recurrences in middle age far outweigh that in youth since so many more people in middle age are affected by the disease.

During 1983, of the fifty-four operations carried out for Dupuytren’s contracture, under the care of Mr. H. G. Brown, seventeen (one third) involved operation in an area of recurrence within a digit. Of these digits eight had had one previous fasciectomy, but six had had two, and one three previous fasciectomies (two digits having had an uncertain number of previous fasciectomies). With each successive operation the chance of neurovascular damage and a correspondingly inferior result are much increased.

We therefore, looked at an operation designed to prevent further recurrence of Dupuytren’s contracture within a digit. Theoretically, this operation involves the excision of all potentially affected tissue volar to the axes of the finger joints. In practice the skin and fasciae are excised denuding the flexor sheath and neurovascular bundles and taking the excision out to the midaxial line (dorsal to the midlateral line) on either side (Figure 1). In order not to devascularise the digit the excision deep to the neurovascular bundles is compromised, only frankly involved fasciae being excised from between the neurovascular bundle and the long axis of the digit. This excision is carried out from the distal palmar crease to the distal interphalangeal crease (Figure 2).

Patients and Method
Fifteen hands underwent such a radical digital dermofasciectomy, fourteen little fingers and one ring finger (where the little finger had previously been amputated for Dupuytren’s contracture). All digits had a proximal interphalangeal joint contracture.

Only one patient had aggressive bilateral disease in youth accompanied by ectopic foci and a strong family history, and he had the skin of both little fingers replaced primarily. One other digit, that of a patient in middle age with very diffuse disease, underwent primary radical digital fasciectomy. Of the others, seven had had one previous fasciectomy, while four had had two, and one three previous fasciectomies.

The skin defect was closed with a full thickness or thick partial thickness skin graft taken from either forearm or groin (Figure 3), the secondary defect being closed directly. The graft was secured under a wool tie-over and the hand rested in a full hand bandage for one week.

Results
Fourteen out of the fifteen skin grafts took fully. One skin graft on a poorly vascularised digit in which both digital arteries had been damaged was lost over the middle finger compartment.

All the skin grafts required a protective dressing and were too fragile to allow vigorous interphalangeal joint movement or splintage for at least three weeks; three required protection for four weeks and one for seven weeks.

This precluded an early return of good flexion, but the flexion finally gained was satisfactory, most patients achieving a nail to distal palmar crease measurement of 2.5cm (Figure 4).

The amount of extension gained by this radical procedure may not be so different from that gained by a limited fasciectomy. However, because the exposure tends to be greater with the radical procedure, the chance of complete excision of all Dupuytren’s tissue is probably greater. Certainly no skin infiltrated by Dupuytren’s tissue is replaced on the volar surface of the digit; nor is there any longitudinal scar in the skin graft on the volar aspect of the digit, so there is no dermal reason for limited extension.

Rents in the flexor sheath have always been of great concern, the usual suggestion being that the skin flaps should be retained until the end of the dissection and, if necessary, used to cover exposed flexor tendon. However, skin grafts are capable of bridging considerable rents in the flexor sheath, the graft in Figure 5 maturing stably and allowing a good return of flexion.
Fig. 1  a: A representation of the digital fascia after Thomine (1965).
b: The theoretically required excision.

Fig. 2  The skin and fascia excised.

Fig. 3  The skin graft inset.
POSTOPERATIVE FLEXION

The time of return to work for manual workers and return to full normal use of the hand for clerical workers and the unemployed patients in the series is plotted in Figure 6. The eight manual workers were heavy manual workers and most returned to work around nine weeks post-operatively. The two clerical workers returned to work in their full hand bandages, and regained what they felt was full normal use of the skin grafted digit at three and five weeks. The unemployed patients formed an intermediate group.

Static two point discrimination was measured in nine of the grafts (Figure 7), being measured transversely in each compartment. In the distal palm and proximal finger compartment it was often comparable with the two point discrimination in the opposite digit when a simple fasciectomy had been carried out.

No digit was tender or had cold sensitivity necessitating a change of habit.

All grafts remained stably healed apart from one (Figure 8). This was on the hand of a shot blaster. He developed small broken areas from time to time which were of nuisance value and healed spontaneously.
Fig. 6  Time of return to work.

**STATIC 2 P.D. (mm)**
*(measured in 9 hands)*

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<tr>
<th>Distal palm</th>
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Fig. 7  Static two point discrimination in the graft.

The grafts of groin origin all developed brown pigmentation which the patients detested; they also tended to be bulky (groin skin is twice or even three times as thick as volar digital skin). The grafts from the forearm had an excellent colour match and were of similar thickness to digital skin.

One probable recurrent abductor band has developed beneath a graft (Figure 9), though this has not yet caused deformity warranting surgery. No other recurrences have been seen. Follow up (Figure 10) was from nine to sixty-six months, with only two patients, (three hands) being followed for more than two years.

**Discussion**

Although dermofasciectomy has been strongly advocated (Hueston, 1962, 1969) it has not become popular.
Repeated digital fasciectomy inevitably leads to neurovascular damage, division or even excision. We feel that an operation planned as the final operation a digit will require for Dupuytren's contracture should be offered at the time of first digital recurrence.

Radical digital dermofasciectomy, probably because of a more complete excision of actual and potential Dupuytren's tissue, offers the best chance of fulfilling this plan.

Conclusion
Digital skin grafts take well provided the digit remains well vascularised. They allow good return of flexion. Even extensive grafts prove fairly durable. They have a satisfactory return of innervation. They can be cosmetically excellent.

Radical digital dermofasciectomy, in spite of not controlling recurrence in all cases, is strongly recommended at the time of the first operation for recurrence within a digit.

References