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# Dermofasciectomy and Proximal Interphalangeal Joint Replacement in Dupuytren's Disease

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**A case of Dupuytren's Disease is presented in which a combination of dermofasciectomy and proximal interphalangeal joint replacement using a Swanson's prosthesis improved hand function and avoided further digit amputation.**

A case is described of a male, aged sixty four, with a thirty year history of bilateral Dupuytren's disease. He displayed a strong disease diathesis having a positive family history; early age of onset; ectopic plantar deposits; and a heavy alcohol intake. He was previously a heavy manual worker and had severe chronic bronchitis.

Multiple operations had been performed between 1971 and 1983. Faciectomy or fasciotomy had been performed on each digit on the left hand on two or more occasions. The middle and ring fingers of the right hand had been amputated. The remaining digits had been treated by fasciectomy on two occasions (Figure 1).

The proximal interphalangeal joints of the left hand were fixed and could not be corrected by passive flexion of the metacarpophalangeal joints. The patient was unable to extend the fingers to allow even a small object to be grasped in the palm.

A staged procedure was planned beginning with the radial two fingers. Dermofasciectomy of the middle finger improved the metacarpophalangeal joint contracture but did not release the proximal interphalangeal joint in spite of an extensive fasciectomy and release of the accessory collateral ligaments and the volar plate. It was decided to replace the joint with a Swanson silicone rubber prosthesis. This



Fig. 1 Severe bilateral Dupuytren's Disease.

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Fig. 2 Passive extension of the middle finger with near full correction of the proximal interphalangeal joint deformity.

was performed through a curved dorsal incision as described by Swanson. Correction of the deformity was near full with the metacarpophalangeal joint flexed, but deformity recurred to E minus 40 degrees with the metacarpophalangeal joint extended.

The tourniquet was released; haemostasis obtained; and a full thickness skin graft applied to the defect overlying the proximal phalanx of the middle finger.

Post-operatively the hand was rested on a volar plaster of Paris slab for seven days. The metacarpophalangeal joints of the index and middle fingers were splinted at E-40 and the proximal interphalangeal joints at full passive extension. The index and middle fingers were then "buddy-splinted" together and gentle active mobilisation initiated. At four weeks, passive extension exercises and dynamic extension splinting began. There was a partial loss of the graft which interrupted the mobilisation programme. The physiotherapy and follow up programme was not well attended.



Fig. 3 Near full flexion.



Fig. 4 Active extension is less than passive extension due to extrinsic tendon imbalance.

A plateau of function was reached at three months. Passive extension of the middle finger was greater than active extension (Figure 2). Active flexion was to 85 degrees (Figure 3). The wounds were well healed. The patient could now release his fingers from the palm and grip a glass (Figure 4). Further surgery was deferred according to the patient's wishes.

#### Discussion

The role of dermofasciectomy to prevent recurrence in Dupuytren's contracture has been described by Hueston (1962) and Tonkin (1984). Management of the longstanding proximal interphalangeal joint contracture by arthrodesis or osteotomy has been described by Moberg (1975). Arthrodesis of the proximal interphalangeal joint places the finger in a more functional position. Osteotomy achieves a similar end and maintains some movement. Dorsal angulation at the osteotomy site leaves a surprisingly insignificant clinical deformity. Both procedures carry the risks of delayed union and malunion, particularly rotational deformity.

Replacement arthroplasty using a Swanson prosthesis has been reported to provide a 40 degree arc of motion in 90% of cases (Haimovici 1978). Full extension is

usually not achieved in longstanding flexion deformity in Dupuytren's disease which may be due to residual shortening of volar tissues including functional shortening of the flexor tendons (Tubiana, 1981). The silicone material bends to the greater force of the flexors. This extrinsic imbalance may have accounted for the passive extension being greater than active extension in the case reported. However, this reconstructive procedure combined with dermofasciectomy considerably improved a severely disabled hand, and should be considered when the alternative is amputation.

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