A mid-term review of the results of dermofasciectomy for Dupuytren's disease

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SUMMARY : Clinical involvement of the palmar and digital skin by Dupuytren's disease occurs frequently. A review of 40 rays in 32 patients who had consecutively undergone dermofasciectomy is presented. The average follow-up period was 38 months, with a minimum of 24 months. Four out of the 40 rays developed recurrent nodule formation limited to the proximal or distal graft insets but there was no recurrent cord formation, suggesting better disease control than by fasciectomy alone. Full thickness graft to resurface the defect has been surprisingly complication-free.

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KEY-WORDS : Dupuytren's disease. — Dermofasciectomy.

INTRODUCTION

Since there is no histo-chemical marker for Dupuytren's fibroblasts the diagnosis of Dupuytren's disease remains entirely clinical. Emphasis has been placed on the involvement of the « palmar and digital fasciae » by the disease. Although the classical description of the disease includes skin nodules and pits, surgeons have not generally focused on the involved skin, but have lifted it aside to carry out some sort of fasciectomy. Clinically however skin involvement is common. By the time metacarpophalangeal or proximal interphalangeal joint flexion contracture has occurred and surgery is contemplated, skin fixation to the underlying cord of Dupuytren's disease is the rule in our practice (fig. 1).

Surgically there is no plane between the dermis and the underlying cord and at operation the extent of the disease and the overlying skin involvement both tend to be wider than appreciated clinically. This dermal involvement by the disease process is clearly demonstrated histologically (fig. 2).

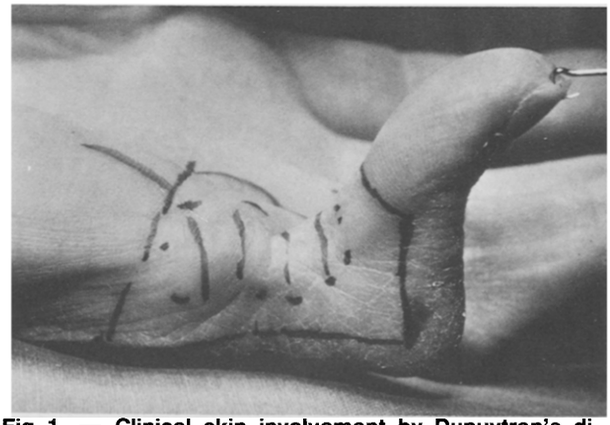

Fig 1. — Clinical skin involvement by Dupuytren's disease. The shaded area of skin is firmly adherent to the underlying Dupuytren's cord.

Fig. 1. — Envahissement cutané par la maladie de Dupuytren. La zone ombrée est fortement adhérente à la bride sous-jacente.

Fig. 1. — Compromiso cutáneo por la contractura de Dupuytren. La zona sombreada esta fuertemente adherida a la brida suprayacente.

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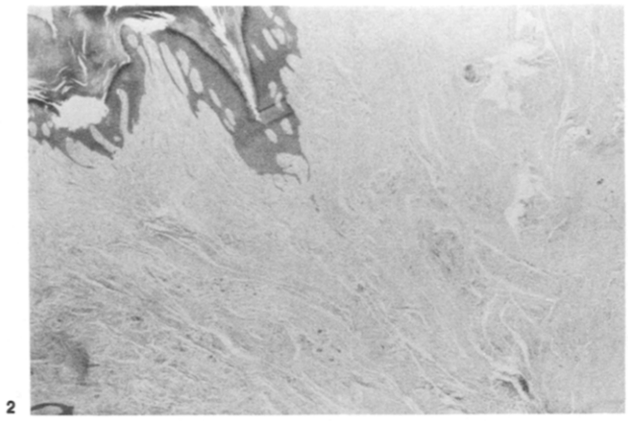

Fig. 2. — Dermal involvement by Dupuytren's disease.

Fig. 2. — Envahissement du derme par la maladie de Dupuytren.

Fig. 2. — Compromiso de la dermis por la contractura de Dupuytren.

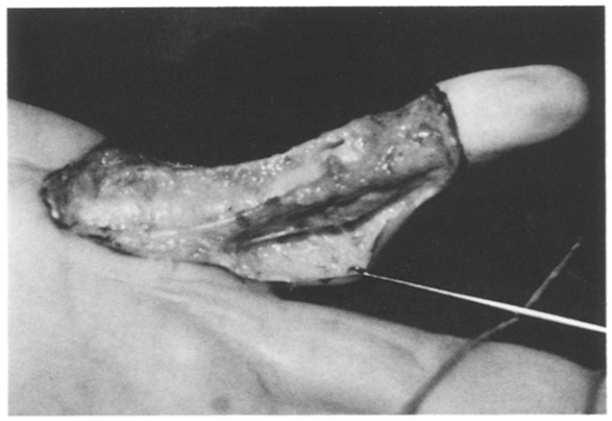

Fig. 3. — Extent of excision shown from the volar radial aspect, the extensor mechanism visible in the depth of the wound.

Fig. 3. — Limites de l'excision (vue palmaire interne), l'appareil est visible en profondeur.

Fig. 3. — Límites de la excisión (borde palmar interno), el aparato extensor se ve en lo profundo de la herida.

If the surgeon takes an excisional rather than an incisional approach to the disease, it seems reasonable to excise the involved skin as well as the diseased subcutaneous tissue, provided that the morbidity of the approach is acceptable.

OPERATIVE TECHNIQUE

Dermofasciectomy as performed in our department is a radical excision of the volar skin, subcutaneous fat and fasciae in the involved ray. We have never encountered diffuse involvement of the flexor sheath by primary disease (although it is often diffusely scarred at secondary surgery), and cord insertion is simply cut off flush. Cord insertions on to the periosteum are dealt with similarly. Digital nerves and arteries (including dorsal branches) are preserved : they are separated from the deeper structures only where frank disease runs deep to them.

Skin excision to avoid volar scar contracture is taken out to the mid-axial line on either side of the finger. The deep dissection after excision of abductor [1] and radial [7] bands exposes the edges of the extensor mechanism. The excision generally runs from the distal palmar crease to the distal interphalangeal flexion crease (fig. 3). A full thickness skin graft is used to close the resultant defect.

REVIEW

The first 34 consecutive patients who underwent dermofasciectomy in Norwich were identified from the operating theatre record. All but two were traceable and attended for review by one of us (AS). Data relating to any previous surgery and their pre-operative disease status was recorded from the notes. All were examined for evidence of recurrent Dupuytren's disease within the operated rays. The skin grafts were examined for signs of damage and instability, and patients were asked whether they found it necessary to protect their grafts in any way.

RESULTS

Forty rays in 32 patients with an average follow-up period of 38 months and a minimum post-operative interval of 24 months were assessed (fig. 4).

Age at the time of dermofasciectomy is shown in figure 5.

The male to female ratio was 26:6 (78 % male).

Seventeen of the 32 patients (53 %) were undergoing dermofasciectomy for recurrent disease with recurrent flexion contracture, having had between one and five previous fasciectomies carried out on the affected ray (fig. 6).

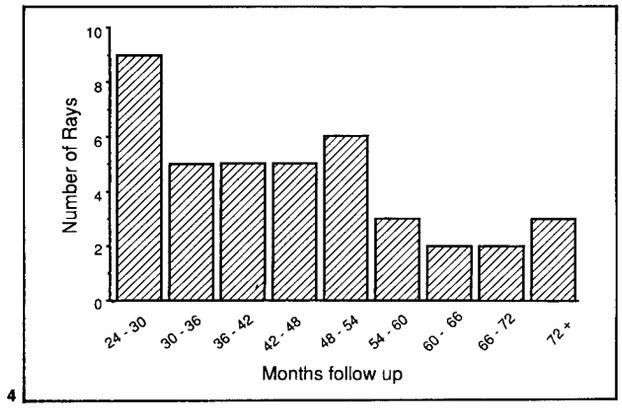

Fig. 4. — Follow-up period.

Fig. 4. — Suivi post-opératoire.

Fig. 4. — Seguimiento postoperatorio.

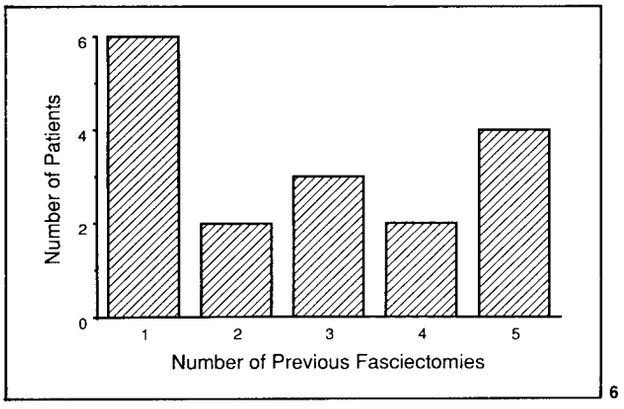

Fig. 6. — Recurrent cases. Number of previous fasciectomies carried out on the ray undergoing dermofasciectomy.

Fig. 6. — Récidives. Nombres d'aponévrotomies préalables sur le rayon traité par dermofasciectomie.

Fig. 6. — Recidivas. Cantidad de aponeurotomías previas sobre el rayo tratado mediante dermofasciotomía.

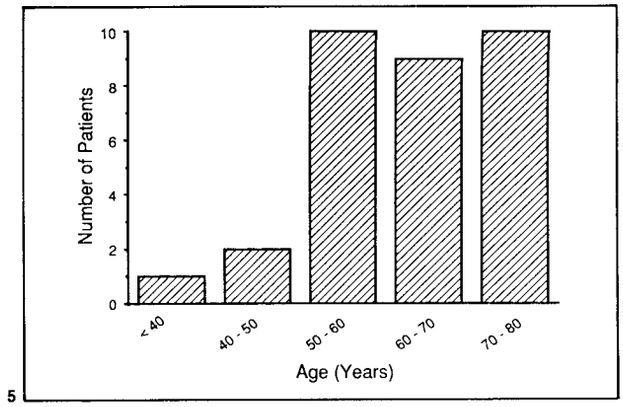

Fig. 5. — Age at time of dermofasciectomy.

Fig. 5. — Age au moment de l'intervention.

Fig. 5. — Edad al momento de la intervención.

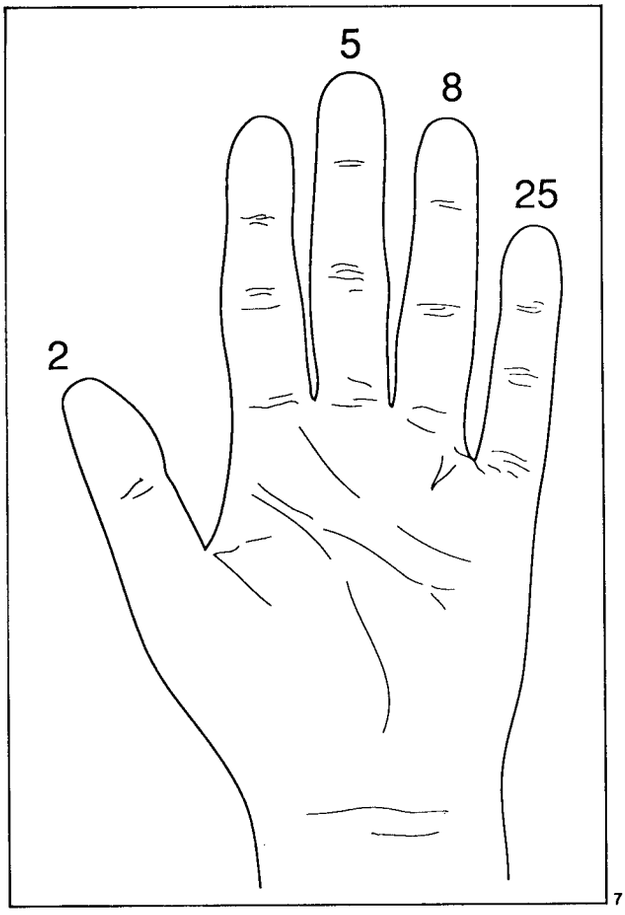

Fig. 7. — Distribution of rays undergoing dermofasciectomy.

Fig. 7. — Distribution des dermofasciectomies par rayon.

Fig. 7. — Distribución de las dermofasciotomías según el rayo.

These included four patients in the 70 to 80 year age group.

The distribution of rays undergoing dermofasciectomy is shown in figure 7.

Recurrent disease

There was no case of recurrent Dupuytren's flexion contracture. However there was clinically recurrent disease in 4 cases. One developed a Dupuytren's nodule at the distal graft inset (fig. 8) and three cases developed a nodule at the proximal graft inset (fig. 9). There were no cases of recurrent Dupuytren's disease involving the lateral or medial margins of the graft and no recurrent Dupuytren's cords.

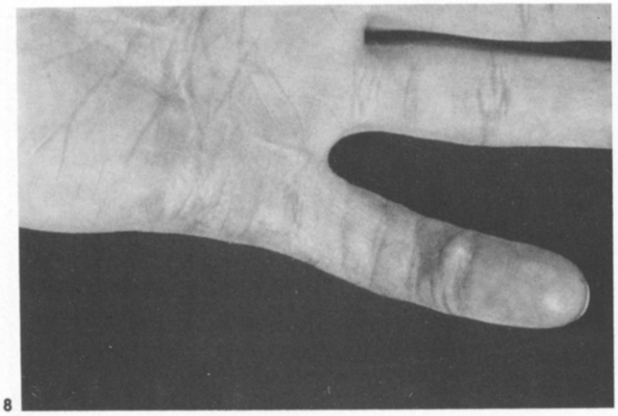

Fig. 8. — Recurrent Dupuytren's nodule at the distal graft inset.

Fig. 8. — Récidive à la berge distale de la greffe.

Fig. 8. — Recidiva en el borde distal del injerto.

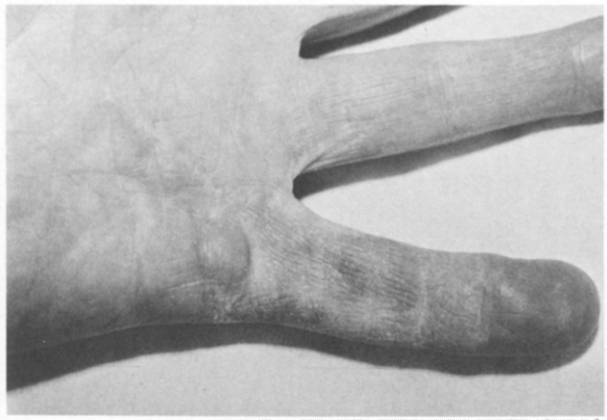

Fig. 9. — Recurrent Dupuytren's nodule at proximal graft inset.

Fig. 9. — Récidive nodulaire sur la berge proximale de la greffe.

Fig. 9. — Recidiva nodular en el borde proximal del injerto.

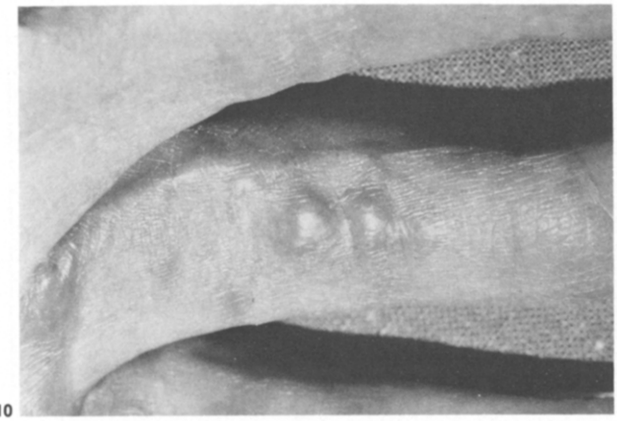

Fig. 10. — Nodules under skin graft which resolved spontaneously over a period of 2 years.

Fig. 10. — Nodules sous une greffe cutanée, qui se sont spontanément résorbés en deux ans.

Fig. 10. — Nódulos bajo el injerto cutáneo, que se reabsorbieron espontáneamente en dos años.

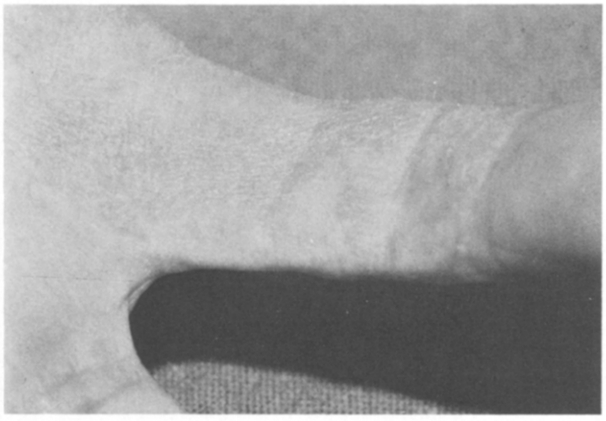

Fig. 11. — Marginal scar contracture.

Fig. 11. — Rétraction cicatricielle marginale.

Fig. 11. — Retracción cicatrizal marginal.

One case developed two nodules under the graft over the flexor sheath. They were clinically unlike Dupuytren's disease in that they were very sharply localised and resolved spontaneously over a period of two years (fig. 10).

Graft morbidity

The forearm or arm was used as a full thickness graft donor site. Graft take was generally good. Significant graft failure occurred in one case when there was loss from the distal palm ; the patient declined flap cover, opting for amputation (his presenting request). All grafts had matured to become soft and supple with stable attachment to the underlying digital skeleton. Graft colour match was considered adequate by the reviewing surgeon and no patient expressed any dissatisfaction with the post-operative appearance.

Two patients experienced recurrent minor breakdown in their grafts. This was a nuisance but rapid spontaneous healing occurred and no further treatment was sought.

In three patients marginal scar contracture was noted (fig. 11). This contracture was soft and pliable and became impalpable on digital flexion.

DISCUSSION

Radical digital dermofasciectomy can be simply thought of as a subtotal preaxial amputation of the digit. This series confirms how well skin grafts take on digits in this situation and how remarkably well the digit recovers from so radical a procedure. We have been happy to extend the indication for such surgery from a salvage situation with multiply recurrent disease to surgery for primary disease when there is significant clinical skin involvement.

The striking absence of recurrent Dupuytren's disease under full thickness skin grafts [3, 8] after such a radical procedure is confirmed. We feel that radical excision in addition to the use of full thickness skin graft is necessary to obtain disease control. In a previous series [5] what we feel was incomplete excision of an abductor band led to early « recurrence » and eventual need to re-operate for recurrent flexion contracture. However, microscopically complete excision of the disease is quite clearly a false concept. Dermofasciectomy may simply be a rather more radical digital fasciectomy, the skin graft acting as a « fire-break » graft [2], with « relaxation » of the residual disease process. It has however been suggested that full thickness skin graft does have an inhibitory effect on underlying fibroblasts [6]. The fact that recurrent Dupuytren's disease under a full thickness graft is a rarity remains a chance finding and the cause remains entirely spectulative.

In this series only one patient developed nodules under the skin graft. These appeared very well localised and sharply prominent and clinically did not appear to be Dupuytren's disease. They resolved spontaneously within two years. Although never biopsied, we felt they were most likely to have been flexor sheath ganglia, one of Hueston's « false alarms » [4].

Four patients developed new nodule formation typical of Dupuytren's disease, three at the proximal and one at the distal graft insets. No attempt was made to excise Dupuytren's disease proximal to the distal palmar crease or distal to the distal interphalangeal joint flexion crease. The majority of cases have been left therefore with residual disease in the proximal palm at the base of the affected ray. It is interesting that after the « relaxation » provided by a radical excision of the disease in the digit, proximal disease did not always resolve and new nodule formation could occur. These new nodules were confined to the scar of the proximal or distal graft inset and there was no clinically recognisable spread under the graft. There was certainly no cord formation and no recurrent disease flexion contractures.

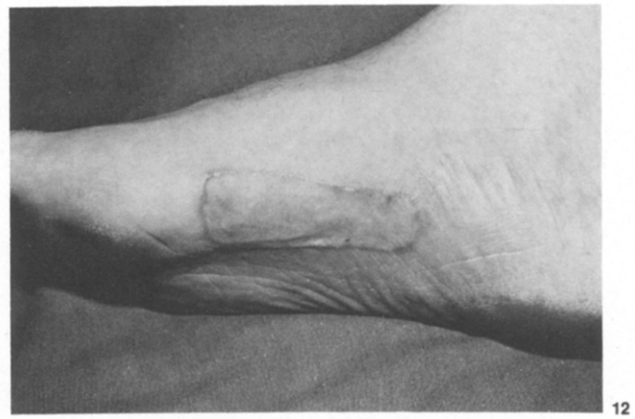

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Fig. 12. — Split thickness skin graft on submalleolar full thickness skin graft donor site.

Fig. 12. — Greffe de peau mince sur la zone donneuse de GPT sous-malléolaire.

Fig. 12. — Injerto de piel delgada sobre la zona donante de un injerto de piel total inframaleolar.

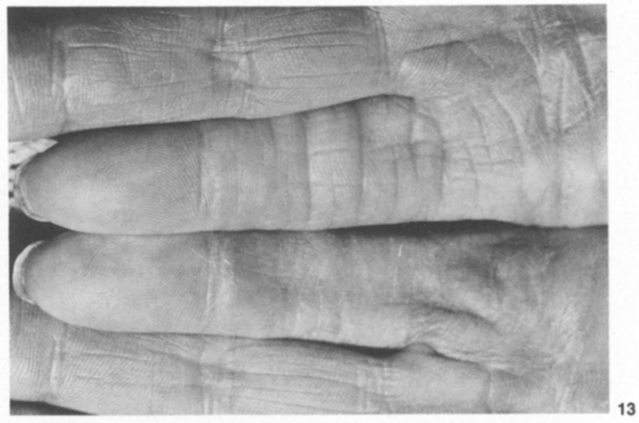

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Fig. 13. — Mature submalleolar full thickness skin graft on the right little finger compared wit mature full thickness forearm skin on the left little finger following dermofasciectomy. Both grafts run from the distal palmar crease to the distal interphalangeal flexion crease.

Fig. 13. — Comparaison d'une greffe de peau totale sous-malléolaire, avec une peau totale de l'avant-bras, sur un 5e doigt après dermofasciectomie. Les deux greffes s'étendent du pli palmaire distal au pli de flexion digital distal.

Fig. 13. — Comparación de un injerto de piel total inframaleolar, con uno de piel total del antebrazo, sobre el 5° dedo después de la dermofasciotomía. Los dos injertos se extienden del pliegue palmar distal al pliegue de flexión digital distal.

No marginal scar Dupuytren's cords were seen in this series. The three cases of marginal scars which became tight in finger extension were clinically unlike Dupuytren's cords and were not progressive. We feel these resulted from a technical error in not taking the skin excision dorsal enough, particularly just distal to the web.

Full thickness forearm skin is a similar thickness and has satisfactory colour match to volar digital skin. The donor site is convenient for both patient and surgeon. However, forearm skin is not as robust as digital skin and in heavy manual workers there may be a place for skin graft taken from the medial submalleolar region of the foot (fig. 12) although this donor site requires split thickness skin grafting to obtain healing. Our limited experience with such submalleolar full thickness grafts suggests that cosmetically they are much more like digital skin (fig. 13) and that functionally they are much more robust than forearm or medial arm skin.

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SEARLE A.E., LOGAN A.M. — Résultats à moyen terme de la dermofasciectomie dans la maladie de Dupuytren.

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RÉSUMÉ : L'envahissement clinique de la peau palmaire et digitale est fréquent dans la maladie de Dupuytren. Les auteurs présentent leurs résultats de 40 dermofasciectomies consécutives chez 32 patients. Le suivi post-opératoire moyen est de 38 mois, avec un minimum de 24 mois. Quatre récidives ont été notées, sous la forme d'un nodule au bord proximal ou distal de la greffe, mais jamais sous la forme d'une bride. Cette évolution suggère un meilleur contrôle de la maladie après dermofasciectomie, qu'après aponévrectomie seule. Les complications post-opératoires de greffes de peau totale ont été excessivement rares.

MOTS-CLÉS : Maladie de Dupuytren. — Dermofasciectomie.

SEARLE A.E., LOGAN A.M. — Resultados a mediano plazo de la dermofasciotomía en la contractura de Dupuytren.

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RESUMEN : Clinicamente la extensión a nivel de la piel palmar y digital es frecuente en la contractura de Dupuytren. Los autores presentan los resultados de 40 dermofasciotomías secuenciales en 32 pacientes. El seguimiento postoperatorio promedio es de 38 meses con un mínimo de 24 meses. Se constataron cuatro recidivas, con aspecto de un nódulo a nivel del borde proximal o distal del injerto, pero nunca en forma de brida. Esta evolución nos sugiere que existe un mejor control de la contractura después una dermofasciotomía que después de una aponeurotomía sola. Las complicaciones postoperatorias de los injertos de piel total fueron excesivamente raros.

PALABRAS CLAVES : Contractura de Dupuytren. — Dermofasciotomía.

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