

Open palm technique for Dupuytren's disease

A five-year follow-up

G. FOUCHER, C. CORNIL, E. LENOBLE

SUMMARY : One hundred and seven patients presenting 140 localizations of Dupuytren's disease were operated upon by a single surgeon before 1985, according to a modified Mac Cash procedure combining a Bruner approach and open transverse digital and/or palmar incisions. All surgery was performed under axillary block on an out-patient basis. A striking feature is the absence of complications such as haematoma, skin necrosis or infection. In the early post-operative follow-up (mean 105 days), the average angular improvement was of 79.5 % in all patients. Among the 107 patients, 54 (for a total of 67 localizations) were specifically reviewed with an average follow-up of 5.6 years. Improvement averaged 74 % in 83.5 % of digits. In the remaining 16.5 %, the lack of extension averaged 31°. Some factors had a negative effect on final results : early age of onset, major involvement of the PIP joint, localization at fifth ray level. The recurrence rate (41 %, 23 % of which severe) is identical to other reports on limited fasciectomy. A good indication is therefore a patient older than 50, and the method provided low postoperative morbidity and pain, associated with acceptable results.

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KEY-WORDS : Dupuytren. — Open palm.

The open palm technique is nothing more than a technical variation of limited fasciectomy, perhaps the oldest one, for Baron Dupuytren himself did not close his incisions... Postoperative complications are reportedly less frequent, at the expense of recurrence, at least from a theoretical point of view. We have chosen the so-called Mac Cash technique since 1974 for a majority of our patients, except for those younger than 40.

MATERIAL AND METHOD

Between 1974 and 1990, we performed 848 limited fasciectomies, with open palm and/or digit. We reviewed 107 patients charts (140 fin-

gers involved), with a follow-up of more than 5 years, for the Round Table of the GEM meeting (Paris, December 1991). 54 patients (67 digits) were assessed by an independent surgeon (CC), with follow-up averaging 5.6 years.

Of the 107 patients, 100 were male and only 7 were female (6.5 %), a ratio of 1:14. The median age at the onset of disease was 53, and 57 at the date of operation. 35.5 % of patients were blue-collar workers, and 23 % white-collar. A family history existed in 37 % of cases. Diabetes or epilepsy were associated in respectively 10.5 and 8 % of cases. While smoking was routinely

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investigated (28 %), alcoholism was more difficult to establish, and was recorded in 6 % of cases only. 6 % of patients presented with ulnar nerve entrapment at the elbow. In 5 cases, a trauma was mentioned, but none met the criteria adopted by Mac Farlane. A distant localization of the disease was observed in 17 % of cases (Garrot's knuckle pads (11 %), Lederhose's plantar localization (5 %) or Lapeyronie disease (2.5 %)). In most cases, the disease was located on the fifth ray (55 %), in 37.5 % of cases on the ring finger, and in 7.2 % on the middle finger. In 45 % of cases, more than one ray was involved. Bilateral involvement was present in 42 % of cases and 5 % of patients presented with a recurrence after a first operation performed in our unit. According to Tubiana's classification, 14 % of cases were grade IV, 20 % grade III, 46 % grade II and 20 % grade I. Digital localization with PIP involvement was recorded preoperatively in 86.4 % and MP flexion in 72 % of cases.

Surgery was performed under axillary block on an outpatient basis. We used the original approach which we published in 1985, i.e. a combination of a Bruner zigzag incision with a transverse incision at the distal palmar crease, and sometimes at the proximal digital crease. The last two incisions were left open. We reversed the Bruner incision at each transverse cut to avoid a tendency towards longitudinal retraction which occurs frequently despite the use of a Y-V plasty (Menen & Deming). Using this approach, a limited fasciectomy was performed. A « spiral » cord was found in 17 % of cases, as evidenced pre-operatively with the Watson's sign (6 false positives but no false negative). Associated procedures included 5 PIP arthrolyses (Watson), 6 tenotomies of the extensor apparatus (Dolfin), and 12 limited intrinsic tendon excisions (positive Finochietto's sign).

RESULTS

An obvious recurrence with extension was observed in 17 %, a severe recurrence without extension in 6 %, a moderate recurrence with some extension in 6 %, a moderate recurrence without extension in 11 %, and an extension without recurrence in 14 % of cases (table I). As a whole, the recurrence rate was of 41 %, 23 % of which severe enough to necessitate another operation ; the extension rate was of 39 % and the overall « activity » of the disease 55 %. The delay in the onset of recurrence averaged 3.3 years.

As far as satisfaction is concerned, 80 % were very pleased with the final result, 10 % were

TABLE I. — Rate of recurrence.
TABLEAU I. — Taux de récidence.
TABLA I. — Porcentaje de recidiva.

Recurrence	With extension	Without extension	Total
Severe	17 %	6 %	23 %
Moderate	6 %	11 %	17 %
	23 %	17 %	41 %

TABLE II. — Postoperative evolution of the disease.
TABLEAU II. — Evolution post-opératoire de la maladie.
TABLA II. — Evolución postoperatoria de la enfermedad.

	MP	PIP	Global
Improvement of mobility	91 % (95 %)*	66.5 % (68 %)*	74 % (83.5 %)*
Extension deficit	38° (5 %)*	25° (32 %)*	

* Percentage of patients involved.

pleased and 10 % were disappointed. No patient presented with any lack of flexion. With a mean follow-up of 5.6 years, the average improvement (table II) at the MP level was of 91 % in 95 % of patients (5 % had a mean lack of extension of 38°). At the PIP level, the mean improvement was of 66.5 % for 68 % of patients. For the others, the average lack of extension was of 25°. 11 % of them had a pre-operative deficit at this level, but 31 % had no deficit at all. Global improvement reached 74 % in 83.5 % of patients (16.5 % of aggravation of a mean 31°).

CORRELATIONS AND SIGNIFICANT FACTORS

The following were studied as potential factors of incidence : pre-operative PIP deficit, age, sex, occupation, diathesis, localization, and disease activity, and finally occurrence of sympathetic dystrophy.

At the PIP level (table III), when the initial lack of extension was limited, the average improvement was more important, with a lower rate of activity at 5 years. In cases of pre-operative PIP integrity, 31 % of patients after 5 years presented with a 33° mean deficit and a 58 % rate of activity. The arthrolysis group (9 cases) was compared with patients showing a residual lack of extension after surgery (5 cases). In the first group, the preoperative deficit was of 59.5° as compared with 71° in the second group. The average per-operative PIP improvement was of 52 %, as compared with 53 %.

TABLE III. — Variation according to preoperative PIP deficit.

TABLEAU III. — Résultats en fonction du déficit d'extension IPP pré-opératoire.

TABLA III. — Resultados en función del déficit de extensión de la IFP en preoperatorio.

	PIP > 50°	30° > PIP > 0°	PIP = 0°
Improvement of mobility	55 % (80 %)*	79 % (92 %)*	
Activity at 5 years	89 %	8 %	58 %

* Percentage of patients involved.

TABLE IV. — Male-female comparison.

TABLEAU IV. — Comparaison sexe masculin-féminin.

TABLA IV. — Comparación sexo masculino-femenino.

	Female	Male
Onset (years)	62	52
Time of surgery (years)	66	56
Preop PIP deficit (°)	53° (62.5 %)	48° (73 %)
Postop total deficit (°)	73°	77°
Postop PIP improv. (%)	43 % (57 %)*	67 % (85 %)*
PIP worsening (°)	22 % (43 %)	18 % (15 %)*
RSD	28.5 %	4.5 %

* Percentage of population involved.

TABLE V. — Comparison of the fifth finger to other fingers (excluding thumb).

TABLE V. — Comparaison entre le 5^e doigt et les autres doigts longs.

TABLA V. — Comparación del quinto dedo con los otros (a excepción del pulgar).

	Fifth finger	Other long fingers
Preop. PIP deficit (°)	51°	45°
Postop PIP improv. (%)	59.5 % (86 %)*	75 % (79.5 %)*
Postop PIP aggravat. (°)	19°	19°
Aggravation at 5 y (°)	25° (35 %)*	26° (28 %)*
Improvement at 5 y (%)	58 %	77.5 %
Recurrence (%)	57 %	18.5 %
Extension (%)	42 %	33 %

* Percentage of population involved.

At 5 years, the mean improvement was identical, averaging 36 % in both groups, 3 of the 5 patients having an average loss of 23°.

Statistical correlation according to sex could not be made due to the scarcity of female patients [7]. However (table IV), age of onset was younger in female. The severity of disease was the same in females as in males, but the percentage of postoperative improvement at the PIP level was lower in females, due to the frequency

of sympathetic dystrophy in females (28.5 % vs. 4.5 % in males). Involvement of the little finger was compared with the other fingers (table V). All figures confirm the pejorative prognosis of little finger involvement, with a more limited post-operative gain at the PIP level, and a greater « activity » of the disease at 5 years.

Manual activity has been incriminated, and we compared blue and white-collar workers. The pre-operative lack of extension was similar (73° vs. 64°), and at 5 years the global improvement was of 80 % (in 89 % of patients), vs. 66.5 % (in 67 % of patients). At the PIP level, aggravation was of 11 % vs. 59 %. The rate of recurrence was of 10 % vs. 37 % and extension 17 % vs. 43.5 %. These figures tend to prove that manual activity has not detrimental effect on the disease.

We have studied the so-called « diathesis » (Hueston). A positive family history was usually correlated with a more severe form of the disease, mainly at the PIP level (56° vs. 46.5°), but no relevant difference was noted at 5 years follow-up (61 % improvement in 81 % vs. 67 % in 84 %). Recurrence and extension were respectively of 47.5 % and 38 %, vs. 37 % and 38.5 %. Consequently, in our series, a positive family history was not a significant factor. When ectopic deposits were associated, the PIP contracture was more severe (57° vs. 46°), improvement was less relevant (52 % vs. 67 %) and less frequent (78 % vs. 84 %).

Recurrence was 50 % vs. 43.5 %, and extension 45.5 % vs. 41 %. Here again, influence was marginal. This also applies to bilateral and multiple finger involvement, although there is a tendency to a higher rate of recurrence (50 % vs. 36 %).

Actually, age was the most significant factor in diathesis. We compared two populations of patients, the first group being under 45, and the other over 60. Global finger contracture was of 63 % vs. 84 %, with the same amount of PIP lack of extension. At 5 years, improvement was of 66 % in 33 % of patients in the first group, vs. 81 % in 85 %. PIP loss was of 18 % in 67 % of the younger group (vs. 31° in 15 %). Recurrence and extension were respectively of 85 % and 50 % in the first group, as compared with 25 % and 35 % in the second, therefore confirming the poor prognosis of early onset.

In summary, factors of poor results on a long-term basis were : young age of onset, severe involvement of the PIP joint, and little finger involvement ; the classical diathesis seems less influential except for age. Sex was not relevant, except for the fact that female patients are more prone to sympathetic dystrophy.

DISCUSSION

When reviewing the literature, we found only one series presenting long-term results of the Mac Cash technique, all the others featuring a rather short follow-up ranging from 15 months (Jacobsen and al. [7]) to 3.5 years (Mac Nicol [9]). The only long-term results were published by Scheider and al. on 21 cases, but results were not separated from those with a minimum 6-month follow-up. If we compare our results with other series of limited fasciectomy, we find no difference as far as the « activity » of the disease is concerned (51 % for Hakstian, 80 % for Hueston, 71 % for Norotte, 63 % for Rodrigo).

Various aspects should be considered in this retrospective study : some may explain better results, such as elimination of patients referred to the unit after a recurrence following an operation performed elsewhere, or the absence of young patients who are classically more prone to recurrence. Similarly, some patients who were disappointed by a recurrence, despite our

constant warning of the possibility of such a complication, may have preferred re-operation by another team.

Other factors are favourable, such as elimination of Stage O (according to Tubiana), and inclusion of patients returning spontaneously for contra-lateral localization, recurrence or extension, all factors of severity of the disease. Finally, a phone interview of a small group of patients showed that some of them refused to come due to excellent results after their operation.

CONCLUSION

It is not surprising that the « open wound » technique shares the prognosis of limited fasciectomy. We tried to compare as many factors of supposed influence as possible at more than five years, and this series shows, as all others in the literature do, that the only advantage of this technique is a lower rate of immediate post-operative complications.

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RÉSUMÉ : Les auteurs ont étudié une série de 107 patients présentant 140 localisations de maladie de Dupuytren, opérés avant l'année 1985, par un seul chirurgien. L'intervention a été effectuée en ambulatoire et sous anesthésie loco-régionale selon une technique modifiée à partir de la « paume ouverte ». Elle combine

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RESUMEN : Los autores estudiaron una serie de 107 pacientes que presentaban 140 localizaciones de la contractura de Dupuytren, operados antes de 1985, por un solo cirujano. La intervención fue realizada en ambulatorio y bajo anestesia locoregional. Según una técnica modificada a partir de la « palma abierta », esta

l'abord large de l'incision de Bruner avec des incisions transverses digitales et palmaires laissées ouvertes. Un point capital a été le peu de complications post-opératoires, notamment ni hématome, ni nécrose cutanée, ni infection. A une moyenne de 105 jours après l'intervention une amélioration globale était présente au niveau de tous les segments intéressés atteignant en moyenne 79,5 % du déficit pré-opératoire. Parmi les 107 patients, 54 (présentant 67 localisations) ont été revus spécialement avec un recul moyen de 5,6 ans. La persistance d'une amélioration globale a été constatée dans 83,5 % des cas avec un gain moyen de 74 %, alors que le déficit moyen chez 16,5 % restant était de 31°. Nous avons pu, par ailleurs, dégager un certain nombre de facteurs de pronostic défavorables comme le jeune âge, l'atteinte sévère de l'articulation inter-phalangienne proximale et la localisation au cinquième rayon. Le taux de récurrences (41 % dont 23 % sévères) est identique à celui généralement retrouvé après aponévrectomie limitée. Réservee aux sujets au-delà de 50 ans cette méthode permet un bon confort et une faible morbidité post-opératoire.

técnica combina una gran incisión de abordaje tipo Bruner con incisiones digitales transversales y palmares dejadas abiertas. Un aspecto capital ha sido la poca frecuencia de complicaciones postoperatorias, específicamente ni hematoma, ni necrosis cutánea, ni infección. A un promedio de 105 días post intervención una mejoría global se presentó a nivel de todos los segmentos interesados que presentaban en promedio 79,5 % de déficit en preoperatorio. Entre los 107 pacientes, 54 (quienes presentaba 67 localizaciones) fueron controlados especialmente con un seguimiento promedio de 5,6 años. La persistencia de una mejoría global fue constatada en 83,5 % de los casos con una ganancia promedio de 74 %, mientras que el déficit promedio en el 16,5 % restante era de 31°. Pudimos, además, determinar una cierta cantidad de factores pronósticos desfavorables como una edad joven, la alteración severa de la articulación interfalángica proximal y la localización a nivel del quinto rayo. El porcentaje de recidivas (41 % de las cuales 23 % severas) es generalmente idéntico al hallado en la aponeuromía limitada. Este método, reservado a pacientes mayores de 50 años, permite un buen confort y una escasa morbilidad postoperatoria.

MOTS-CLÉS : Maladie de Dupuytren. — Paume ouverte.

PALABRAS CLAVES : Contractura de Dupuytren. — Palma abierta.



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