Surgical treatment of Dupuytren disease by fasciectomy and open-palm technique: results at 7 and 21 years

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Introduction:
Dupuytren disease is a fibroproliferative disorder whose cause is still unknown. Although needle fasciotomy is commonly used, surgery is still the reference treatment for severe stages. Numerous surgical techniques have been developed combining a variety of procedures on the skin and fascias involved, but fasciectomy is currently the most frequently used technique. The outcome after surgery is marked by the risk of recurrence, whose prevalence is considered to increase with length of follow-up. The long-term outcome and evolution of established recurrences are not well documented.

The objective of this study was to assess the medium-term results of extensive excision of involved tissues associated with the McCash open-palm technique and their long-term outcome.

Material and methods:
From 1989 to 1997, 56 consecutive patients were surgically treated for Dupuytren disease. A transverse incision was made in the distal palmar crease, combined with a Bruner digital incision and a proximal zigzag incision up to the distal margin of the retinaculum. Involved tissues were excised as completely as possible, including those on the lateral aspects of the proximal interphalangeal (PIP) joint and behind the pedicles.

At the time of first clinical assessment, 13 of the 56 patients had died and 3 were lost to follow-up. Forty patients (38 men and 2 women) were evaluated. Mean age at onset of the disease was 47.1 years (range, 23 to 70 years) and mean age at surgery was 58.6 years (range, 28 to 74 years).

Dupuytren disease affected the palm and fingers in 39 cases (97.5%) and several fingers in 30 cases (75%). The ray most often involved was the fifth ray in 26 patients (65%), followed by the fourth in 13 (32.5%) and the third in one patient (2.5%). The mean flexion contracture was 72.25° (range, 30° to 150°), with a mean of 39° (range, 0° to 90°) for the MCP and 32° (range, 0° to 90°) for the PIP.

The degree of involvement was classified in Tubiana stages, taking into account the most affected finger: 12 patients were stage 1 (30%), 16 stage 2 (40%), 9 stage 3 (22.5%) and 3 were stage 4 (7.5%). No skin grafts or local flaps were performed. All patients wore a Levame dynamic steel blade splint for a mean of 3.7 weeks (range, 1 to 8 weeks) combined with immediate rehabilitation.

In 2003, the patients were reviewed for the first time by an independent evaluator. The same patients were again assessed in 2016 by a second independent evaluator blinded to the clinical results of the first evaluation. Recurrence was defined as flexion contracture of the metacarpophalangeal joint (MCP) and/or PIP that was greater than the post-operative deficit at clinical stabilization.

Results:
No peroperative complication occurred in the 40 cases assessed.
Mean time to wound healing was 21 days and no delayed healing was observed.
Five patients (12.5%) had developed a CRPS (2 active, 1 transient and 2 borderline cases).

At the first review, mean follow-up was 7.32 years (range, 4.26 to 12.5 years). Seven patients (17.5%) presented recurrence and 15 a disease extension (37.5%). The mean overall extension deficit was 19.3° (range, 0° to 110°), of which 15.2° affected the PIP. Mean overall gain was 53° (range, -40° to 130°) with a mean contracture of 37° (range, -5° to 90°) for the MCP and 16° (range, -40° to 65°) for the PIP.

CRPS and dissatisfaction are closely correlated (P < .01). Thirty-six patients (90%) would be agreed to repeat the procedure.

At the time of the second review, 9 patients had died and 10 were lost to follow-up. Twenty-one patients could be re-evaluated with a mean follow-up of 21.50 years (range, 18.7 to 26.3 years). No extension of the disease was observed and no needle fasciotomy or complementary surgical procedure had been carried out. No recurrence had occurred in patients who had no recurrence when previously examined in 2003. However, the contracture had worsened compared with the first evaluation in 5 patients (23.8%), 3 of whom had a PIP flexion contracture of more than 40°. These were the 3 patients who already had disease recurrence at the time of the first evaluation. The other 2 patients had a slight worsening without recurrence. Mean contracture worsening was 13° (range, 5° to 20°). In 5 other patients, flexion contracture was unchanged since the first evaluation, ranging from 5° to 30°. In one patient, over a period of 13 years, flexion contracture had decreased by 5° at the PIP and 10° at the DIP. Mean overall extension deficit was 34.5° (range, 5° to 100°). Ten patients (47.6%) still had no flexion contracture on the second evaluation.

Discussion:
In literature, recurrence rates after the open-palm technique range from 10% to 37.5%. In our series, with a follow-up of more than 20 years, recurrence rate was low (17.5%). These results are probably related to the fact that excision of involved fibrotic tissues was almost complete. No peroperative complications were observed, in particular no infection or hematoma, which may occur in up to 3% and 19% of cases, respectively, depending on the techniques used.

CRPS is the most feared complication by experienced surgeons. It is more frequent in women. It was the main cause of failure (12.5%), poor results with PIP flexion contracture in the course of CRPS in three of our patients, and was significantly associated with dissatisfaction.

The number of rays operated has a negative effect on mobility gain (P < .05), as has been observed in several series. On the other hand, in our series involvement of the fifth ray did not unfavorably affect the mobility gain or the risk of recurrence.

Age at the time of surgery was not found to be a factor of early recurrence. On the other hand, satisfaction was correlated with age (P < .05), probably because elderly patients have lower functional demands.

Conclusion:
Treatment of Dupuytren disease by extensive fasciectomy and the McCash open-palm technique is reliable, has a low complication rate and gives good and long-lasting functional results over time, on condition that the affected tissue is excised as completely as possible. When recurrence occurs, it develops in the early postoperative years. CRPS and the number of rays operated are the main factors negatively affecting overall improvement of mobility, of the PIP joint in particular.