

Dupuytren's disease in women: Evaluation of long-term results after operation

A study of the long-term results after operation on 66 women (83 hands) with Dupuytren's disease showed that women are twice as likely as men to have a postoperative flare reaction. Why a flare reaction develops is uncertain. In this study, patients who had a carpal tunnel release at the time of operation for treatment of Dupuytren's disease or those who had an extensive fasciectomy, as opposed to removal of only the contracted tissue, were more apt to have a flare reaction. In addition, after operation, moderate or severe loss of finger flexion occurred in 35% of hands without a flare reaction and in 76% of those who had a flare reaction. This suggests that women having an operation for treatment of Dupuytren's disease are apt to have a worse result than men. (J HAND SURG 1987;12A:1012-6.)

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Dupuytren's disease is often hereditary and occurs predominantly in white males of European ancestry.¹⁻³ The reported male-to-female ratio varies from 7:1 to 15:1.^{4,9} Hueston,¹⁰ however, found the incidence in men and women over 40 years of age to be about equal.¹⁰

There is little information about the result of operation in women with Dupuytren's disease. In fact, only one paper addressed this subject,⁶ and the author stated "In women, the results of surgery may be most disappointing. Postoperative function is very variable and the tragedy of the 'frozen hand' sometimes occurs." Except for this article, reported results after operation for treatment of Dupuytren's disease in women is largely anecdotal. By a retrospective study of 66 women (83 hands) who underwent operations for the treatment of Dupuytren's disease, we examined whether or not they are at greater risk than men to have an unfavorable result after fasciectomy to treat a significant contracture.

Materials and methods

Between 1968 and 1983, four surgeons operated on 118 women (163 hands) and 337 men (373 hands) for treatment of Dupuytren's disease. We obtained a minimum 2-year follow-up on 66 of the women (83 hands) and have information concerning the incidence of flare reaction in all of the men and women.

Preoperatively, all 83 hands had at least a 30° flexion contracture of the metacarpophalangeal (MP) and/or proximal interphalangeal (PIP) joint of the involved finger(s). We recommended operation when there was a *progressing* flexion contracture of the PIP joint of one or more fingers since we believe a contracture of the PIP joint that is greater than 30° is more difficult to correct than an equal contracture of a MP joint. The small finger was most frequently involved (61 hands) followed in descending order by the ring, long, and index fingers. Fifty-one hands had contracture of more than one finger, as well as involvement of the palm. In 36 hands, only one finger was contracted, but all had palmar disease. The disease involved 43 right hands and 40 left hands. The average age at operation was 60 years (49 to 77 years) and, by history, the average duration of the disease before operation was 15 years (4 to 39 years). It has been stated that women are more tolerant of a contracted finger and are more hesitant to seek treatment than men.⁸ We suspect this is true. Fifty-nine percent (36/66) had a family history of Dupuytren's disease, and most patients were of North European extraction. Four patients were considered alcoholics, one had insulin-dependent diabetes mellitus, and

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Table I. Postoperative improvement of finger extension

Joint	Mean preoperative flexion contracture (Degrees)	Mean postoperative flexion contracture (Degrees)	% Improvement extension	SD preoperative flexion contracture (Degrees)	SD postoperative flexion contracture (Degrees)	p value
Small finger						
MP	33	2	94	25	9	0.0001
PIP	50	33	34	24	28	0.001
DIP	17	1	94	10	11	0.001
Ring finger						
MP	31	1	97	18	4	0.0001
PIP	34	15	56	26	20	0.002
DIP	11	0	100	4	0	0.01
Long finger						
MP	24	1	96	14	4	0.0001
PIP	29	10	66	22	20	0.05
DIP	8	0	100	6	0	0.06
Index finger						
MP	15	1	93	11	3	0.001
PIP	21	9	57	17	15	0.02
DIP	15	1	93	9	2	0.003

SD, Standard deviation.

two had epilepsy. Fifteen had nodules in their plantar fascia.

Without exception, the major complaint was loss of finger extension. Preoperatively, none of the patients complained of loss of flexion, even though flexion was limited in eight fingers because of an extension deformity of a distal joint and in 29 hands because of degenerative arthritis of an interphalangeal joint(s).

Operative technique

A limited fasciectomy (removal of the hypertrophied and contracted fascia of the palm and involved finger[s]) was done in 59 (71%) hands. When only one digit was involved, we used a zigzag incision that extended from the distal joint of the finger to the proximal palm. When more than one finger was involved, each finger was opened through a zigzag incision and the palm through a separate transverse incision just proximal to the distal palmar crease. On occasion, a second transverse incision was made in the proximal palm. Twenty-four hands had a more extensive operation, in that a considerable quantity of adjacent normal palmar fascia was excised in addition to the hypertrophied fascia. In 12 of these 24 hands the median nerve was also decompressed as a prophylactic measure by dividing the transverse carpal ligament. These 12 patients did not have a carpal tunnel syndrome. A free-skin graft was used on four hands at the time of the fasciectomy. Twenty-eight hands had had at least one operation for treatment of Dupuytren's disease before coming under our care. In recurrent contractures, we did not routinely replace the involved skin

with a skin graft (dermatofasciectomy), but we did use a skin graft on 15 of the hands operated on for recurrent disease. Two of the 83 hands had involvement of all four fingers and the thumb. Both had two operations since we considered it unwise to attempt excision of all the involved fascia at one operation when there was such extensive disease.

Postoperatively hands were immobilized with a bulky compressive dressing and a dorsal plaster splint. The operated fingers were splinted in moderate extension for 5 to 7 days. Finger motion within the confines of the dressing was allowed after 1 week. All dressings were left off at 3 weeks unless there was some delay in wound healing.

Results

The average (mean) follow-up was 5.3 years (range of 1 to 17 years). The median follow-up was 4.7 years. Table I shows the mean preoperative and postoperative motion of each finger joint. The *p* value for each joint is shown in Table I. Metacarpophalangeal joint extension improved approximately 93% after operation. Although interphalangeal joint extension also improved, the improvement was less than in the MP joint. In the small finger, PIP extension improved 34%. The mean residual flexion contracture of the PIP joint was 33° for small fingers, 15° for ring fingers, 10° for long fingers, and 9° for index fingers. At the last examination, there was recurrent disease in 14 (17%) of 83 hands and extension of the disease to other areas in 21 (25%) hands.

Table II. Postoperative loss of finger flexion

Scoring system for each finger	Total for each hand		Number in each category		
Touches midpalm = 0	0	None	None	Hands	Flare reaction
Between 0 to 2 cm = 1	Between 0 to 3	Mild	Mild	20	2
2 to 5 cm = 2	4 to 6	Moderate	Moderate	23	2
>5 cm = 3	>6	Severe	Severe	16	7
(a)	(b)			7	6
				66	17
				(c)	

The distance in centimeters that each finger lacked touching the midpalmar crease was measured. If the finger touched the midpalm, it was assigned a value of zero. If the finger flexed to within 2 cm of the midpalm, it was assigned a value of 1. If it flexed to within 5 cm of the midpalm, it was assigned a value of 2. If it lacked more than 5 cm of flexion, it was assigned a value of 3 (a). By adding the individual numerical value assigned to each finger, a score for each hand was obtained. If this was 3 or less, we considered the total loss of finger flexion mild, if it was 4 to 6, it was moderate, and if over 6, it was considered severe (b). The number of hands with and without a flare reaction is shown in (c).

Table III. Postoperative complications

Minor		Major	
Numbness of finger	3	Flare reaction	17
Cold intolerance	3		
Severed digital nerve	2		
Painful scar	3		
Hematoma	1		
	12		

Loss of finger flexion was measured by recording the distance between the pulp of each finger and the midpalmar crease. The composite loss of flexion of all fingers was then classified as none, mild, moderate, or severe (Table II). A flare reaction occurred in 17 hands, and in these, 13 (76%) had moderate or severe loss of finger flexion, two had mild loss of flexion, and two regained normal flexion. All 17 had normal flexion before operation. Of the 66 hands that did not have a flare reaction, only 23 (35%) had moderate or severe loss of finger flexion postoperatively.

Postoperative complications are listed in Table III. All patients with numbness, cold intolerance, a painful scar, or a postoperative hematoma gradually improved with time and eventually had no significant functional loss attributable to these complications. Two digital nerves were inadvertently severed at operation. Both were repaired, and although protective sensibility returned, both had permanent diminished sensibility.

A flare reaction is a major complication since it usually portends some degree of finger stiffness. This term, popularized by L. D. Howard, Jr., M.D.,¹¹ denotes redness, edema, pain and stiffness that usually occurs during the third or fourth week after operation in a patient who has had good progress during the first 2 or 3 weeks after operation. Seventeen (20%) of 83 hands

Table IV. Variables considered in the stepwise linear regression analysis

Dependent	Independent
1. Age at first operation	Postoperative joint contracture
2. Duration of disease	
3. Other areas of fibromatosis	
4. Previous operations	
5. Family history	
6. Preoperative MP contracture*	
7. Preoperative PIP contracture*	
8. Preoperative DIP contracture*	
9. Number of fingers involved	
10. Carpal tunnel release	
11. Flare reaction	
12. Recurrence of disease	
13. New disease	
14. Medical problems (ETOH, IDDM, epilepsy)	
15. Arthritis	
16. Type of operation	
17. Preoperative distance to MPC	
18. Postoperative distance to MPC	

MPC, Midpalmar crease; ETOH, alcoholics; IDDM, insulin-dependent diabetes mellitus.

*Variables found to be significant ($p < 0.01$).

in this study had such a reaction. It occurred in seven (58%) of 12 hands who had a carpal tunnel release concomitant with surgery to treat Dupuytren's disease and in 11 (46%) of 24 hands who had a more extensive fasciectomy. By contrast, it occurred in 6 (10%) of 59 hands treated by a limited fasciectomy and in five (8%) of 61 hands that did not have a carpal tunnel release. The chi-square test shows a significant relationship between these two variables and development of a flare reaction.

We applied the statistical method of stepwise linear

regression analysis to our data. This method seeks the best set of "predictors" of a chosen variable (i.e., postoperative joint contracture) from a group of possible predictive variables by incrementally adding or subtracting one predictor at a time to the linear regression equation.¹² In all cases, for a specific finger and joint, the degree of postoperative joint contracture was the independent variable and those listed in Table IV were the dependent variables. The end results provided a predictive equation:

$$Y = X_1C_1 + X_2C_2 \dots \text{plus constant}$$

The dependent variables (X_1 , X_2 , etc) may be multiplied by their constants in any given case to predict Y , the independent variable.

By this analysis, the most important dependent variable contributing to postoperative loss of PIP joint extension was the degree of preoperative loss of PIP joint extension (contracture). Although other dependent variables were somewhat important, they had much less influence as a predictor of loss of joint extension. Contrary to the findings of Legge and McFarlane,¹³ the number of fingers involved with Dupuytren's contracture did not influence the result. These authors, however, used a somewhat different formula to predict the outcome of surgery.

Discussion

In a multicenter review of 817 patients, of whom 85% were men, McFarlane⁴ stated that 5% of all patients had postoperative sympathetic dystrophy. This occurred more frequently in women patients, although specific numbers to support this were not given. In a recent review article, Hill¹⁴ stated that the incidence of postoperative stiffness and reflex sympathetic dystrophy was more common in women than in men, but again, specific numbers were not given to support this belief.

Wallace⁶ reported on 46 women operated on for treatment of Dupuytren's contracture and found that 10 (59%) of 16 between 39 and 59 years of age had a "bad" result, but all patients less than 39 or older than 59 had a "good" result. He also believed those undergoing palmar and digital fasciectomy were particularly at risk to do poorly. Tonkin, Burke, and Varian¹⁵ believed that women treated by fasciectomy did as well or better than men, but in their study only 13 of 87 fasciectomies were performed on women. Other surgeons have expressed an opinion that women do less well after surgery than men, but specific data to support such an opinion has not been published.

A flare reaction after surgery for treatment of Dupuytren's disease has been reported to occur in 5% to 10% of patients.^{4, 16-20} These observations, however, are

based on aggregates of men and women. Most aggregate groups have many more men than women, and the incidence of this problem has seldom been recorded for each sex. By contrast, in this study, we found that 20% of the 83 hands in women had a flare reaction that usually caused permanent loss of finger motion.

Between 1968 and 1983, we operated on 163 hands of women with Dupuytren's contracture, and 40 (24.5%) had a flare reaction. During the same period, we operated on 383 hands of men with Dupuytren's disease, and only 48 (12.5%) had a flare reaction. Thus it seems that female patients are twice as likely as men to have this complication.

Two other factors are probably significant. In 58% of the women who had a concomitant carpal tunnel release a flare reaction developed, and a flare reaction occurred in 46% of the hands of women who had a more extensive fasciectomy. Along with others,^{16, 18, 21, 22} we must conclude that only the involved fascia should be removed in women with Dupuytren's contracture, and that a carpal tunnel release should not be done as a prophylactic measure when performing a fasciectomy to treat Dupuytren's disease.²³

In this study, improvement in finger extension after operation was similar to that reported by Legge and McFarlane.¹³ In addition, flexion deformity of the PIP joint of the small finger was the most difficult contracture to correct. However, contrary to their findings, we found that women had a somewhat worse result after operation to treat Dupuytren's disease than men, primarily because of the higher incidence of a postoperative flare reaction, which usually caused limited finger flexion. Nevertheless, most women were satisfied with the result, primarily because they could extend their finger better after operation.

Conclusions

Women undergoing fasciectomy for treatment of Dupuytren's contracture are (1) twice as likely as men to have a postoperative flare reaction, (2) at greater risk than men to have residual finger stiffness, (3) should not have a prophylactic carpal tunnel release, and (4) will probably have a better result if only the diseased and contracted fascia is removed, i.e., limited fasciectomy.

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