

# Surgical Treatment of Dupuytren's Contracture; Results and Complications of Surgery: Our Experience

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**Abstract** Dupuytren's disease is one of the fibroproliferative conditions affecting the palmar and digital fascia. This disease has been known to surgeons and treated by them for at least 200 years. Dupuytren's disease is very common in Northern Europe and also in countries inhabited by immigrants from Northern Europe. Dupuytren's contracture is stated to be uncommon in Indian subcontinent and very little has been written about this disease in India. The authors have however come across 30 patients with Dupuytren's contracture and they are the subject of this paper, with special emphasis on its surgical correction and complications of surgical treatment. Patients were categorized into stages I, II and III as per the severity of disease. Regional fasciectomy was performed in 90% of the patients and extensive fasciectomy in 10% of patients. Most of wounds were closed by primary closure with z-plasty. In rest of the patients free skin grafts were used to close the wound, when primary closure was not possible. The

patients were followed up regularly for 5 years and the results of surgical treatment were categorized into excellent, good, fair and poor. The results were excellent in 23 patients (76.66%), good in six patients (20%) and fair in one patient (3.33%). Post operative edema and some stiffness was seen in two patients. Wound infection was seen in one patient and haematoma in one patient. The correct surgical technique and meticulous post operative care is needed to achieve higher rates of correction and to limit the complications and recurrence.

**Keywords** Dupuytren's contracture · Regional fasciectomy · Extensive fasciectomy · Z-plasty

## Introduction

Dupuytren's disease is one of the fibroproliferative conditions affecting the palmar and digital fascia. It involves both hands with equal frequency and is usually more severe in one hand. The ring finger is most frequently involved, followed by the little finger. This disease has been known to surgeons and treated by them for at least 200 years [1–4]. Plater (1614) is credited with the first account of the condition, and Cline (1777) and Sir Astley Cooper described the contracture of the fingers and suggested treatment by subcutaneous fasciotomy. However, it remained for Dupuytren in 1831 to describe the anatomy, to establish clearly that the disease was located in the palmar fascia, and to suggest treatment by open fasciotomy [5–7].

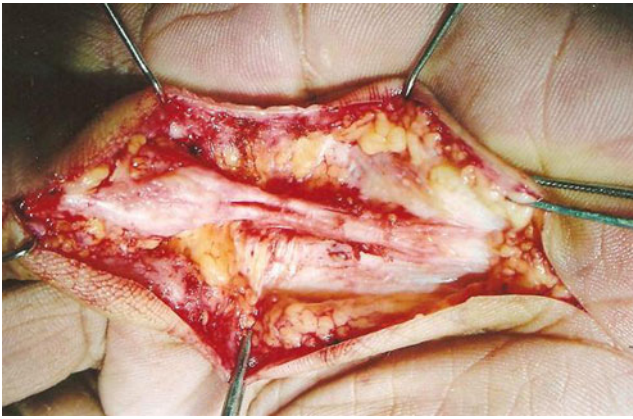
Dupuytren's disease is very common in Northern Europe and also in countries inhabited by immigrants from Northern Europe, notably Australia and the East coast of North America. It is said to be rare in the Black and Oriental races [8–10].

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**Fig. 1** Demonstration of Dupuytren's band and nodule at surgery

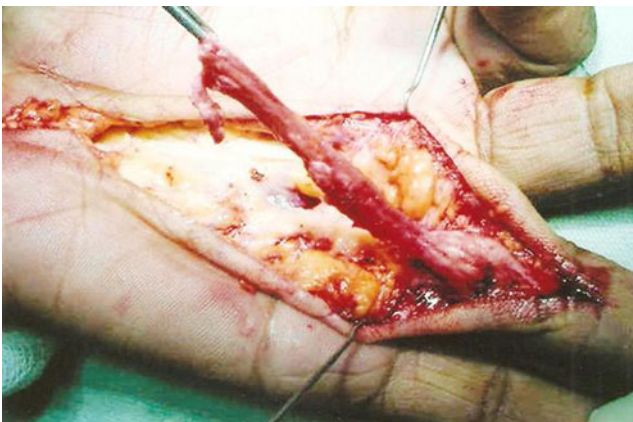
Dupuytren's contracture is stated to be uncommon in Indian subcontinent and very little has been written about this disease in India. The authors have however come across 30 patients with Dupuytren's contracture and they are the subject of this paper, with special emphasis on its surgical correction and complications of surgical treatment.

#### Patients and Methods

The study encompasses 30 patients seen between 2002 and 2007 at department of Burns, Plastic and Microvascular Surgery and is a combined retrospective and prospective study.

Using the following criteria, patients were categorized into different stages.

- Stage I : presence of a thickened nodule and band in the palmar aponeurosis, often associated with skin puckering.
- Stage II : as stage I plus limitation of extension.
- Stage III : as stage II plus flexion contracture.



**Fig. 2** Excision of Dupuytren's band and nodule



**Fig. 3** Excised Dupuytren's band and nodule

In regard to contractures, all of the patients in our study had involvement of metacarpophalangeal joints.

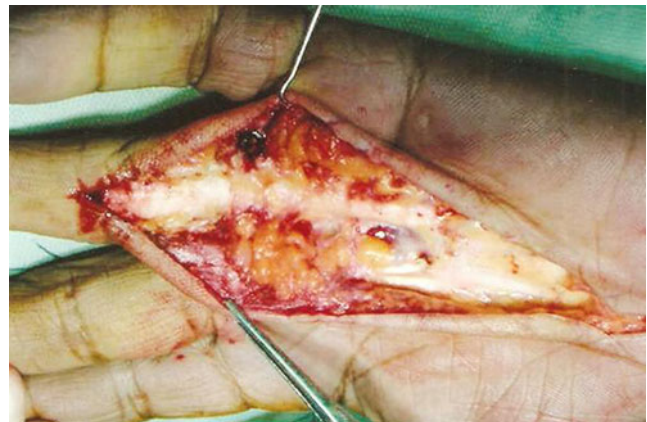
The following surgical procedures were performed.

In all of these procedures local anesthesia was used. In regional fasciectomy radial, ulnar and median nerve blocks were used at wrist. In cases of extensive fasciectomy, axillary blocks were used.

**Regional fasciectomy:-** In this procedure only diseased fascia is removed. In the palm, this involves excision of the diseased pretendinous cords and parts of the natatory ligament. In the finger, only those fascial cords that are obviously diseased are removed (Figs. 1, 2, 3 and 4).

**Extensive fasciectomy:-** In this procedure as much fascia as possible is removed, both diseased and potentially diseased. In the palm an attempt is made to remove the entire palmar aponeurosis as well as the natatory ligaments. In the finger, the diseased cords and also normal-appearing bands are excised (Figs. 5, 6, 7 and 8).

Extensive fasciectomy was performed in stage III disease with multiple digit involvement and with extreme deformi-



**Fig. 4** Release of contracture following excision of band



**Fig. 5** Extensive fasciectomy in progress

ties. Major percentage of the cases (90%) were subjected to regional fasciectomy. These patients were usually having stage III disease with contractures between 30 and 90° and involving single or multiple digits.



**Fig. 6** Skin defect after extensive fasciectomy

**Fig. 7** SSG used to cover skin defect after extensive fasciectomy



Most of wounds were closed by primary closure with z-plasty where ever it was possible without putting undue tension on suture line. In rest of the patients split-skin grafts were used to close the wound, when primary closure was not possible. These grafts were placed on the palm as well as over the proximal phalanges (Figs. 7 and 8). Graft take rate



**Fig. 8** SSG sutured in place

**Table 1** Surgical correction undertaken

S. No.	Treatment received	Male	Female	Total
1	Regional Fasciectomy	23	4	27
2	Extensive Fasciectomy	3	–	3

was 100% and post operative functionality was comparable to patients wherein no grafts were used.

Patients were routinely put on plaster of paris volar slabs at the end of surgery and were advised to keep it for 1 day and were discharged the same day with the advice to keep the hand elevated for 2 days. Patients were advised to use the hand for light activities by 1 week and routine activity as soon as the sutures are out.

All the patients were followed up regularly for the assessment of results of treatment and development of complications like post operative haematoma, wound infection, post operative edema or stiffness, recurrence of disease etc.

Patients were followed up for 5 years.

The results were assessed by one observer and each of the patients were reviewed individually. The results of surgical treatment were categorized into excellent (i.e. full flexion and extension of fingers, full function and no recurrence), good (slight limitation of flexion or extension of fingers that is too slight to interfere with normal activity.) fair (limitation of flexion or extension with joint stiffness, recurrence or extension limiting function slightly.) and poor (no improvement in initial contracture or function, recurrence or extension causing serious loss of function).

Regional fasciectomy was performed in 23 male patients and 4 female patients. Extensive fasciectomy was performed in 3 male patients (Table 1).

Primary suturing with z-plasty was performed in 22 male and 4 female patients comprising about 86.7% of the patients in the study. Split-skin grafts were used to close the defect in 4 male patients comprising 13.3% of the cases in the study (Table 2).

**Results**

In our study excellent results were observed in 23 patients (76.66%), good results in 6 patients (20%) and fair results in 1 patient (3.33%) (Table 3).

**Table 2** Method of wound closure

S. No.	Wound closure	Male	Female	Total
1	Primary Suturing	22	4	26
2	Split-skin graft	4	–	4
Total		26	4	30

**Table 3** Result of treatment

S.No.	Result of treatment	No. of patients
1	Excellent	23
2	Good	6
3	Fair	1

Post operative edema and some stiffness was seen in two patients, both male. Both the patients had failed to follow the instructions of keeping the limb elevated in post operative period, that may have led to the complication mentioned above. Wound infection was seen in a female patient who was having associated diabetes mellitus. Haematoma was seen in one male patient. It was a small one under one edge of the skin graft (Table 4).

**Discussion**

Hamlin (1962) performed regional fasciectomy in 34 hands with excellent results in 53% of cases, good to fair results in 38% and poor results in 9% of cases. McFarlane and Jamieson (1966) subjected 86 hands to limited and some radical procedures and results were good to excellent in 80% of cases, fair in 13% and poor in 7% of cases. Honner, Lamb and James in 1971 observed excellent results in 31%, good results in 35%, fair results in 25% and poor results in 9% of a total of 138 hands subjected to mostly wide and some limited fasciectomies [11–13].

The commonest procedure used in our series was regional fasciectomy (90%), followed by extensive fasciectomy in 10% of the cases of the cases. Excellent results were observed in 76.66%, good results in 20% and fair results in 3.33% of the cases.

Post operative haematoma was observed in 3.33% of the cases, wound infection in 3.33% and recurrence in 3.33% of the cases. Post operative edema and stiffness was observed in 6.66% of the cases.

The results and complications of surgical correction as were observed in our study, emphasizes that correct surgical technique and meticulous post operative care is needed to

**Table 4** Complications of surgery

	Complication	Male	Female	Total
1	None	22	3	25
2	Haematoma	1	–	1
3	Infection (Post op.)	–	1	1
4	Recurrence	1	–	1
5	Post op. edema & stiffness	2	–	2
Total		26	4	30

achieve higher rates of correction and to limit the complications and recurrence.

## References

1. Jain AS, Mitchell C, Carus DA (1988) A simple inexpensive post-operative management regime following surgery for Dupuytren's contracture. *J Hand Surg* 13B(3):259–261
2. McGregor IA (1967) The Z-plasty in hand surgery. *J Bone Joint Surg* 49B(3):448–457
3. Rives K, Smith B, Carney K (1992) Severe contractures of the proximal interphalangeal joint in Dupuytren's disease. Result of a prospective trial of operative correction and dynamic extension splinting. *J Hand Surg* 17A:1153–1158
4. Sennwald GR (1990) Fasciectomy for treatment of Dupuytren's disease and early complications. *J Hand Surg* 5A:755–761
5. Thurston AJ (1987) Conservative surgery for Dupuytren's contracture. *J Hand Surg* 12B(3):329–334
6. Tonkin MA, Burke FD, Varian JPW (1984) A comparative study of fasciectomy and dermofasciectomy in one hundred patients with Dupuytren's contracture. *J Hand Surg* 9B(2):156–162
7. Tripathi FM, Sinha JK, Bhattacharya V, Chaudhury AK, Singh OP (1988) Dupuytren's contracture of the hand and its treatment by open palm technique. *Ind J Plast Surg* 21(1):35–37
8. Weckesser EC (1964) Results of wide excision of the palmar fascia for Dupuytren's contracture. *Ann Surg* 160(6):1007–1013
9. Watson JD (1984) Fasciotomy and Z-plasty in the management of Dupuytren's contracture. *Br J Plast Surg* 37:27–30
10. Dupuytren's Disease Edited by McFarlane, McGrouther and Flint, Churchill Livingstone 1990
11. Dupuytren's Disease, Tubiana, Leclercq, Hurst, Badalamente, Mackin Martin Dunitz 2000
12. Adam RF, Loynes RD (1992) Prognosis in Dupuytren's disease. *J Hand Surg* 17A:312–317
13. Honner R, Lamb DW, James JIP (1971) Dupuytren's contracture: Long term results after fasciectomy. *J Bone Joint Surg* 53B(2):240–246