

Is limited fasciectomy the technique of choice to treat Dupuytren's contracture?

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ABSTRACT

Objective: To determine the functional outcome of limited fasciectomy for the treatment of Dupuytren's contracture.

Methods: This descriptive study was conducted in District Head Quarter Hospital Timergara Khyber Pakhtunkhwa and Khyber Teaching Hospital Peshawar from 21st March 2018 to 21st March 2021. All patients of Dupuytren's contracture fulfilling the inclusion criteria were treated with limited fasciectomy (LF). Post operative functional outcome was assessed with Khan and Iqbal criteria and graded as excellent, good, fair and poor.

Results: In this study 12 patients (20 hands) were included. All patients were male. The mean age was 61.5± 7 years. The mean duration of follow up was 14.4±3(range 12 to 16 months). Excellent outcome was reported in 14(70%) hands, good in 5(25%) and fair in 1(5%) hand. No intra operative or post operative complications were noted. We reported recurrence in one hand.

Conclusion: Excellent functional outcome was achieved with limited fasciectomy in patients with Dupuytren's contracture in our series. We recommend limited fasciectomy as the technique of choice to treat Dupuytren's contracture.

Keywords: Contracture, Dupuytren, Fasciotomy, Limited fasciectomy

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INTRODUCTION

Dupuytren's disease is a benign but progressive disease characterized by fibro-proliferative disorder of the palmar and digital fascia.¹ This disease was first identified by Henry Cline in 1777 and later on described in detail by Baron Guillaume Dupuytren in 1834.^{2,3} The prevalence of Dupuytren's disease varies from 1 to 50% depending upon the studied population.⁴ The disease can cause flexion contracture of the fingers resulting in functional impairment.⁵⁻⁷ The most commonly affected fingers are the ring finger and little finger while index finger and thumb are usually spared.⁸ The exact aetiology of the disease is unknown.¹ Possible risk factors for the disease are male gender, advance age, smoking, diabetes, epilepsy and alcohol use.^{9,10} Surgical procedures to treat Dupuytren's contractures are open fasciotomy, percutaneous needle fasciotomy, fasciectomy, dermofasciectomy and amputation.¹¹⁻¹⁴ Excision of the visibly and grossly involved fascia but leaving the uninvolved tissues is called limited

fasciectomy (LF). It is the most effective and common surgical procedure for the treatment of Dupuytren's contracture.¹⁵

The objective of our study was to determine the functional outcome of limited fasciectomy (LF) for the treatment of Dupuytren's contracture. We believe that our study will be the first study in Pakistan on this technique and our results will help in formulation of standard guidelines for the treatment of Dupuytren's contracture.

METHODS

We conducted this descriptive study in District Head Quarter Hospital Timergara Khyber Pakhtunkhwa and Khyber Teaching Hospital Peshawar from 21st March 2018 to 21st March 2021. All patients of Dupuytren's disease with pathological cords in the palmar fascia, any contracture of the proximal interphalangeal joint or distal interphalangeal joint, contracture of the metacarpophalangeal joint 30 degree or more and positive table top test¹⁶ were included in this study.

Previously surgically treated Dupuytren's contractures or recurrent contractures were excluded. Ethical approval was taken from Institutional Review Boards of both hospitals. Informed written consent was taken from all the study participants. In the included subjects complete history, examination and relevant investigations were undertaken.

All the surgeries were performed under general anaesthesia and pneumatic tourniquet control. Surgical incisions utilized multiple Z plasties and all the visibly involved fascia and cords were excised after clearly identifying neurovascular bundle. Primary closure or skin grafting was done after the

release of tourniquet and securing the hemostasis. Below elbow splint was applied with fingers in extension for 5 days. Fingers exercises were initiated once oedema subsided. Night splint was used for two months. Regular monthly follow up was done in OPD and functional assessment was done at one year and results were graded as excellent, good, fair and poor as per Khan and Iqbal criteria.(Table I)¹⁷

The data was analysed with SPSS version 26. Frequency and percentage was calculated for qualitative variables while mean and standard deviation for quantitative variables.

Table I: Khan and Iqbal¹⁷ outcome criteria for Dupuytren's contracture surgery.

Grading	Description
Excellent	Full movements of fingers, full function, no recurrence
Good	Mild loss of flexion and extension of fingers, minor impact on the function of hand
Fair	Joint stiffness resulting in loss of function, impairment of daily activities, recurrence
Poor	No recovery, loss of function is sever

RESULTS

We operated 12 patients (20 hands) of Dupuytren's contractures with LF. All patients were male. The mean age was 61.5± 7 years. Bilateral hands were involved in 8(66.6%) patients and unilateral in 4(33.3%) patients. Ring finger was involved in 12(60%) hands, followed by little finger (30%,n=6) and middle finger (10%,n=2).The mean duration of follow up was 14.4±3(range 12 to 16 months).Diabetes was noted in 7(58.3%) patients. Primary wound closure was done in 16(80%) hands while 4(20%) hands required skin grafting. Excellent outcome was documented in 14(70%) hands, good in 5(25%) and fair in 1(5%) hand. No intra operative or post operative complications were noted. We reported recurrence in one hand.

DISCUSSION

We achieved excellent outcome in majority of our patients treated with limited fasciectomy(LF).Our results are comparable with other international studies. Khan and Iqbal¹⁷ treated 30 patients with 90% had LF and 10% extensive fasciectomy They achieved excellent outcome in 23(76.6%), good in 6(20%) and fair in 1(3.3%) patient. These authors advocated meticulous surgical technique and optimum post operative care for achieving outstanding results. Aykut and colleague¹ treated 21 hands in 19 patients with mean age 65.1 years with LF. The mean follow up was 48.2 months. Excellent results were achieved in 14(66.6%), good in 5(23%)

and fair in 2(9.4%). The mean QuickDASH score at final follow up was 6.58(range 0 to 20.4). Bergovec and colleague¹⁸ treated 34 patients of Dupuytren's contractures with LF and achieved full correction without any recurrence at 9.5 years. The DASH score however worsened at the last follow up but hand function was better than pre operative function. Kitridis¹⁹ treated 30 patients with LF and noted improvement in mean QuickDASH from 61.5 (pre operative) to 8.6(post operative) at 4.9 years. No statistically significant difference was noted in mean grip strength of operated and non operated hand.

When we searched the literature we found many studies comparing LF with other surgical techniques like needle fasciotomy and others. Most of these studies favored LF for treating Dupuytren's contracture. Dupuytren's Rotterdam Randomized trial was conducted by Selles and Zhou²⁰ in Netherlands in 2018. These authors treated 21 patients with LF and 31 with percutaneous apponeurotomy and lipofilling(PAL). At 5 years 39% recurrence was noted in LF and 74% in PAL(p 0.002).Extension deficit was 31 degrees in LF and 53 degrees in PAL.(p 0.010). Van Dijssen²¹ treated 121 patients with LF and percutaneous needle fasciotomy and documented better correction in 79% in LF versus 62% in percutaneous needle fasciotomy at 6 weeks follow up. Soreide and colleague²² conducted a systematic review comprising of 20 studies with 1584 patients and noted that percutaneous needle fasciotomy had fewer complications, higher patient satisfaction but higher recurrence rate than LF. These authors

however, concluded that due to limited evidence no single treatment can be preferred over the other for treating Dupuytren's disease

In our study we documented recurrence of Dupuytren's contracture in 1(5 %) hand. Studies have demonstrated that recurrence is the most important factor which determines patient decision to consent for a particular surgical technique.²³ Our recurrence rate is comparable to other international studies. Kitridis¹⁹ reported recurrence in 2(7%) patients. Van Rijssen²⁴ documented recurrence rate of 5% in patients treated with LF and 22% in needle fasciotomy group in his series of 93 patients at 5 years follow up. The recurrence was significantly earlier in needle fasciotomy than in LF. Aykut¹ reported recurrence in 2(10.5%) patients. Huesten²⁵ was of the opinion that LF does not prevent recurrence of Dupuytren's contracture but the deformity is corrected and hand function is rapidly recovered.

Although we have not reported any intra operative or post operative complications in our series but studies have documented digital nerve injury,¹ wound infection and hematoma formation.¹⁷ The possible reason of our good results are due to our meticulous surgical technique and use of magnification loupe where necessary.

Our sample size was small due to the rarity of Dupuytren's contracture in our region. Further comparative studies with larger sample size and longer follow up should be conducted to confirm the usefulness of limited fasciectomy.

CONCLUSION

Excellent functional outcome was achieved with limited fasciectomy in patients with Dupuytren's contracture in our series. We recommend limited fasciectomy as the technique of choice to treat Dupuytren's contracture.

Conflict of Interest: None

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