

NIGHT TIME SPLINTING WITHOUT SURGERY FOR DUPUYTREN'S CONTRACTURE – A SUCCESSFUL CASE SERIES OF ELDERLY DIABETIC PATIENTS

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ABSTRACT

Dupuytren's contracture is a musculoskeletal deformity mainly involves fingers of the hands. Elderly diabetic patients more frequently suffer from the problem. Currently available options of treatment include needling, clostridium histolyticum injection and surgery. Following surgery patients are supposed to apply splint to correct the contracture. This study was conducted on early stage contracture, including 18 patients. All were advised to massage the area of contracture in the morning and at night followed by application of splint at night time. 16 patients showed complete recovery with average duration of 3.5 weeks. None of them has recurrence after three weeks of follow-up. The study concludes that the early stage contracture can be successfully treated by conservative measures.

Key Words: Dupuytren's Contracture, Elderly diabetics, Hand deformity

INTRODUCTION

Dupuytren's Contracture is a musculoskeletal deformity affecting hands. Most commonly involving ring and little fingers(1). The contracture occurs in the palmar tendons causing contracture with presence of thickening and nodule(2). It does not cause pain and it is reported to be slow progressive. Since it commonly involves ring and little fingers thus it does not cause a major deformity and patients continue to do their routine chores. The disease risk increases with advancing age and has significant association with diabetes. As reported the incidence under 50 years is around 7% which approaches 40% at the age of 70 years(3).

It is clinically diagnosed on examination of the affected hand, where there is a nodule in the ligament causing contracture of the fingers(4). The treatment currently offered includes needling, where cord is punctured with the help of needle, enzyme injection with collagenase i.e. Clostridium Histolyticum to break the cord, then there is option of surgery(5). All of these are invasive options, thus patients had to wait to develop the disease at the stage where they accept invasive procedures. The patients coming at initial stage (without fixed contracture) of the disease are left with just management of the hand with physical therapy without any scientific evidence of its effectiveness.

On the other hand with ageing population and improvement in health care facilities with development of orthopedic sub-specialty more people are coming with early disease where there is still need for non-invasive procedures and needling and surgery is not justified. Therefore a pilot study was conducted on three patients initially where they were advised to have massage of warm oil and bed time splint application on the affected fingers. These patients showed complete reversal of the problem and the nodule dissolved.

Based on these preliminary findings this prospective study was conducted to see the effectiveness of bed time splinting to cure initial stage dupuytren's contracture in elderly diabetic population.

METHODS

This is a prospective experimental study including 18 patients with early stage dupuytren's contracture. The patients included were over 60 years of age with diabetes. The early stage dupuytren's contracture was defined as deformity which has not become fixed, patient can straighten fingers with pressure, and there was no pain. Figure 1 shows hand of an elderly women presented with contracture and included in this study. They presented to the Sindh employees Social Security Institution, Hyderabad during the period between January 2015 and December 2021.

They all were advised to have massage, mainly putting pressure (mild to moderate) on the site of the nodule, twice a day with warm oil. At night after massage they were advised to apply metal extension splint. They were asked to remove the splint in the morning, and massage as soon as the splint was removed. Patients were followed up for two months on weekly basis.

The data was collected on SPSS version 22. The time of the success of therapy was evaluated in weeks. The results were analysed as frequency distribution for categorical variables and mean and standard deviation for continuous variables.



Figure 1. Image of Dupuytren's contracture in a female diabetic patient having ring finger contracture (Image presented with permission and signed consent of the patient).

RESULTS

There were 18 patients presented with early stage dupuytren's contracture. Mean age of the patients was 66.83 years (range 61- 77, \pm SD =5.03). There were 12 females and 6 males. Majority of the patients noticed the contracture within three months. Initially was on and off and more recently it become constant. However they were able to straighten with pressure. Ten patients ring finger involved, 2 had little finger and 6 had both ring and little fingers involved.

Out of these patients 16 (88.9%) had reversed the contracture, while two patients required needling. Mean duration of the successful recovery was 3.5 weeks (range 2-5 weeks). There was no recurrence reported after three months.

DISCUSSION

The study showed almost 90% success rate of non-invasive method of reversal of early stage Dupuytren's contracture in elderly diabetic population. The response to non-invasive therapy was remarkable without any recurrence at short term.

The Dupuytren's contracture is a fibroproliferative disease, commonly seen in the elderly people and diabetes is one of its risk factors(6). The treatment has options with needle injections, and surgery. All are reported to be associated with varying degree of complications(7). Though percutaneous needle fasciotomy reported to be the safest and well tolerated but procedure is invasive in nature and reportedly 86% of recurrence with procedure repeated(7). The Clostridium histolyticum treatment was associated with skin tearing in 11% of patients undergoing treatment had skin tearing(8). The risk of recurrence and repeated procedure was high with required repeated procedure or surgery within 6 weeks(9). Though there is evidence of good response for 4-weeks intervention and maintenance of the response for more than 12 weeks has also been reported in studies exploring efficacy of Clostridium histolyticum(10). Another study which used collagenase injection followed by finger exercise and splint wearing at night showed promising results(10). However with this treatment bruising and edema was the most frequently observed complications(11).

There was a randomized controlled trial Dupuytren Treatment Effectiveness Trial (EFFECT) comparing three arms of treatment including clostridium histolyticum injection and limited fasciectomy in non-responsive cases, percutaneous needle fasciotomy and primary limited fasciotomy. The trial was planned and approved in 2018 and followed of 10 years is awaited(12).

The study has small sample size and the selection criteria based on clinical assessment only. Thus we consider this as a limitation. However the study opens up an era of first line conservative management for Dupuytren's contracture.

CONCLUSION

This small scale prospective study presented high rate of success of massage with night time extension splint application with 88% cure rate. There was no recurrence during the period of study. Further large scale randomized controlled trials are recommended for robust clinical guidelines.

ETHICAL CONSIDERATION

This was an institutional study approved by local ethics committee, all patients signed and informed consent.

CONFLICT OF INTEREST

Authors declare no conflict of interest

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