



Post-operative physiotherapy management of Trigger finger in diabetic patient – A case report

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Abstract:

Background: Diabetic clinical spectrum may be associated with a condition known as ‘trigger finger’ caused by inflamed swelling or thickening of the tendon sheath and flexor tendons in fingers restricting its movement and keeping it in a bent position.

Aim: To present an interesting case of 18 years old male with type 1 Diabetic Mellitus with a right-hand trigger finger release surgery of ring finger and referred to the physiotherapy department after one month due to the immobilization of hand.

Materials and methods: Physical therapy management were applied. Physiotherapy tools used were therapeutic ultrasound, spongy ball, elastic band, and hand gripper. The case was rehabilitated for scar tissue mobilization, Maitland's joint mobilizations, and hand muscle strengthening.

Results: After ten sessions ring finger and little finger flexion/extension, range of motion (ROM) increased to optimal, and hand muscle strength also improved in grasping and gripping activities with decrease in pain visual analogue scale (VAS) score

Conclusion: Based on the analysis, we conclude and suggest that early post-operative physiotherapy management has a crucial role for the overall quality outcome of the diabetic hand pathology.

Introduction: In a human body, each hand digit can move freely through a normal range of motion (ROM) angular movement into flexion and extensions. The ability and efficiency of such movements are assisted by several annular and cruciform flexor tendon pulleys and synovial tendon lubrication in fingers. In the ‘trigger finger’, these pulleys and tendon sheath become inflamed and form nodules, which will not allow free gliding of tendons across fingers.[1] These inflammatory changes are inevitable in diabetic people due to poor healing.[2]The pathomechanics includes tendon synovium inflammation which leads to constriction of the tendon sheath. Tendon can't glide through the synovial sheath and disease progression results in the locking of a finger in a fixed position (Trigger finger). The cause of the trigger finger can be multifactorial starting from prolonged stressed physical work or a manifestation of diseases such as diabetes or arthritis with the idiopathic mechanism. Diabetes-induced trigger finger may often require surgeries removing A1 pulley but need further physiotherapy intervention for a successful outcome.[3]

Case Report: A 18 years old male diabetic patient with trigger finger release surgery post-operative day 30 was referred to physiotherapy outpatient department, MNR Medical college & hospital Sangareddy, Telangana, with chief complaints of pain and unable to fold, or straight right-hand ring finger and little finger, and unable to hold objects tightly in hand.(Fig.1a) The history profile of patient and observation is given in Table.1. The patient had undergone trigger finger release surgery one month ago and then referred

to physiotherapy outpatient department. The post-operative immobilization phase had reduced joint ROM of right ring and little finger due to formation of intraarticular adhesions. Reduced hand muscle strength, difficulty in hand grasp in and gripping activities due to pain, and incisional scar tissue was observed.

Methods: The physiotherapy interventions for the patient included hand muscle strengthening done by isometric holds, concentric, eccentric contraction by using a spongy ball, and the elastic band, done on daily basis 10 times, 3 sets with 2 to 3 min rest between each set, daily one session. Fig.2. Deep friction massage to mobilize scar tissue, therapeutic ultrasound for scar tissue mobilization and Maitland's mobilizations to break joint adhesions was performed based on previous reports. [5],[6]

Results: Following physiotherapy interventions, ring finger and little finger ROM was improved by Maitland's mobilization grade 3 &4 enabling to and fro joint movements with the removal of stiffness and improved movements efficiency. Fig.3a, 3b. The therapeutic ultrasound followed by deep friction massage enabled incisional scar tissue mobilization. FDS (Flexor Digitorum Superficialis Exercises) for tendon gliding and flexor digitorum profundus exercises, (FDP) involving straight fingers, hooking fingers, duck movement, straight fist, and full fist helped in reducing pain measured by a decrease in VAS score. Fig. 4a;4b.

Conclusions: The current management of trigger finger includes surgical release in combination of anti-inflammatory drugs and physiotherapy. Although the trigger finger

release is recommended, the overall output of the surgery depends upon the complimentary treatment. In our case early post-operative physiotherapy -

management could improve joint range of motion, hand muscle strength, gripping, and grasping activities and prevent further deformities



Fig 1: (a) Pre-Operative phase (b): Post-Operative phase (c):Pain and stiffness of right ring finger and little finger , fixed at MCP , PIP and DIP joints and unable to flex and extend fingers through full ROM, difficulty in performing hand grasping and gripping activities

Table1: Case History

Family history -	Type 1 Diabetic
Smoking -	No
Occupational history -	Student, More writing with right hand
Treatment history-	Underwent trigger finger release surgery for FDS,FDP a month back
Diabetic history-	Type 1Diabetic mellitus and on regular insulin therapy morning 25mg, night 15mg dose

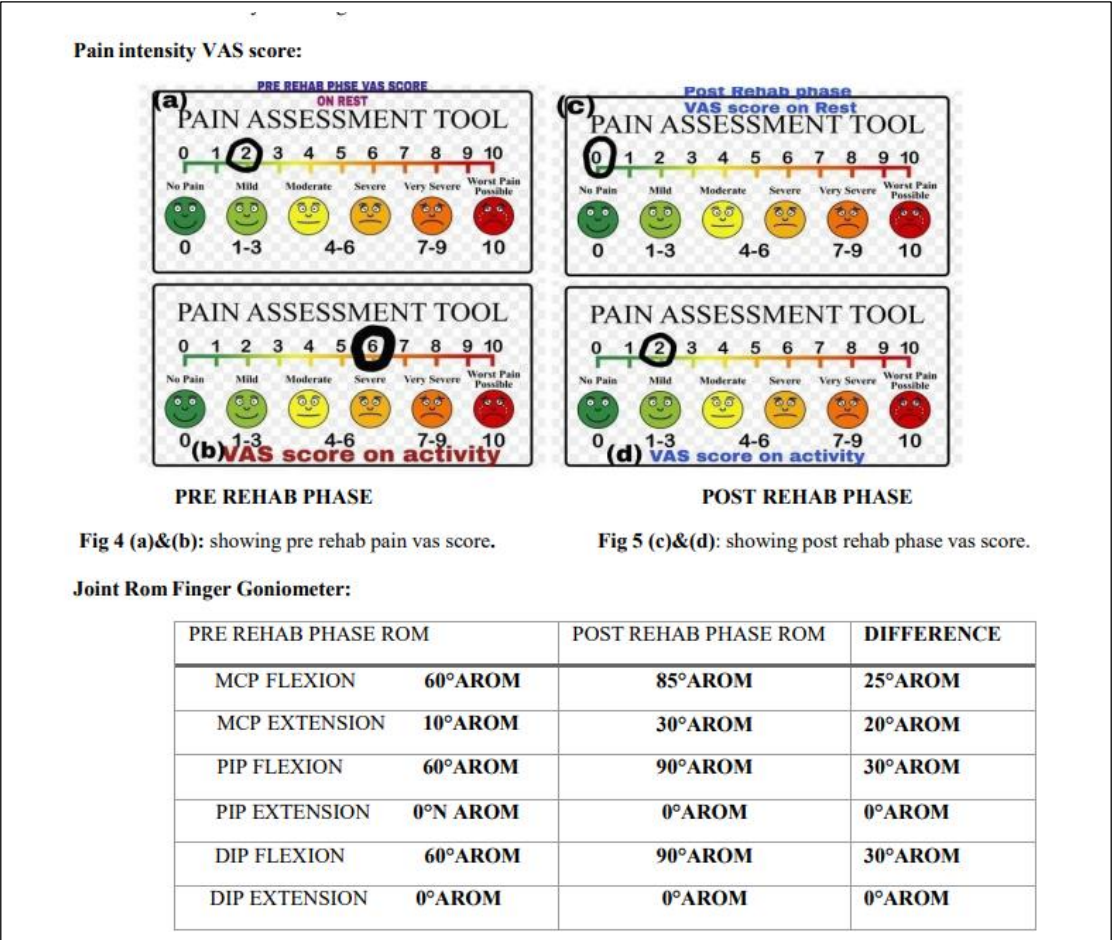


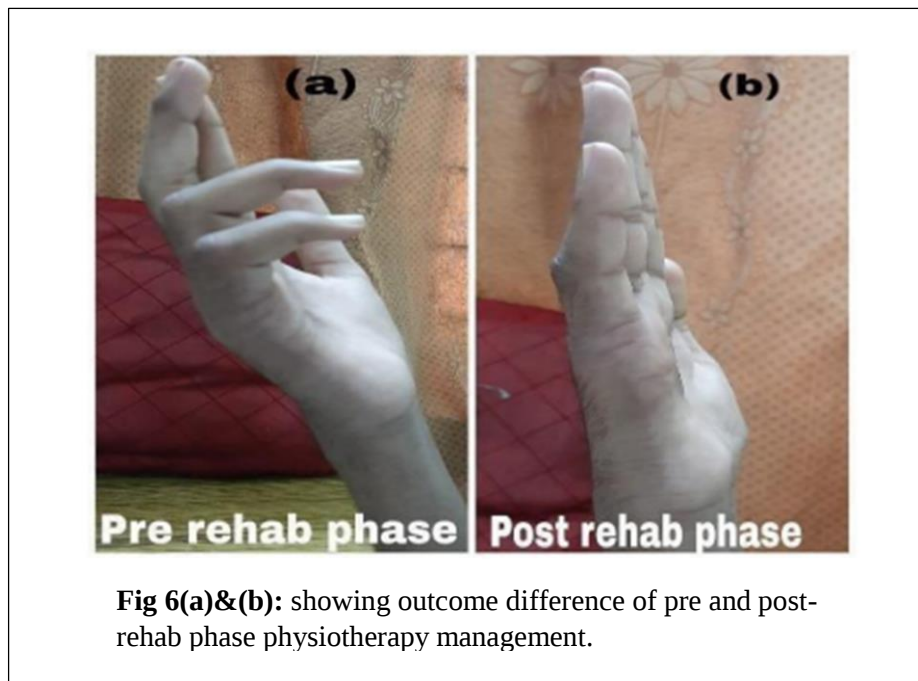
Fig 2 (a): showing strengthening of hand muscles with elastic band.(b):showing strengthening with hand gripper



Fig. 3(a): showing deep friction to mobilize scar tissue. (b): Ultrasound therapy for scar tissue mobilization. (c): Maitland’s mobilizations to break joint adhesions

Fig.4 & 5





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