

Case Report

Post-Fracture Rehabilitation in a Patient with Finger Stiffness: A Case Report

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Abstract

A physiotherapist can help in the recovery of function and avoidance of complications. We provide a case of phalanx fracture and explain about how physiotherapy treatment affected several consequences in this study. Thus, the study's aim is to outline the post fracture complications of finger and the role of physiotherapy in rehabilitation.

Keywords: Post fracture rehabilitation; Physiotherapy; Finger stiffness; Upper limb; CRP; X-ray

Introduction

Hand fractures to the joints and bones are frequent [1]. A study reported that 76% to 86% fractures occur at the lower end of upper limb among active aged people [2]. According to an analysis we discover that phalanges fractured are very common with compare to other fracture. Among all fractures, 11% was phalanges fracture [3]. One of the most typical side effects of fracture followed by immobilization is inappropriate recovery of bony fragments that prevents patients from engaging in daily activities. It is well knowledge that physical therapy is helpful in regaining limb movement in people with impairments. With the help of the additional multidisciplinary team members, physiotherapy intervention is beneficial in addressing post fracture problems. Physiotherapy is essential at every step of the fracture process, from the initial phase through full recovery. A physiotherapist can help in the recovery of function and avoidance of complications. So, we provide a case of phalanx fracture and explain about how physiotherapy treatment affected several consequences in this study. Thus, the study's aim is to outline the post fracture complications of finger and the role of physiotherapy in rehabilitation.

Case Presentation

A female patient named K was come to musculoskeletal unit at CRP located at Savar, Dhaka, Bangladesh. She was 48 years old and a housewife. She was injured by husking pedal during mashing rice. She lived in a rural area. After being injured her hand got swelled, increased severe pain and functional activity got totally stopped. So, her family took her at clinic on that day and consulted with an orthopedic surgeon. The orthopedic surgeon advised her to perform a blood test (CBC) and X-ray at her right hand. The report had showed that she had a close fracture on her proximal phalanx of middle finger. The orthopedic surgeon decided to apply POP (Plaster of Paris) at

right hand for 4 weeks. So, patient had done with POP at her right hand and went back at home. During that immobilization phase, she felt itching, discomfort, pain at her right hand. For those reason, she went another clinic and removed her POP after 28 days. She was also done another X-ray after removing POP. The X-ray report showed that her fracture got healed. At that time, she had moderate swelling, pain and inability to mobility. She comes back to her home and neither got suggested to perform any home exercise nor ice. Patient lived in a rural area and was illiterate. She and her family didn't know about post fracture rehabilitation. Day by day her condition got worse. She couldn't perform any household work. There was nobody to help her at household chores. At last, she was referred by her relative in this hospital after 4 months since her POP had removed. She had screening by a multidisciplinary team before coming at the physiotherapy department. Her complains was about pain (2nd, 3rd, 4th PIP joint) and stiffness at all right fingers specially 4th and 5th PIP as well as DIP joint. She was a right-hand dominant person. According to VAS scale pain was 7 out of 10. She also complained that she couldn't fist and her daily activity was greatly hampered. I had found that she had Diabetes but under controlled. After competed her subjective assessment, I had done objective assessment on her. In general observation she had swelling, tenderness, stiffness at right hand. AROM at flexion of PIP, DIP and MCP joint was 10°, 0° and 45° which were measured by goniometer. Active hyperextension of DIP joint was 0°. PROM at flexion of PIP, DIP and MCP joint was 30°, 20° and 60°. Passive hyperextension of DIP joint was 0°. Her end feel was hard at extension. As per Oxford muscle grading, she had grade α at palmar group of muscle. Her sensory was intact.

At first day of treatment, I educated patients about her condition, physiotherapy treatment and prognosis [4]. Then I advised her about proper positioning of the hand. I have applied gentle massage 5 minutes in each session ROM exercise of PIP, DIP and MCP joint (10 reps for 1 set). I also gave some home advice about exercise and to use ice (7 minutes) at her hand for swelling [5]. From 2nd session, I had continued same treatment with Mobilization with Movement (MWM) (10 reps for 2 set) [6], paraffin wax bath (20 min) [7] and mild functional training by using theraband of right hand [2].

Patient had received total 10 session treatment at 4 weeks. After 1st session of treatment, swelling was markedly reduced. After 2nd session, ROM of PIP joint is increased. After 3rd session, patients' functional activity is mild increased. After 4th session, palmar grasp gets better

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than before. After 4 weeks patient had only mild pain at 4th PIP joint (VAS scale 3 out of 10). Her swelling at hand was fully diminished. Active ROM in flexion of PIP, DIP and MCP joint was increased to 40°, 45° and 70°. Her muscle strength of palmar group was also increased from Oxford muscle grade α to Oxford muscle grade χ ; joint stiffness had reduced and functional activity was markedly increased compare to previous phase. Now, patient can do most of the household work by her affected hand.

Discussion

Complications from a fracture can be treated successfully with physical therapy. The aim of proper activity is the healing of bone structure. The short- term and long-term targets are set in the "SMART" framework during the treatment period. In this study, the main goals were to reduce pain, diminished swelling, improve joint ROM, increase muscle strength and regain functional activity. According to a research, rehabilitation enhances the standard of living of patient with any traumatic injury as well as their capacity for independent mobility. Rehabilitation also has a good impact on the patients' mental wellbeing. Study also suggested that positioning, gentle massage, mild functional training is helpful to overcome this condition.

Conclusion

Though each and every trauma may result in significant complications, fracture-related functional disability is more terrible. Anybody can experience a fracture. However, early physiotherapy along with awareness can minimize more secondary complications of fracture. In order to prevent further complications, physical therapy is a very important component of post-fracture rehabilitation.

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