

Physiotherapy management of Triangular Fibrocartilage Complex (TFCC) : Case Study

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ABSTRACT

The sport that many enjoy doing lately is martial arts, one of them is muay thai. This martial art that predominantly uses kicks and punches turns out to be in great demand by many people because of its simple sporting movements. According to research conducted, found that some of them experienced shortness of breath and fatigue, 30% with ankle injuries, another 20% minor injuries to TFCC can be classified as sprains of the wrist. As the name implies, the soft tissue of the wrist is complex. Injury to this area can cause more serious complaints such as pain, discomfort when using the wrist, instability in the ligaments and can lead to disability in the wrist. The pain is aggravated by any activity or position that requires rotation of the forearm and movement toward the ulna. These movements are simple activities such as turning a doorknob or a lock. This study used physiotherapy interventions in the form of ice packs to reduce swelling and pain, then exercise therapy to improve wrist stability, ultrasound and also TENS to stimulate the surrounding muscles. Evaluation of the results aims to assess the reduction in swelling and pain and how much the stability of the wrist has increased postoperatively.

Keywords: *Muay-thai, Triangular Fibrocartilage Kompleks, Wrist Injury*

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I. INTRODUCTION

Martial arts is a sport that is enjoyed by many people, both men and women. According to preliminary observations by researchers, these martial arts groups have begun to appear in many cities in Indonesia, both big cities and small towns. These martial arts groups are not only martial arts originating from Indonesia, but also martial arts originating from outside Indonesia, such as karate, tae kwon do, kung fu, judo, muay thai, and wushu (Muslim, Nawir, and Jalal 2020). One of the most popular martial arts is muay thai. Muay Thai is a martial art that uses kicks, punches and slams, and is more dominant in the form of free combat martial arts that first came from Thailand. The word Muay comes from the Sanskrit word "mavya" (martial boxing) and Thai comes from the word "Tai" (Thai tribe) (Firdaus and Hazrati 2013).

Muaythai is also known as the "Art of Eight Limbs" or "Science of Eight Limbs" due to its heavy use of punches, kicks, elbows and knee strikes, resulting in the use of eight "points of contact". A practitioner of Muaythai is known as Nak Muay, while a Western, white or non-Southeast Asian practitioner is sometimes called Nak Muay Farang, which means "foreign boxer" (Atika, Agustina, and Sulaiman 2021). Observations made by researchers at Muay Thai Gajah Mada found that those who experienced shortness of breath and fatigue, 30% had ankle injuries, the other 20% (Tse et al. 2013).

TFCC is a wrist injury that affects the ulnar side of the wrist (little finger). Minor injuries to TFCC can be classified as sprains of the wrist. As the name implies, the soft tissue of the wrist is complex. These complexes work

together to stabilize the wrist which is very mobile (Srinivasan et al. 2022). Disturbance to the area due to injury or degeneration can lead to more severe disorders of the wrist sprain, such as deformity of the wrist. Pain in the wrist along the ulnar side is the main symptom; some patients report diffuse pain. This means that the pain occurs throughout the wrist area. The pain is aggravated by any activity or position that requires rotation of the forearm and movement toward the ulna. These movements are as simple as turning a doorknob or lock, using a can opener, or lifting a heavy pan or gallon of milk with one hand (Treiser, Crawford, and Iorio 2018). Other symptoms experienced by patients are swelling; the sound of 'clicking', 'snap', or 'crackling' which is called crepitus; and weakness. Some patients report wrist instability that feels like it's going to fall off. The patient may also feel the sensation of something being trapped in the joint. Tenderness along the ulnar side of the wrist is also common. If a fracture of the distal end of the ulnar bone (at the wrist) occurs together with soft tissue instability, rotation of the forearm will be limited, The direction of movement limitation (palm open or closed) depends on the direction of the ulna dislocation (Strotmeyer et al. 2016).

II. RESEARCH METHODOLOGY

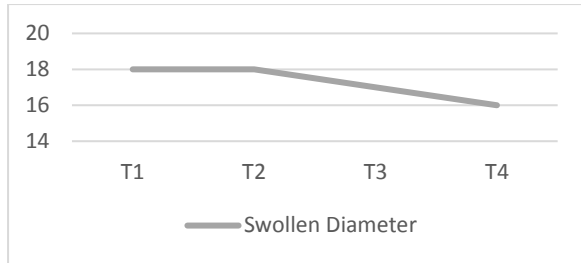
Case presentation, namely a patient with the initials E, 23 years old, a member of the Tangerang muaythai club, came to the Ara physiotherapy clinic in Tangerang with complaints of pain and discomfort in the area of his left wrist. The results of the inspection showed that there were postoperative sutures on the posterior side of the patient's wrist, the patient explained that he had been injured during a training session. 4 months ago the patient injured his left wrist during exercise, the patient fell with his left hand holding his body. This condition causes a TFCC tear. After the incident the patient felt fine in his hand, after 3 months the patient experienced pain again and the patient consulted a doctor, and the doctor suggested surgery because the ligaments and cartilage had been torn. then 2 weeks after walking surgery the patient came to the ARA physio clinic to do post OP therapy.

This study used physiotherapy interventions in the form of ice packs to reduce swelling and pain, then exercise therapy to improve wrist stability, ultrasound and also TENS to stimulate the surrounding muscles. Intervention was given within two weeks of four visits. The first intervention was applying ice packs using an ice bag to all parts of the wrist, then TENS and ultrasound were given.

Providing exercise therapy modalities in the form of modifications to exercise therapy such as wrist exercise (palmar flexion- dorsal flexion) with a load of 1/2 kg, shoulder exercise (flexion-extension-Abduction-external rotation) with a load of 1/2 kg, elbow exercise (pronation-supination) with load 1/2kg, Massage m. deltoid, grasp exercise with ball. In this study, patients did active exercises with directions given by physiotherapy. First, the patient underwent therapy using ultrasound on the wrist extensor tendons, then TENS was performed with ice packs for 10 minutes. Next, start doing the exercise using 1/2 kg weights in a sideways position and also holding the weights in your hands directing flexion, extension, abduction, interrotation and exoriation for 2 sets of 8 repetitions. Then exercise using half the weight of palmar flexion and dorsiflexion, plus supination and pronation movements. After doing the exercise then return to do the ice compress.

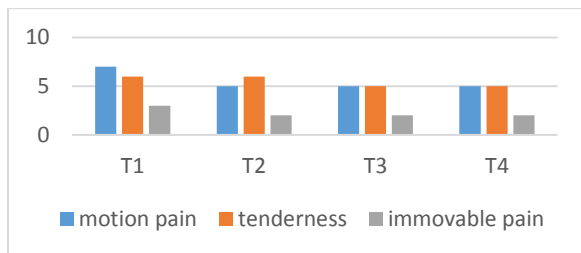
III. RESULT

After being given physiotherapy intervention, the results in this study were evaluated. Evaluation of the results aims to assess the reduction in swelling and pain and how much the stability of the wrist has increased postoperatively. To evaluate swelling, it is measured using the midline by measuring the circumference of the swollen area. To measure the evaluation of pain using the NRS (Numeric Rating Scale).



Grafic 1 Decrease In Swelling

Based on the picture of the swelling diameter measurement using the Meterline above, it shows an increase from T1: 18 cm to T4: 16 cm. These results are included in the category where there is no swelling of the wrist.



Grafic 2 Pain Reduction

In this study, there was injury to the cartilage. This condition causes functional decline in the wrist. Non-operative recovery of approximately 12 weeks or more, for surgery allows patients to have full activities without limitations within 6 weeks postoperatively (Jawed, Ansari, and Gupta 2020). According to research conducted by Concord Orthopedic, giving strengthening exercises can restore certain lost movements such as ulnar deviation (movement of the hand at the wrist away from the thumb and towards the little finger) and supination (movement of the palm up) or pronation (downward palm movements) which are carried out during the therapy process with regular added weights, and are able to increase the Range of Motion (Wasiah 2020). The modality used to reduce pain in this study is TENS. Physiotherapy techniques to reduce pain by using modified electrical energy to stimulate the nervous system. TENS is able to activate nerve fibers, both large and small diameter nerve fibers which will convey various sensory information to the central nervous system (Achmad 2022). For the dose given to the patient according to the patient's tolerance, by adding it slowly.

IV. CONCLUSION

Based on the explanation described above, the modalities given such as exercise therapy, TENS and other modalities can reduce pain and swelling and can increase the patient's functional activities. This research is still far from perfect, so there is a need for improvement in various aspects for further research.

REFERENCES

- Achmad, Fikri Amriansya. Dkk. 2022. "TINGKAT PEMAHAMAN FAKTOR DAN JENIS CEDERA OLAHRAGA ATLET MUAYTHAI PADA KLUB KNOCKOUT SURABAYA Achmad Fikri Amrisyah Ananda Perwira Bakti." *Tingkat Pemahaman Faktor dan Jenis Cedera Olahraga Atlet Muaythai Pada Klub Knockout Surabaya* 10: 85–92.
- Atika, Nurul, Dewi Agustina, and Sulaiman. 2021. "Efektifitas Latihan Muay Thai Terhadap Kebugaran Di Medan Muay Thai Gm." *Health Science and Rehabilitation Journal* 1(1): 22–26.
- Firdaus, and Ikramina Larasati Hazrati. 2013. "Pengenalan Seni Bela Diri Pada Anak-Anak Dan Remaja Desa Untuk Menambah Aktivitas Positif Pada." *Seri Pengabdian Masyarakat* 2(2): 77–81. <http://journal.uui.ac.id/ajie/article/download/7854/6804>.
- Jawed, Akram, Mohammed Tahir Ansari, and Vikas Gupta. 2020. "TFCC Injuries: How We Treat?" *Journal of Clinical Orthopaedics and Trauma* 11(4): 570–79. <https://doi.org/10.1016/j.jcot.2020.06.001>.
- Muslim, Muslim, Nukhrawi Nawir, and Djen Jalal. 2020. "Hubungan Kematangan Psikologis Dan Lama Latihan Terhadap Prestasi Atlet Olahraga Bela Diri." *Jurnal Olahraga dan Kesehatan Indonesia* 1(1): 16–22.

- Faizah, Z.N., Fatmarizka, T. & Abdurrasyid
Fisiomu.2023 Vol 4(3)
DOI: <https://10.23917/fisiomu.v4i3.21972>
- Srinivasan, Ramesh C. et al. 2022. “Arthroscopic TFCC Ulnar Bone Tunnel Foveal Repair in Adult Patients.” *Arthroscopy Techniques* 11(10): e1753–61. <https://doi.org/10.1016/j.eats.2022.06.011>.
- Strotmeyer, Stephen et al. 2016. “Epidemiology of Muay Thai Fight-Related Injuries.” *Injury Epidemiology* 3(1). <http://dx.doi.org/10.1186/s40621-016-0095-2>.
- Treiser, Matthew, Kayva Crawford, and Matthew Iorio. 2018. “TFCC Injuries: Meta-Analysis and Comparison of Diagnostic Imaging Modalities.” *Journal of Wrist Surgery* 07(03): 267–72.
- Tse, Wing Lim et al. 2013. “Arthroscopic Reconstruction of Triangular Fibrocartilage Complex (TFCC) with Tendon Graft for Chronic DRUJ Instability.” *Injury* 44(3): 386–90. <http://dx.doi.org/10.1016/j.injury.2013.01.009>.
- Wasiah, Asyaul. 2020. “Jurnal Surya.” *Media Komunikasi Ilmu Kesehatan* 12(02): 70–76.