



Physiotherapy Management for Cases of Tendinitis Bicipitalis in Indonesian Para Powerlifting Athletes: Case Report

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Abstract

Bicipitalis tendinitis is an inflammation of the biceps tendon, which is the connective tissue between the biceps muscle and the humerus bone. This inflammation can cause pain, swelling and limited movement. The prevalence of bicipital tendinitis in Indonesia in 2023 is estimated at 2.5% of the general population. the prevalence of bicipital tendinitis in adults aged 18-65 years is 2.5% that athletes who use the bicep muscle more often, such as weightlifters, have a higher risk of suffering from bicipital tendinitis. If left untreated, it will hamper exercise and daily activities. The sample in this study amounted to 1 client. Data collection methods by means of subjective examination, objective examination, motion examination, examination of cognitive abilities, personal and interpersonal skills, functional examination and activity environment, and specific examination. This type of descriptive case study research uses participatory observation methods, physiotherapy intervention procedures with Ultrasound, TENS and Hold Relax exercise. The subject in this study was An. Sh is a 33 year old para-powerlifting athlete by profession, the patient is 177 cm tall and weighs 70 kg. The patient came to the NPC Indonesia physiotherapy clinic on August 25, 2023 because the patient complained of pain in the right front shoulder. muscle examination obtained normal results in all physical examinations except for the pain examination performed with Visual Analogue Scale (VAS) obtained silent pain 2/10, tenderness 5/10 and motion pain 6/10. The physiotherapist conducted a specific examination obtained positive Yergason Test results and a positive Speeds Test indicating the occurrence of dextra Bicipitalis Tendinitis. The results after being given intervention in Bicipitalis Tendinitis patients with Ultrasound, TENS and Hold Relax exercise for 6 times therapy in 2 weeks are a significant decrease in pain and an increase in activity.



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INTRODUCTION

Exercising is a vital physical activity for every individual to maintain their health. A healthy lifestyle that involves physical activity has many advantages in keeping the body system healthy and fit, such as providing stimulation to various body systems to maintain health and fitness. In everyday life, many people engage in sports activities against the rules or without realizing they are performing improper movements, which can result in sports injuries. Sports injuries are generally caused by factors such as lack of warm-up, overuse of weights, improper training techniques, and also due to less strong muscles, tendons, and ligaments.

Exercise is one of the physical activities that can be done at any age to maintain health and brings many benefits to help the body stay healthy and fit. (Kisner, Carolyn; Colby, Lynn, 2017) Physical activity or sport helps protect health and provides economic and social benefits, including mental health and disease prevention, for everyone, (para sport). Sports injuries are damages that occur to the body during physical activity or sports. This includes sudden injuries and overuse syndrome caused by repetitive exercises with monotonous movements. (Setyaningrum, 2019).

Sports injuries can cause problems for all athletes, but athletes with disabilities who are injured may find it more difficult to access medical services and receive appropriate treatment. Usually sports injuries are caused by factors such as lack of warm-up. Overuse of weights, incorrect training techniques and also because the muscles, tendons and ligaments are not strong enough. Sports injuries often cause bodily reactions, including inflammation with symptoms of redness,

swelling, heat, pain and decreased function. For example, Powerlifting is a sport that involves repetitive movements, such as weight lifting. These movements can cause stress to the tendons of the bicep muscles, increasing the risk of developing shoulder bicipital tendinitis. athletics is one of the sports where athletes often perform repetitive movements, pain, weakness and stiffness are the most common symptoms experienced by patients with bicipital tendinitis.

Incidence of Bicipital Tendinitis According to data from the Ministry of Youth and Sports of the Republic of Indonesia, the incidence of bicipital tendinitis in Indonesian athletes in 2023 is 10% of the total athletes. This figure was obtained from the results of a survey conducted in 2023 on 10,000 athletes throughout Indonesia. Bicipital tendinitis is caused by (intrinsic) factors Age is more common in people over the age of 40, Gender is more common in men than women, history of injury and Medical conditions, people who have certain medical conditions, such as rheumatoid arthritis, osteoarthritis, or shoulder impingement syndrome, are more at risk of developing bicipital tendinitis. External factors Repetitive activity, Injury, such as a fall or impact to the shoulder, Using the wrong technique when lifting weights can increase the risk of injury to the bicipitalis tendon.

Bicipital tendinitis can limit the performance of Indonesian track and field athletes as it causes pain on the move If left untreated, it can hamper sports and daily activities. In the condition of bicipital tendinitis, physiotherapists play a role in reducing pain and maintaining functionality. To overcome this, the physiotherapy modalities chosen by the author are ultrasound, TENS and hold relax

exercise. Kisner & Colby (2022) Hold relax is a passive stretching technique performed by holding the stretched muscle in a stretching position for 15-30 seconds. helps increase muscle flexibility and reduce pain. Based on research (IZZA Nur Azizah, 2021) with the title "Physiotherapy Management of Bicipital Tendinitis", it was found that there was a significant effect in reducing pain in bicipital tendinitis.

METHODS

This type of research is a descriptive case study using observation and participation methods to evaluate physiotherapy management of bicipital tendinitis cases in Indonesian para-powerlifting athletes.

Participants

The subject in this study was a woman An. Sh is a 33 year old national para powerlifting athlete. The NPC Indonesia Clinic is the place of this research. Jl. Sugiyopranoto No.20, Kp. Baru, Kec. Ps. Kliwon, Surakarta City, Central Java.

Sampling Procedures

Data collection methods by means of subjective examination, objective examination, motion examination, cognitive ability examination, personal and interpersonal skills, functional examination and activity environment, and specific examination in 1 sample of Bicipitalis Tendinitis cases in Indonesian Para powerlifting athletes.

Materials and Apparatus

Measurement, examination and intervention tests used in data collection techniques, including (i) BMI

measurement using body weight (scales) and height (meter). (ii) general examination; blood pressure & pulse (electric tension meter), body temperature (thermometer), breathing pattern (inspection). (iii) physical examination; joint range of motion (goniometer), muscle mass (midline), muscle strength (mmt), pain (VAS). (iv) specific examination; Yergason Test, Speeds Test (v) functional pain examination using the Shoulder Pain and Disability Index (SPADI). (vi) Ultrasound modality intervention, TENS and holdrelax Exercise.

Procedures

The procedures used in this study are as follows: (i) researchers first measured and examined the subjects. (ii) the researcher classifies and categorizes the data. (iii) testing was carried out the NPC Indonesia Clinic. Sugiyopranoto Street No.20, Kp. Baru, Kec. Ps. Kliwon, Surakarta City, Central Java.

Design or Data Analysis

Data analysis techniques using interviews, observations, and case studies to obtain conclusions from the research.

RESULT

1. Examination Results

A 33 year old athlete with a height of 177 cm, weight 70 kg, complained of pain in the right front shoulder. Paise is a professional Para Powerlifting athlete who is undergoing National Training Camp in preparation for the ASIA Para Games Hangzhou China 2023. The patient felt pain especially during the exercise movement to lower the weight after straightening the hand up. From the examination

results, it was found that there was motion pain in the right shoulder but could still perform movements with full LGS. This pain has interfered with training and competition, and the patient has a history of strict and regular training. The patient came to the NPC Indonesia physiotherapy clinic on August 25, 2023. On general examination the patient was conscious, cooperative, and able to communicate with the physiotherapist in a relaxed sitting position. Blood pressure 120/80 mmHg, pulse 80x/min, normal breathing 20x/min, and temperature 36°C. The physical examination results were normal, except for the pain examination (VAS: silent 2/10, press 5/10, motion 6/10).

The patient did not bring the results of the supporting examination when he came to physiotherapy. In enforcing the diagnosis, the physiotherapist performed a specific examination in the shoulder region and found positive results in the dextra area Yergason Test positive and Speeds Test positive which indicated dextra Bicipitalis Tendinitis. Physiotherapy diagnosis includes Body Structure, Body Function, Activity Participation, and Environmental Factor which will affect patient intervention. Interventions were tailored to short-term (reducing pain) and long-term (maintaining normal functional conditions) physiotherapy goals. The patient received ultrasound, TENS and holdrelax exercise for 6 sessions in 2 weeks, each session about 1 hour, taking into account his condition.

Table 1. Results of Pain Examination

| Pain Examination (VAS) | |
|------------------------|---------|
| VAS | Results |
| Silent pain | 2 |
| Pressure pain | 5 |
| Movement pain | 6 |

Interpretation :no pain (0) mild pain (1-3), moderate pain (4-6), severe pain (7-9) unbearable pain (10). (Domenica, 2018).

Table 2. SPADI scale (Shoulder Pain and Disability Index)

| No | Item | Description | Scale |
|-------------|---------------------|--|-------|
| 1 | Pain | Degree of pain felt in the shoulder | 4 |
| 2 | Activity limitation | Level of activity limitation caused by shoulder pain | 2 |
| 3 | Quality of life | Level of quality of life impaired by shoulder pain | 2 |
| Total score | | | 8 |

Description: scale (0-3) Mild, (4-6) moderate, (7-10) severe.

Interpretation:

0-10 (mild pain and disability), 11-20 (moderate pain and disability), 21-30 (severe pain and disability).Cvitkovic et al. (2023)

Table 3. Specific Examination Results

| Test | Results |
|---------------|---------|
| Yergason Test | + |
| Speeds Test | + |

Interpretation: Positive results of the Yergason Test and Speeds Test indicate Bicipitalis Tendinitis.

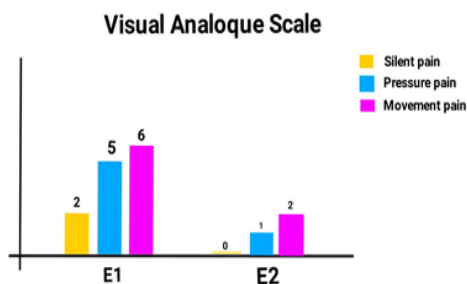
Tabel 4. Intervensi Fisioterapi

| Meeting | 6 sessions |
|---------------------|--|
| Intervention | 1. Ultrasound 2. TENS 3. Holdrelax exercise |
| Purpose | 1. Pain reduction 2. Stimulation of pain relief 3. Relaxation, increase muscle flexibility |
| Dosage | 1. F : 3x / weeks I : 0,3 Watt/cm ² , 1 MHz T : 4 minute T : Ultrasound 2. F : 3x / weeks |

I : Symetric current
T : 10 Minute
T : TENS
3. F : 3x / weeks
I : 10 reps 3 set
T : 5-10 minute
T : Exercise

2. Case Study Results

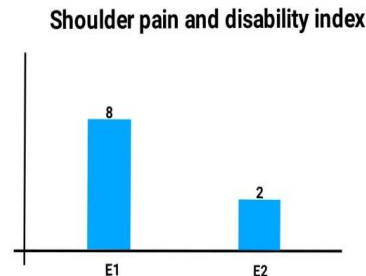
After 6 intervention meetings in 2 weeks, the patient was included in the evaluation. In general, the patient showed improvement and no additional complaints. Evaluation involved the use of Visual Analog Scale (VAS) for pain and Shoulder Pain and Disability Index (SPADI) for activity function pain. The results were evaluated on the first day of therapy and the last day of therapy.



Graph 1. VAS Examination Results (Pain)

This graph shows a significant decrease in pain in the first and second evaluations. after 6 therapies in 2 weeks of physiotherapy. Silent pain from E1=2 to E2=0, tenderness from E1=5 to E2=2, and motion pain from E1=6 to T5=2. Ultrasound therapy is a therapeutic option to improve blood circulation and cell metabolism. increase the process of tissue regeneration. The thermal effect of TENS improves blood circulation and cell metabolism. This can accelerate the healing process of injured tissues. Increasing muscle extensibility due to isometric hold relax contractions of antagonistic muscles can increase the extensibility of stretched muscles. This

occurs because isometric contractions cause increased blood flow and lymphatic circulation to the stretched muscle.



Graph 2. Evaluation of SPADI (Shoulder Pain and Disability Index) Scale Score

Graph 2 shows a decrease in the number of SPADI scores at the first evaluation compared to the second evaluation after 6 physiotherapy sessions. Evaluation was carried out on the first therapy and the last day of therapy. First evaluation score E1: score 8 to E2: 4. Giving holdrelax exercise Increases blood flow, Increased blood flow can help carry nutrients and oxygen to muscles that are experiencing inflammation. This can help speed up the healing process and reduce pain. Hold-relax can increase blood flow to the biceps brachii muscle by stretching this muscle slowly and gradually. Zhang et al. (2017) reducing pain allows patients to move more freely and independently in daily activities.

DISCUSSION

Bicipitalis tendinitis is an inflammation of the biceps tendon, which is the tendon that connects the biceps muscle to the upper arm bone. This inflammation can be caused by many factors, including overuse of the muscle, repetitive motion, injury, and certain medical conditions. The patient in this case An. Sh is a 33-year-old para powerlifting athlete, the patient is 177

cm tall and weighs 70 kg. The patient came to the NPC Indonesia physiotherapy clinic on August 25, 2023 because the patient complained of pain in the right front shoulder. The patient felt pain especially during the exercise movement to lower the weight after straightening the arm up. Physical examination showed tenderness at the sulcus bicipitalis, which is the indentation in front of the shoulder containing the bicep brachii tendon. Specific examination revealed a positive Yergason Test and a positive Speeds Test. Based on the examination results, the patient's diagnosis was bicipitalis tendinitis. The therapy given to the patient is non-operative therapy, namely physical therapy. Physical therapy given to the patient is ultrasound, TENS and holdrelax exercise. Ultrasound therapy increases the pain threshold and reduces inflammation. blood circulation increases by increasing the diameter of blood vessels and increasing the rate of blood flow. This can help reduce inflammation and promote tissue healing. TENS stimulates the nerves to release endorphins, which are hormones that have an analgesic effect (pain relief). hold-relax, which is a static stretching technique performed by holding the stretch position for a few seconds, then followed by relaxation of the stretched muscles. This therapy aims to reduce biceps brachii muscle tension, increase blood flow to the biceps brachii muscle, and increase collagen production.

The patient followed physical therapy for 2 weeks and 6 sessions. At the end of therapy, the patient's pain has been significantly reduced and improved. Patients are also recommended to do biceps brachii muscle strengthening exercises to prevent the occurrence of bicipitalis tendinitis in the future. Evaluation was

carried out with 2 Visual Analogue Scale (VAS) scales for pain evaluation and Shoulder Pain and Disability Index (SPADI) evaluating functional activity pain. Evaluation was carried out on the first and last day of therapy In graph 1 the results of the VAS (pain) examination showed a significant decrease in pain (see VAS evaluation graph) and a decrease in SPADI scale scores (see graph 2 SPADI evaluation). A decrease in the SPADI scale score interprets mild functional activity pain disorder and increased functional activity.

CONCLUSION

Based on the case of Bicipitalis Tendinitis, it can be concluded that Ultrasound, TENS and hold relax therapy are effective therapies in reducing pain and increasing flexibility in bicipitalis tendinitis. This therapy can be done independently by the patient at home. However, for optimal results this therapy is carried out with supervision from a physiotherapist.

ACKNOWLEDGEMENT

1. Suggestions for Patients:
 - a. Adhere to the therapy plan that has been suggested by the physiotherapist regularly and disciplined.
 - b. If you experience any discomfort or have any questions, communicate with your physiotherapist immediately.
 - c. Do not hesitate to talk to your physiotherapist about changes in your condition during therapy.
2. Advice for Physiotherapists:
 - a. Keep your knowledge updated on the latest developments in physiotherapy, particularly in the use of the latest technology.

- b. Always communicate with patients about the progress of their therapy, and provide clear explanations about the benefits of each type of intervention.
- c. Consider utilising the latest technology and aids available to improve the effectiveness of therapy.
- d. Establish a good relationship with patients, provide emotional support, and encourage them to undergo therapy consistently.

With mutual cooperation between patients and physiotherapists, as well as the application of the latest technology, it is hoped that physiotherapy services can continue to be improved and provide maximum benefits for patients with Tendinitis Bicipitalis and other conditions.

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