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Physiotherapy management in case of Post Reconstruction of anterior cruciate ligament sinistra at Sport clinic IBEST PHYSIO SOLO: Case Report

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Abstract

The ACL is an important ligament in the knee that connects the femur to the tibia. anterior cruciate ligament injuries can result from a sudden knee injury in any direction resulting in partial or complete tearing of the ligament. Trauma can also cause anterior cruciate ligament tears, especially direct trauma to the knee due to lateral forces. The incidence of ACL injury in some European countries is around 29-32 cases per 100,000 people. This study is a descriptive case study involving one client with participatory observation method. Physiotherapy interventions include ice packs, TENS, and exercises given in the form of quadsets, straight raises, ankle sets, hamstring sets, gluts sets, and heel slides . The subjects were 27-year-old parahyangan soccer athletes with a height of 182 cm, a weight of 70 kg, and a BMI of 21.1 in the ideal category. The patient came to the IBESt PHYSIO SOLO physiotherapy clinic on August 20, 2023 with complaints of pain in the outer right knee. Physical examination showed normal results except pain examination using the numerical Rating Scale (NRS) obtained silent pain 2/10, tenderness 4/10, and motion pain 5/10. Postoperative ACL Diagnosis through X-ray dextra results. After physiotherapy with ice packs, TENS, and exercises given in the form of quadset, straight raise, ankle set, hamstring set, gluts set, and heel slide six times, obtained a significant reduction in pain and increased functional activity in post op ACL patients. Patients are advised to undergo regular physiotherapy, do stretching exercises before and after activities, and compress with warm water if they experience pain.

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INTRODUCTION

Exercise is a physical activity that can be done at any age to maintain health that provides many benefits to keep the body healthy and fit (Kisner, Carolyn; Colby, Lynn, 2017). Physical activity or exercise maintains individual health and provides social and economic benefits, including mental health and disease prevention for all, including people with disabilities (Novak & Goolsby, 2023). Sports injuries are damage to the body during physical exertion or training. These include sudden injury and overuse syndrome resulting from repetitive exercises with monotonous movements (Setyaningrum, 2019). Sports injuries can be a problem for all athletes, but injured athletes with disabilities may find it more difficult to access health services and receive proper care. In general, sports injuries are caused by factors such as lack of warm - up, use of excessive weights, improper exercise technique, and also due to poor strength of muscles, tendons and ligaments (Malfira & Hilmy, 2020). Sports injuries often cause a body response, including inflammation with symptoms of redness, swelling, heat, pain and decreased function (Setiawan, 2011).cruciate ligament (ACL), posterior cruciate ligament (PCL), medial cruciate ligament (MCL), dan posterior cruciate ligament (LCL). The ACL is one of the important ligaments in the knee that connects the femur with the tibia (Awan et al., 2021). One of the ligaments that is often injured in the knee joint is the ACL, injuries can be direct or indirect (Wijayasurya & Setiadi, 2021). According to the Imam in intercession and Rosyida, (2020), anterior cruciate ligament injuries can result from sudden knee injuries in any direction resulting in partial or complete tearing of the ligament. Trauma can also cause anterior cruciate ligament tears, especially direct trauma to the knee due to lateral force (intercession & Rosyida, 2020)

The incidence of ACL injury in some European countries is around 29-32 cases per 100,000 people (Singh, 2018). According to an epidemiological study of ACL injuries treated surgically in Singapore, the prevalence of ACL injuries by race was 60.5% Chinese, 23% Malay, 8.4% Indian degree, and 8.11% from other races (Sayampanathan et al., 2017). A recent study discussing the prevalence of anterior cruciate ligament injuries in Indonesia by (Dhuhairi et al., 2021) shows that knee injuries in Indonesia. It is the second highest disease after back pain, with a rate of 48 per 1000 patients with anterior cruciate ligament injuries of 9%. If the ACL is completely torn, it is recommended to perform Anterior Cruciate Ligament Reconstruction (ACLR). ACLR rehabilitation phase there are several phases, namely the preoperative phase,

Phase 1, Phase 2, Phase 3, Phase 4, and Phase 5. In this study, respondents have entered rehabilitation phase 4 so that in providing handling in the form of strength, balance, landing,

and agility exercises that are progressively, from limited to unlimited, and are ready to return to competition (Cooper & Hughes, 2018). The physiotherapy modalities that can be given in ACLR rehabilitation cases are: Exercise.

Physiotherapists play a role in reducing pain and improving function. To overcome this, the physiotherapy modalities chosen by the authors are ice compresses, TENS, and exercises given in the form of quadset, straight raise, ankle set, hamstring set, gluts set, and heel slide explain each intervention the purpose of this case report Journal is to provide education to athletes and the general public about Post Reconstruction of anterior cruciate ligament sinistra as a common health problem in athletes. This knowledge is expected to help in detecting early symptoms, preventing them, and improving more effective physiotherapy methods. This is expected to improve health services, both for athletes and the general public who experience similar problems.

METHODS (Times New Roman 12)

This type of research is a descriptive case study using observation and participation methods to evaluate the management of physiotherapy cases Post Reconstruction anterior cruciate ligament sinistra Clinic IBEST PHYSIO SOLO

Participants

The subject in this study was a man named Mr. S is a 27-year-old football player. Place of study is at IBEST PHYSIO SOLO

Sampling Procedures

Methods of data collection by subjective examination, objective examination, motion examination, examination of cognitive abilities, personal and interpersonal skills, examination of function and activity environment, and specific examination in 1 sample case of Post Reconstruction anterior cruciate ligament sinistra Clinic IBEST PHYSIO SOLO.

Materials and Apparatus

Measurement, examination interventions and tests used in data collection techniques include (i) BMI measurement using weight (scales) and height (meters). (ii) general examination; blood pressure & pulse (electric tension meter), body temperature (thermometer), breathing pattern (inspection). (iii) physical examination; scope of joint motion (goniometer),
muscle mass (midline), muscle strength (mmt), pain (VAS). (iv) special examination; anterior drawer test, posterior drawer test, varus test, valgus test, mc murry test. (v) functional examination using international knee documentation
communittee (vi) intervention modality using ice compress, TENS, and Exercise given in the form of quadset, straight raise, ankle set, hamstring set, gluts set, and heel slide.

Procedures

The procedure used in this study is as follows: (i) the researcher first makes measurements and examinations of the subject. (ii) researchers perform classification and categorization of data. (iii) testing conducted at IBEST PHYSIO SOLO Clinic.

Design or Data Analysis

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

RESULT

1. Examination Results

A 27-year-old football athlete with a height of 175 cm, Weight 65 kg and a BMI of 21.1 complained of left knee pain on the front side. This pain increased after after playing ball the patient fell and swollen knees and then immediately massaged for one year but the pain did not subside, finally decided to go to the hospital to do an MRI examination in October 2024, the results of a rupture in the anterior cruriate ligaement were obtained, on that day immediately performed ACL reconstruction surgery on Monday 16 September 2024 and on October 02, 2024 the patient was referred to the physiotherapy Poly for therapy actions on general examination of conscious, cooperative patients, and being able to communicate with the physiotherapist in a relaxed sitting position. Blood pressure 120/80 mmHg, pulse 85x/min, normal breathing 20x / min, and temperature 36C. Physical examination results within normal limits, except for pain examination (VAS: still 2/10, press 4/10, motion 5/10). Patients do not bring the results of supporting examinations when they come to the physiotherapy clinic. In making the diagnosis, the physiotherapist uses the international knee documentation community and points out the functional limitations of the Lower Extremity. We do not perform specific examinations on athletes because they have done MRI checks and ACL reconstruction actions so that it can be ascertained that there is a rupture in the ACL physiotherapy Diagnosis includes Body Structure, Body Function, Activity Participation, and Environmental factors that will affect patient intervention. Interventions are tailored to the short-term (reducing pain) and long-term (improving functional abilities) goals of physiotherapy. The patient receives ice, TENS, exercise compresses for 6 sessions in 2 weeks, each session lasts about 1 hour, taking into account his condition.

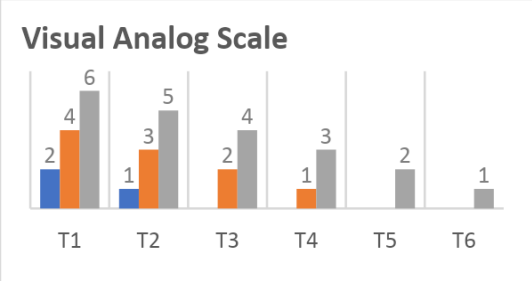
Tables & Figures

Table 1. VAS examination

No	Examination	Result
1	Silent pain	2
2	Tenderness	4
3	Motion pain	5

Interpretation is silent pain value 2, compressive pain value 4 and motion pain value 5 in the examination of the international knee documentation communittee obtained a score of 30 is low functional level

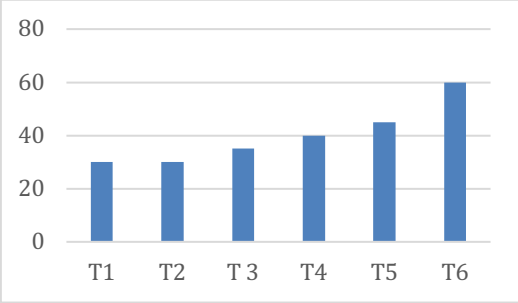
Fig 1. Score Vas



Graph 1 shows a gradual decrease in

pain after 6 physiotherapy sessions. Pain at rest was reduced from T1=2 to T6=0, tenderness from T1=4 to T6=0, and motion pain from T1=6 to T5=1. Pain evaluation was conducted at each meeting to observe the effects of ice, TENS, and exercise compresses.

Fig 2. international knee documentation communittee



Graph 2 shows an increase in functional activity after 6 physiotherapy sessions. LEFS score increased from T1=30 to T6=60

DISCUSSION

As illustrated in the case description above, patients with post Op ACl usually come with complaints of pain because it is one of the overuse injuries that often cause inflammation and pain in the lower extremities, this is experienced by 7-14% of the population of football athletes and can interfere with performance and body function (Shamus & Shamus, 2015). In overcoming post op ACL problems, physiotherapists play a role to reduce pain and improve functionality, the physiotherapy modality chosen by the author is to use ice, TENS, and exercise compresses. In Graph 1 the results of the vas examination (pain) show a gradual decrease in pain. Compress aims to reduce pain by causing vasoconstriction of blood vessels, with the use of 10 minutes in place on the area experiencing pain.

Transcutaneous Electrical Nerve Stimulation (TENS) is a modality that aims to help reduce pain and reduce swelling by using a duration of 10 minutes with an intensity of 80-120 Hz. The use of nociceptive TENS can lead to analgesic chemical pain (histamine, bradykinin and prostaglandin) which has a role to stimulate nociceptive by stimulating enkapalin receptors. Stimulation that occurs in enkapalin receptor is a stimulus that will be accompanied by endorphin release resulting in reduced pain perception (Hayes, Karen W, & Kathy)

In graph 2 of the international knee documentation communittee, there is an increase in functional activity, this can occur due to a decrease in pain. This makes it easy and free for the patient to carry out activities independently and not experience difficulties in carrying out daily activities. Exercises that are given in the form of quadsets, straight raises, ankle sets, hamstring sets, gluts sets, and heel slides. All exercises are aimed at restoring the biomechanics of the body, muscle strength, joint movement environment, as well as improving the functional activity of athletes.

CONCLUSION

Based on the results of the research that has been done, the provision of ice compresses, TENS, and Exercise given in the form of quadset, straight raise, ankle set, hamstring set, gluts set, and heel slide in reducing pain and improving functional abilities in patients

with post op ACL cases has changed for the better.

ACKNOWLEDGEMENT

1. Advice to patients:
a. Adhere to the therapy plan that has been suggested by the physiotherapist in a regular and disciplined manner.
b. If you experience any discomfort or have any questions, communicate them by contacting a physiotherapist.
c. Do not hesitate to talk to your physiotherapist about changes in your condition during therapy.

2. Advice to physiotherapists:
a. Keep your knowledge up to date on the latest developments in physiotherapy, particularly in the use of current technologies such as TENS.
b. Always communicate with the patient about the progress of their therapy, and give a clear explanation of the benefits of each type of intervention. c. Consider taking advantage of the latest technologies and aids available to increase the effectiveness of therapy.
d. Establish a good relationship with the patient, provide emotional support, and encourage the patient to undergo therapy consistently

With good cooperation between patients and physiotherapists, as well as the application of the latest technology, physiotherapy services are expected to continue to be improved and provide maximum benefits for patients with post op ACL and other conditions.

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