Effectiveness of kinesiotaping and ultrasound therapy in bicipital tendinitis

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***Abstract*— Background and purpose: The purpose of this case report is to describe the effectiveness of kinesiotaping and ultrasound therapy of a patient with bicipital tendinitis. Kinesiotaping is effective in reducing pain and improve Activities of daily living of a patient with bicipital tendinitis... There is a paucity of recent literature regarding this effect of taping. Aim: The aim is to review recent experience of this kinesiotaping and Ultrasound therapy along with exercises. Case Description: This is a case of 53-year-old female with pain at biceps region from 3 months. Intervention: Physiotherapist instructed the patient, how to perform exercises along with stretching and also advised precautions regarding taping. Outcomes: The patient attended 4 weeks' physiotherapy sessions. His Visual Analog Scale (VAS) score before treatment is 8/10 and score after treatment is 2/10. And he got 65 out of 100 before treatment on Disabilities of the Arm, Shoulder and Hand (DASH) Questionnaire. After treatment he got 35 out of 100 on this questionnaire. Discussion: People with shoulder pain is most common. Hence, the criteria for diagnosis must focus on evaluating Biceps pain in which patient had symptoms. Goal of physiotherapy for bicipital tendinitis is to reduce pain, improve activities of daily living and also strengthening muscles. Intervention for Bicipital tendinitis include cryotherapy, Ultrasound therapy, soft tissue mobilization, stretching and exercises, home exercises and precautionary advices.**

***Index Terms*— Bicipital Tendinitis, Ultrasound therapy (UST), Kinesiotaping.**

I. INTRODUCTION

The prevalence of shoulder pain in the general population is between 7-26% and the lifetime prevalence reaches 67%. Biceps tendinitis is characterized by inflammation of the longhead of the biceps and is one of the most common pathologies causing shoulder pain. Studies specific to the definition of biceps tendinitis were first performed by Codman in 1934. It often occurs as a result of mechanical irritation and degeneration of the tendon due to subacromial compression, trauma or excessive use.

Although it is frequently accompanied by degenerative rotator sheath lesions or impingement syndrome, primary biceps tendinitis occurs in 5% of cases. Although there is no specific test with reliable positive predictive value in the clinical evaluation of biceps tendinitis, anterior shoulder pain, sensitivity in the bicipital groove, and Speed and Yergason tests can be seen positively. In palpation, while the arm is at 10 degrees internal rotation, it is determined by the pain felt at the pressure applied approximately 7.5 cm below the acromion in the anterior of the shoulder. Magnetic resonance imaging is valuable for evaluating the biceps tendon, bicipital groove, bone osteophytes, and fluid.

Non-operative approaches are preferred in the treatment of biceps tendinitis. Treatment methods include physiotherapy, rest, and activity modification.

Kinesiotape (KT) application is a treatment method that has been used since 2007 and has become one of the current physiotherapy approaches in recent years. KT applications are recommended in rehabilitation protocols because they reduce pain and provide motor control. KT stabilizes the muscles and joints with its elastic acrylic adhesive structure. KT increases interstitial space by creating skin lifting effect in manually stretched structures, facilitates tissue regeneration, and accelerates lymphatic and venous flow. It reduces pain by creating decompression in subcutaneous nociceptors in connective tissue. Although its efficacy has been observed in various patient groups, no study evaluating its efficacy has been found specifically in patients with biceps tendinitis.

The aim of this study is to investigate the effectiveness of KT application in patients with biceps tendinitis in terms of pain, pain threshold, upper extremity functionality level and quality of life. KT method applied in addition to exercise in biceps tendinitis will be more useful than exercise alone.

II. PHYSIOTHERAPY

Physiotherapy methods include many multimodal approaches such as exercise, joint and soft tissue mobilizations, electrotherapeutic and thermal applications. In terms of exercise approaches, eccentric and eccentric-concentric exercises are used most frequently in the treatment of tendinitis. Although eccentric exercises have shown beneficial effects in patients with tendinitis by stimulating and organizing collagen synthesis, in recent years, concentric and eccentric exercise components have been reported to provide a process defined as 'mechano-transduction' that accelerates tissue healing with mechanical loading.

III. KINESIOTAPE (KT) APPLICATION

Aim is to reduce pain and improve activities of daily living. Kinesiotape was applied twice a week, 8 times for a total of 4 weeks. KT was applied in combination with tonus reduction muscle application and fascia correction technique. In practice, 2 pieces of Y tape are used. The patient is seated in a resting position. The beginning of one of the tapes is applied below the inside of the elbow.

The beginning of the tape is determined by shifting the skin. The 2 tails of the band surround the biceps brachii muscle body, then run parallel to the anterior edge of the deltoid muscle and end in the coracoid process. The beginning of the 2nd tape for fascia correction is in front of the pain point. The arm is in extension. The fascia is pulled in the transverse direction in the direction of the muscle fibers. It is pulled in the posterior direction to prevent compression of the biceps tendon. Tail tips are applied without tension.

Ultrasound therapy proven to be a safe and efficient treatment option for bicipital tendinitis.

Procedure for UST:

- Testing, machine calibration and patient position.
- UST was given at following parameters:

Mode: Continuous
Frequency: 1 MHZ
Intensity: 1. 5 w/ cm2
Duration: 10 minutes

IV. EXERCISE PROTOCOL

All patients performed exercises 5 days per week over a 4-week period in the physiotherapy department. Patients were in the sitting position, while the arm was in adduction near the body, elbow flexion and extension were performed with a weight of 50% of the maximum repeat values. Each repeat was controlled to be completed.

Fig. 1: Application of Kinesiotape

BICEPS CURLS

Biceps curls help maintain the flexibility of your elbow and maintain the strength of your biceps.

Step 1: Stand upright with your injured arm hanging at your side, palm facing out.
Step 2: Gently bend your injured arm at the elbow, bringing your palm toward your shoulder.
Step 3: Hold this bend for thirty seconds, then slowly release back to the starting position.

Dosage: Should perform this twice per set, and complete two sets daily.

BICEPS STRETCH

Stretching your biceps can help keep them from tightening and making tendonitis feel worse.

Step 1: Stand six inches in front of a wall, and hold your injured arm out horizontally just below shoulder height.
Step 2: Place the side of your thumb against the wall, keeping your hand palm-down.
Step 3: Gently turn away from the wall in the opposite direction from your arm until you feel a stretch, then hold for fifteen seconds.

Dosage: Should perform this 3 times daily.

INTERNAL ROTATION STRETCH

Internal rotation is the movement of your arm in the shoulder socket when your hands turn from facing from front to back, and it heavily involves your biceps tendon. This exercise helps maintain that rotation.

Step 1: Stand upright and hold a yardstick, broom, or other stick behind your back in both hands, knuckles facing down.
Step 2: Slowly raise the stick up your back with both hands until you feel a stretch in your injured arm.
Step 3: Hold this position for thirty seconds, then gently release your arms back down.

Dosage: Repeat this twice in a row, twice daily, for four total repetitions.

FOREARM TWISTS

Forearm twists help keep your arm flexible and help your tendon glide smoothly along the biceps muscle.

Step 1: Allow your injured arm to hang at your side, then bend your elbow to a 90-degree angle.
Step 2: Turn your palm so it faces upward, and hold the position for five seconds.
Step 3: Rotate your palm so it faces downward, and hold the position for five seconds.

Dosage: Repeat this ten times per set, and aim for three sets per day.

V. CASE HISTORY

A clinical case of 53 years aged old female patient with shoulder pain of Biceps region from 3 months.so that she came to physiotherapy department. Patient had a gradually increasing pain over right biceps region and it is aggravating when she was

performing activities of daily living and also difficulty in carrying weights .patient is a homemaker and unable to perform activities so that she came to physiotherapy department.

EXAMINATION AND EVALUATION

On palpation, there was tenderness present over right biceps origin. Range of motion is decreased due to pain.

VI. SPECIAL TESTS

SPEEDS TEST

TECHNIQUE

To perform the Speed's Test, the examiner places the patient's arm in shoulder flexion, external rotation, full elbow extension, and forearm supination; manual resistance is then applied by the examiner in a downward direction. The test is considered to be positive if pain in the bicipital tendon or bicipital groove is reproduced.

YERGASON'S TEST

TECHNIQUE

The patient should be seated or standing in the anatomical position, with the humerus in a neutral position and the elbow in 90 degrees of flexion in a pronated position. The patient is asked to externally rotate and supinate their arm against the manual resistance of the therapist produced by wrapping the hand around the distal forearm (just above the wrist joint). Yergason's Test is considered positive if the pain is reproduced in the bicipital groove and a biceps or a SLAP lesion is suspected. If a "clicking" sensation familiar to the patient is produced during the test, damage to the transverse humeral ligament (which overlies the intertubercular sulcus) should be suspected too.

Pre-management score: 8 out of 10 on VAS and 65 out of 100 on DASH Questionnaire.

INTERVENTION

- ✓ Cryotherapy before starting treatment.
- ✓ Ultrasound therapy therapy for 10 minutes.

Post management score: 2 out of 10 on VAS and 35 out of 100 on DASH Questionnaire

Follow up:

- ✓ Follow up performed after 4 weeks of treatment.

DISCUSSION AND CONCLUSION

Biceps tendon pain is difficult to distinguish from other similar presenting conditions. But, with a detailed history and a proper examination and evaluation can get an accurate diagnosis that will lead to subsequent treatment. . Evidence on physiotherapy treatment of patients with Biceps tendon pain appears under reported. If patients came up with shoulder pain, then we should properly screen for biceps tendon component. Hence, physiotherapist should report findings so that there will be an evidence available for kinesiotaping effectiveness for biceps tendinitis.

Conflicts of Interests: None

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