



ORIGINAL ARTICLE

EFFECT OF SHOULDER POSTERIOR GLIDE AND STRETCHING EXERCISES ON BICEPS TENDINITIS: A PILOT STUDY

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ABSTRACT

Objective: The study's aim was to examine the effects of the shoulder posterior glide in the management of bicep tendinitis.

Place of Study: Ibn-e-Siena Hospital & Research Institute, Multan

Study Design: Non-randomized controlled pilot study.

Duration of study: August 2020 to January 2021

Methodology: 20 patients were recruited for the study, divided into experimental and control groups by non-randomized convenience sampling technique. The age of participants was from 18 to 40 years. The treatment protocol for control group was bicep stretching and strengthening exercises whereas for experimental group was shoulder posterior glide and bicep strengthening exercises. Data was collected before and after the treatment using the Shoulder Pain Disability Index Scale (SPADI).

Results: Mean age of participants was 27.20 ± 1.40 in experiment group whereas, control group was 27.10 ± 1.60 . Pre-treatment total disability score in experimental group was 81.00 ± 13.70 and it decreased to 15.00 ± 10.80 , while in control group pre-treatment score was 84.00 ± 10.74 and it improved to 11.80 ± 0.80 . In both groups post-treatment data revealed significant differences with p value less than 0.05.

Conclusion: In both experimental, control group's, pre and post-treatment data revealed significant differences, which showed that both treatments were equally effective.

Key words: Manual Therapy, Stretching, Shoulder Mobilization, Bicep Tendinitis

INTRODUCTION

A condition known as biceps tendinitis affects the tendon that surrounds the long head of the biceps muscle. Biceps tendinitis, which affects 5% of people, is an inflammation of the biceps tendon within the intertubercular (bicipital) groove. (1) The ninety five percent of patients who do not have biceps tendinitis typically have a rotator cuff tear or a SLAP lesion, or tear of the superior labrum from anterior to posterior. (2) Patients between the ages of 18 and 35 who participate in sports, such as throwing, contact sports, swimming, gymnastics, and martial arts, are more likely to develop biceps tendon pathology. (3) A deep throbbing pain in the anterior shoulder is a common complaint among individuals with biceps tendinitis. The discomfort typically

originates in the bicipital groove and may spread radially down to the hand or in the direction of the deltoid muscle's insertion. (4) This makes it challenging to differentiate between pain that is brought on by impingement, rotator cuff tendinitis, or cervical disc degeneration. Biceps tendinitis pain typically gets worse at night, especially if the patient sleeps on the shoulder that is injured. Pulling, lifting, or repetitive overhead arm motions can also cause or make the pain worse. When the range of motion of the arm is evaluated, tendon instability may be felt or heard as a snap. (5)

Non-steroidal anti-inflammatory medicines (NSAIDs) Acetaminophen, ice, rest from overhead activity, or physical therapy may all be effective for biceps tendinitis. (6) If conservative therapies are ineffective after three months, surgery should be considered. The biceps tendon may need to be repaired if necessary, and structures that are the cause of primary and secondary impingement may be removed. If less than 50% of the torn biceps tendon is present, debridement should be done. (7)

Successful physical treatment programs concentrate on the underlying cause of the long head of bicep tendon. Internal

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Received for publication: January 04, 2022

Revised : April 26, 2022

Accepted for Publication: May 13, 2022

DOI : <https://doi.org/10.58380/jmmdc.v3i1.63>

impingement, poor trunk control, scapular dyskinesia, and glenohumeral internal rotation deficit (GIRD) among overhead throwers and baseball pitchers and posterior capsule tightening are some potential risk factors for biceps-related shoulder problems. (8)

A study suggests that physical therapies such as exercise, joint mobilization, and laser therapy are efficient in reducing pain and functional loss or handicap. Ultrasound therapy is not currently supported by the evidence and studies examining the efficacy of acupuncture are conflicting. (9)

In patients with adhesive capsulitis or bicep tendinitis, the LASER and Maitland's mobilization was successful in reducing pain intensity and regaining shoulder function. When comparing the LASER treatment group to the Maitland mobilization group, the functional scores and associated disability performance both improved significantly, but was better in the LASER therapy group. (10) Rationale for the study is that previous studies for the biceps tendinitis used multiple mobilization techniques to the shoulder joint to improve range of motion, but this study will focus on only one specific mobilization technique to improve range of motion, functional disability and reduction in pain for the biceps tendinitis patients.

METHODOLOGY

Study was carried out from August 2020 to January 2021 at the Ibn-e-Siena Hospital & Research Institute, Multan. The sample size was 20, and patients were divided into two groups equally. Medically diagnosed patients with bicep tendinitis reconfirmed by Speed's test were recruited. A positive test was pain radiating to the bicipital groove. Both male and female patients of ages between 18 to 40 were included. Unilateral or bilateral Pain at shoulder not more than 20 days with VAS >7 was inclusion criteria. The study excluded participants with any shoulder trauma, shoulder diseases and history of prior shoulder surgery. Experimental group was treated with 15 minutes TENS, moist heat, and 3 minutes' ultrasound for the biceps tendinitis after that the patients were treated by the shoulder posterior glide with lateral distraction of the shoulder followed by biceps strengthening exercises. Control group was treated with 15

minutes TENS, moist heat and 3 minutes' ultrasound for the biceps tendinitis after that the patients were treated by biceps stretching and strengthening exercises. The frequency of the treatment was 3 times in a week for 4 weeks. Data was collected by Shoulder Pain and Disability Index (SPADI). SPADI had three parts for the scoring, part one was for pain score, part two consisted of disability score and part 3 consisted of total SPADI score. The total score range was from 0 (best) to 100 (worst).

RESULTS

Mean age of participants in experimental group was 27.20 ± 1.40 and in control group was 27.10 ± 1.60 . Total males and females in experimental group was 6(60%) and 4(40%) respectively, while 7 (70%) males and 3(30%) females were included control group shown in (Table 1). Pre pain mean score in both experimental and control groups was 8.70 ± 1.15 , 8.80 ± 1.03 and post pain mean score was 2.20 ± 1.22 , 3.30 ± 1.7 with p value 0.01. Pretreatment disability mean score in both experimental and control groups was 79.00 ± 11.00 , 80.00 ± 10.54 and post treatment disability mean score was 13.60 ± 7.29 , 11.00 ± 3.16 with p value 0.01. Pretreatment Total disability mean score in both experimental and control groups was 81.00 ± 13.70 , 84.00 ± 10.74 and post treatment total disability mean score was 15.00 ± 10.80 , 11.80 ± 3.80 with p value 0.03. Comparison of Pre and Post treatment scores in both experimental and control groups revealed significant differences that was less than 0.05 p-values, which showed that both treatments were equally effective. Table 2

DISCUSSION

The results of the current study showed the effectiveness of

Table 1: Mean age and gender distribution in experimental and control group with percentages

		Experimental group	Control group
N		10	10
Age (years)		27.20 ± 1.40	27.10 ± 1.60
Gender	Male	6 (60%)	7 (70%)
	Female	4 (40%)	3 (30%)

Table 2: Mean Pain Score, Disability and total disability score in experimental and control group with P value after applying independent T test.

Variable		Experimental group Mean $\pm$ SD	Control group Mean $\pm$ SD	P value
Pain	PRE TREATMENT	8.70 ± 1.15	8.80 ± 1.03	0.84
	POST TREATMENT	2.20 ± 1.22	3.30 ± 1.70	0.01
Disability	PRE TREATMENT	79.00 ± 11.00	80.00 ± 10.54	0.64
	POST TREATMENT	13.60 ± 7.29	11.00 ± 3.16	0.01
Total disability Score	PRE TREATMENT	81.00 ± 13.70	84.00 ± 10.74	0.40
	POST TREATMENT	15.00 ± 10.80	11.80 ± 3.80	0.03

different therapies in experimental and control group by comparing the initial and final scores. The results revealed that both posterior glide and bicep stretching application, when carried out under clinical supervision, were effective in restoring the function. In the two groups, there were statistical differences ($p < 0.05$) in Pre and Post treatment score. The functional improvements were considerably more pronounced when joint mobilization techniques were included in the therapy. The most popular manual therapy methods for treating tendinopathy are deep transverse massage and superficial tissue mobilization massage, both of which have excellent outcomes and provide pain relief. The physiological implications of joint mobilization for accessory movements may be advantageous with relation to these dysfunctions, however evidence of any specific mobilization technique is not available in literature. (9)

A study using muscular energy technique program for three weeks was conducted and revealed that the bicep tendinitis patients showed improvement, by lessening shoulder pain and enhancing their dynamic balance, this indirectly increased their shoulder performance. (10)

People with impingement, bicep tendinitis and posterior capsule tightening had more restricted range of motion, worse subjective pain, disability, and altered peripheral sensitization, according to the results of another study. Additionally, individuals with only posterior capsule tightening demonstrated range of motion deficits. According to another study, individuals with similar clinical presentations of shoulder pain may go through different pain processes in response to their symptoms and may develop particular motion adaptations to manage their pain and preserve function. It may be possible to lessen and normalize all of the symptoms with the use of manual mobilization. (11)

Biceps tendinitis can be treated with a variety of physical therapy techniques. Both posterior glide and bicep stretching techniques demonstrated an early recovery from bicep tendinitis. Previous manual therapy techniques did not produce the early desired results. Posterior glide and bicep stretching techniques can be employed as alternative therapeutic option.

CONCLUSION

In both experimental, control groups, pre and post-treatment data revealed significant differences, which showed that both treatments were equally effective.

Conflict of Interest: None

Patient Consent: Inform Consent were taken

Ethical Approval: Ethical approval was taken from the institutional review board of Multan Medical & Dental College on July 2020 vide Letter No. C-21-279

Author's Contribution:

MUK, MH & RRK: Study design, data collection and analysis
MUK, HM & YAK: Manuscript preparation, drafting and revising

MUK, HK & MH: Review and final approval of manuscript

How To Cite This Article: Khalid MU, Hassan M, Mansha H, Kazmi YA, Khan RR, Khalid H. Effect of Shoulder Posterior Glide and Stretching Exercises on Biceps Tendinitis: A Pilot Study. JMMDC 2022; Vol 1 (1) : 33-35

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