

Received 1 Feb, 2023
Accepted 24 June, 2023

Effective Physiotherapy Management of Myofascial Pain with Exertion Beyond Fatigue Level in Sportsman: A Case Report

Waleed Khan¹, Ubaid Ullah Mughal², Saad Ullah*³, Sehra Shouket⁴

Abstract

Background: Myofascial pain typically represents itself as dull deep aching sensation provoked by excessive or erroneous use of the muscles and psychological stressors causing increased tension in muscle. There is increasing awareness about active myofascial trigger points to have a major role in causing the symptoms of patients with Musculoskeletal pain. Objective: This study aimed to concisely report a case of myofascial pain syndrome associated with exertion beyond fatigue level and managed by myofascial trigger point therapy. Methods: The relevant information about the case was collected prospectively using musculoskeletal assessment form. The patient was diagnosed mainly by detailed history and gold standard palpation method that helps to identify taut muscles, tender myofascial trigger points, and neurodynamic and soft tissue mobilization treatment techniques was used for management. Case description: A 23-year male patient attended the physical therapy OPD at Helping hand institute of rehabilitation sciences. Patient was suffering from chronic pain along inferior angle of right scapula and was referred to OPD where he was treated with myofascial massage therapy, with soft tissue mobilization or fascia mobilization technique like friction massage and skin traction techniques over the right medial intra-scapular soft tissues. Moreover, trigger point release techniques for rhomboids and trapezius muscles, muscle stretching for scalene and upper trapezius and strengthening for serratus anterior muscle and thoracic mobilization techniques along with long thoracic nerve mobilization were used in combination. About 20-40 minutes of 1-3 sessions resulted in patient (100%) recovery and remained stable after two-months of follow-up. Conclusion: The maneuvers used for the treatment of myofascial pain in this report provide preliminary evidence of their effectiveness. Furthermore, it gives a background for Musculo-tendinous overuse, lack of warm up and proper biomechanical principles in sports as the sources of intra scapular myofascial pain in players especially those using their upper limb/limbs excessively as demand of their sports. A combination of manual therapy techniques was found reasonably effective with excellent results.

Keywords: Myofascial pain syndrome, myofascial trigger points, taut muscle.

¹ Abasyn university, Peshawar, Pakistan

² Govt High School, Rawalpindi

³ Abasyn university, Peshawar, Pakistan*

⁴ Lecturer, Department of Health and Physical Education, Mohi-ud-Din Islamic University, AJK

Introduction

Myofascial pain typically represents itself as dull deep aching sensation which is provoked by use of the concerned muscles and psychological stressors which causes increased tension in muscle (1). It is very common and around 44 million Americans have been estimated suffering from it (2). A study from an internal medicine group practice found that 30% of patients with pain complaints had active myofascial trigger points (3). A report from a clinic specializing in head and neck pain reported a myofascial etiology in 55% of cases (4). Patients evaluated in one pain management center were found to have a myofascial component to their pain in 95% of cases (5). There is increasing awareness about active myofascial trigger points to have a major role in causing the symptoms of patients with tension headaches (6), low back pain, neck pain (7), temporomandibular joint pain (8), forearm and hand pain (9) and postural pain (10). Sola et al reported latent trigger points in the shoulder girdle muscles of 54% of female and 45% of male subjects who were absolutely asymptomatic (11). A myofascial pain syndrome may be due to just one trigger point, but generally there are numerous trigger points accountable for any given local pain problem. It is common for the problem it can be initiated with only one trigger point with the succeeding growth of satellite trigger points that develop over time due to the mechanical imbalance caused by the reduced range of motion and pseudo-weakness. A persistent trigger point might lead to neuroplastic changes at the level of the dorsal horn which will result in amplification of the pain sensation (i.e., central sensitization) with a predisposition to expand further than its unusual boundaries (i.e., expansion of receptive fields) (12). In some cases, this segmental central sensitization can lead to the mirror image pain phenomena (i.e. pain on the contra lateral side of the body in the same segmental distribution) and in other instances a progressive spread of segmental central sensitization will give rise to widely spread pain that characterize as fibromyalgia (13).

The patient in this case report is believed to have developed myofascial pain following excessive table tennis practice and relieved effectively by intervention directed to reduce tension in myofascia in the region of intra scapular area.

Case Presentation

The patient in the report was a 23-year-old male who attended the physical therapy OPD for treatment of chronic pain along inferior angle of right scapula for the last 11 months got worse when he was practicing table tennis for more than 120 minutes. He described his pain as diffuse and excruciating in the region of his inferior angle of right scapula while playing table tennis in university and after that he had an onset of constant deep and dull intra-scapular pain. He rated the pain as a 7/10 in intensity on VAS (Visual Analogue Scale). In past medical

and surgical history, the player reported that he is table tennis player and he is right-handed and he get exhausted many times while practicing table tennis. On examination, right shoulder of the patient was found to be little hypertrophied as compared to the left one and scapular dyskinesia was noted. There was no arm pain or paresthesia. He was thoroughly assessed and the findings were medially rotated scapula, hypertrophied right upper back muscles, stiff thoracic spine, tight myofascia, trigger points in rhomboids and lower trapezius as well as levator scapulae. Cervical spine and related muscles were normal except for upper trapezius which was tight and caused the scapulae to be elevated as compared to the other side. He plays table tennis as university level player and as extracurricular activity during his studies and he had not taken any formal training for playing table tennis and is not aware of the biomechanical principles of the game.

Treatment

Patient used medications like naproxen (pain killer) and Panadol for pain relief but that was hardly relieving his pain and he was treated with various treatment modalities and physical therapy techniques like hot pack therapy, TENS (Transcutaneous Electrical Nerve Stimulation), NAG's (Natural Apophyseal Glides), SNAG's (Sustained Natural Apophyseal Glides) But none of these have any positive response in reducing pain and discomfort. When the patient was referred to OPD, he was treated with soft tissue mobilization or fascia mobilization technique like friction massage and skin traction techniques over the right medial intra-scapular soft tissues in combination with trigger point release techniques for rhomboids and trapezius muscles, muscle stretching for scalene and upper trapezius and strengthening for serratus anterior muscle and thoracic mobilization techniques along with long thoracic nerve mobilization. After the first session the patient reported a decrease in pain and discomfort about 20% (3/10 on VAS). over the period of treatment for two weeks patient was completely pain free (0/10 on VAS). This treatment was continued for 3 weeks.

Discussion

Absence of radicular and red flag signs, made this patient ideal for the myofascial release technique maneuver which effectively alleviated the patient's symptoms. Maintaining or improving joint range of motion (ROM) is often a goal of the physical therapist for promoting the health and quality of a sportsman's life. Primary sources of resistance to normal passive ROM are the joint capsule, musculotendinous tissue and skin (14). These components can be affected by different manual techniques used in the clinic to improve ROM. Techniques that have been studied and shown to be effective in improving hip flexion ROM are proprioceptive neuromuscular facilitation (PNF) hold-relax and contract-relax,

sagittal plane isometric contract-relax, and passive stretch (15,16,17,118,19,20,21). Techniques that have not been studied but that have been claimed to improve ROM are myofascial release techniques. These are manual techniques used in the clinical setting to mobilize soft tissues of the body. Unreliable claims of their effectiveness in releasing painful connective and muscle restrictions have provoked controversy among clinicians due to an absence of scientific experimental research to validate these claims (22). Hong et al. (1993) reported that the best results in decreasing pain from MTrPs were obtained with a deep pressure soft tissue massage which included conventional massage and different compression techniques (23). Hanten et al. (2000) examined the effectiveness of a home program of ischemic compression followed by sustained stretching over active MTrPs. The results from this study showed that the combination of these techniques was effective in reducing tenderness from MTrPs. However, we do not know if the improvement in their patients was produced by the effects of the ischemic compression technique, by the sustained stretch or by the combination of both techniques. The substantial heterogeneity in the methodology of application of ischemic compression technique in these trials makes it difficult to compare the results (23). Fryer and Hodgson (2005) have recently demonstrated that the ischemic compression technique is better than sham-myofascial technique in reducing tenderness on latent MTrPs in the upper trapezius muscle. The results obtained by these authors are similar than those reported in the present pilot study for ischemic compression technique (24).

Conclusion and Recommendation

The maneuvers used for the treatment of myofascial pain in this report provide preliminary evidence of their effectiveness and gives a background for including as Musculo-tendinous overuse, no warm up and not use of proper biomechanical principles in sports as the sources of intra scapular myofascial pain in players excessively using their upper limb/limbs as demand of their sports. Studies with inclusion criteria of “myofascial pain” without “Neurological sign” in the acute care setting are recommended to explore the benefits of this type of soft tissue mobilization maneuver in such sports personnel.

Disclaimer: None to declare.

Patient consent: Patient consent for publication of this case was taken

Conflict of Interest: None to declare.

Funding disclosure: None to declare.

References

- Alvarez DJ, Rockwell PG. Trigger points: diagnosis and management. *Am Fam Physician* 2002; 65(4):653-60.
- APTA Progress Report: 10- 12, February 1988
- Ardic F, Gokharman D, Atsu S, Guner S, Yilmaz M, Yorgancioglu R. The comprehensive evaluation of temporomandibular disorders seen in rheumatoid arthritis. *Aust Dent J* 2006; 51(1):23-8.
- Arendt-Nielsen L, Graven-Nielsen T. Central sensitization in fibromyalgia and other musculoskeletal disorders. *Curr Pain Headache Rep* 2003; 7(5):355-61.
- Fernandez-de-Las-Penas C, onso-Blanco C, Cuadrado ML, Gerwin RD, Pareja JA. Myofascial trigger points and their relationship to headache clinical parameters in chronic tension-type headache. *Headache* 2006; 46(8):1264-72.
- Fernandez-de-Las-Penas C, onso-Blanco C, Miangolarra JC. Myofascial trigger points in subjects presenting with mechanical neck pain: A blinded, controlled study. *Man Ther* 2006; .
- Fricton JR, Kroening R, Haley D, Siegert R. Myofascial pain syndrome of the head and neck: a review of clinical characteristics of 164 patients. *Oral Surg Oral Med Oral Pathol* 1985; 60(6):615-23.
- Fryer, G., Hodgson, L., 2005. The effect of manual pressure release on myofascial trigger points in the upper trapezius muscle. *Journal of Bodywork and Movement Therapies* 9, 248–255.
- Gerwin RD. A study of 96 subjects examined for both fibromyalgia and myofascial pain. *J Musculoskeletal Pain* 1995; 3 (suppl. 1):121-5.
- Graven-Nielsen T, Arendt-Nielsen L. Peripheral and central sensitization in musculoskeletal pain disorders: an experimental approach. *Curr Rheumatol Rep* 2002; 4(4):313-21.
- Hanten, W.P., Olson, S.L., Butts, N.L., Nowicki, A.L., 2000. Effectiveness of a home program of ischemic pressure followed by sustained stretch for treatment of myofascial trigger points. *Physical Therapy* 80, 997–1003
- Hartley-O'Brien SI: Six mobilization exercises for active range of hip flexion. *Res Q Exerc Sport* 51 :625-635, 1980
- Holt LE, Travis TM, Okita T: Comparative study of three stretching techniques. *Percept Mot Skills* 31 :611 - 616, 1970
- Hwang M, Kang YK, Kim DH. Referred pain pattern of the pronator quadratus muscle. *Pain* 2005; 116(3):238-42.

- I Appl Physiol 17:824-828, 1962
- Johns RI, Wright V: Relative importance of various tissues in joint stiffness.
- Markos P: Ipsilateral and contralateral effects of proprioceptive neuromuscular facilitation techniques on hip motion and electromyographic activity. Phys Ther 59: 1366- 1373, 1979
- Medeiros IM, Smidt CL, Burmeister LF: The influence of isometric exercise and passive stretch on hip joint motion. Phys Ther 57:5 18-522, 1977
- Morton T: Panel debates the pros and cons of myofascial release approach.
- Sady SP, Wortman M, Blanke D: Flexibility training: Ballistic, static, or proprioceptive neuromuscular facilitation? Arch Phys Med Rehabil 63:26 1-
- Simons DG. Myofascial pain caused by trigger points. In: Mense S, Simons DG, Russel IJ, editors. Muscle Pain: Understanding its Nature, Diagnosis, and Treatment. First ed. Philadelphia: Lippincott Williams & Wilkins; 2001. 205-88.
- Skootsky SA, Jaeger B, Oye RK. Prevalence of myofascial pain in general internal medicine practice. West J Med 1989; 151(2):157-60.
- Starring DT, Cossman MR, Nicholson CC, Jr: Comparison of cyclic and sustained passive stretching using a mechanical device to increase resting length of hamstring muscles. Phys Ther 68:3 14-320, 1988
- Tanigawa MC: Comparison of the hold-relax procedure and passive mobilization on increasing muscle length. Phys Ther 52:725-735, 1972
- Treaster D, Marras WS, Burr D, Sheedy JE, Hart D. Myofascial trigger point development from visual and postural stressors during computer work. J Electromyogr Kinesiol 2005; .
- Wheeler AH. Myofascial pain disorders: theory to therapy. Drugs 2004; 64(1):45-62.