International Journal of Science and Research (IJSR)
ISSN: 2319-7064
SJIF (2022): 7.942

Effect of INIT in Treatment of Myofascial Trigger Points in Rhomboid muscle: A Case Report

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Abstract: ***Myofascial trigger points (MTrPs) are hyperirritable regions in the taut bands of muscles which are painful when compressed, stretched, overexerted or contracted. MTrPs in rhomboids are commonly observed condition. Although there are various methods to treat these MTrPs including massage, ischaemic compression, strain - counterstrain therapy, etc. One of such is Integrated Neuromuscular Inhibition Technique (INIT). The current case report found INIT as an effective way to treat MTrPs in rhomboids***

Keywords: MTrPs, MTrPs in rhomboids, INIT, Radial nerve mobilization

1. Introduction

Myofascial Trigger Points (MTrPs) are described as hyperirritable regions in taut bands of skeletal muscles that hurt when the muscle is compressed, stretched, overexerted, or contracted. These typically exhibit a unique referred pain pattern [1]. The aetiology of MTrPS indicates that persistent palpable contracture knots, which eventually develop into a painful nodule is due to an excess of acetylcholine leaking at the neuromuscular junction [2]. Muscle imbalances, weakness, and poor motor recruitment are thought to be caused by MTrPs, which can also expose joints to suboptimal loading [3]. Upper trapezius, Pectoralis minor, Lower trapezius, Serratus anterior, levator scapulae, and rhombids (major and minor) are the scapular muscles where MTrPS are most frequently observed [4]. The causes of this myofascial pain were found to be poor posture, altered body biomechanics, inactivity, mental health issues and acute or recurrent trauma [5].

MTrPs can be managed using various methods. Pharmacological methods include muscle relaxants, TCAs, NSAIDs topical agents, lidocaine patches and injection therapy of Botox or lidocaine [6]. Physiotherapeutic methods are also considered effective in treating MTrPs some of which includes dry needling [7], strain - counterstrain therapy [8], ischaemic compression [9], thoracic spine manipulation [5], post - isometric relaxation [10], foam rolling [11], activator trigger [12] etc.

Integrated Neuromuscular Inhibition Technique (INIT) is also one of such technique that can be useful in releasing trigger points. INIT is combination of Muscle energy technique (MET) and Positional release Technique (PRT). The benefit of the technique is its multidimensional approach, which enables the techniques to be delivered in a single, coordinated manner. But the literature about its use is limited [13].

The current case report used the INIT technique in releasing the MTrPs in the rhomboids and to find whether this technique is useful in treating the same.

2. Case Report

A 70 - year - old female presenting with pain in the medial side of her left scapula for 4 days came to the physiotherapy OPD for treatment. She was also experiencing pain in the posterior side of her left elbow. The pain in the medial side of the left scapula hampered her activities of daily living as she was unable to sit for long hours. The patient also complained of weakness in the left hand while performing gripping activities like driving, holding a doorknob, etc.

On further questioning, it was found that she had a known history of adhesive capsulitis of the left shoulder two years back which was treated conservatively by physiotherapy. The patient has no history of hypertension, diabetes mellitus, or hypothyroidism.

The NPRS of the medial side of the left scapula was 7 and the posterior side left elbow was 4. The pain aggravated after sitting for long hours and relieved by analgesic drugs like Paracetamol.

Before coming to the physiotherapy OPD the patient was advised by an orthopedician to undergo some laboratory investigations which showed normal levels of calcium, Vitamin D, C - reactive protein, and uric acid.

On observation:
On observation, the patient was mesomorphic with the presence of a mild forward head, rounded shoulder, and lumbar lordosis. Swelling and redness were absent in both areas.

On Palpation:
On further palpating the specified areas, the therapist felt the presence of myofascial trigger points in the rhomboids. The palpation also showed the presence of tightness in the left rhomboids, triceps, supinator, and extensors of the wrist and fingers. The tenderness of trigger points in rhomboids was of grade 3 level.

On Examination:
While examining the patient's range of motion of the shoulder, elbow, forearm, wrist, and fingers was found to be normal ranges. Sensory examination was found to be

normal. Manual muscle testing of the triceps, supinator, and extensors of the wrist and fingers was poor and the rest of the muscles of the left upper limb were fair. Upper Limb Neural Tension Test (ULNTT) for the radial nerve resulted in the feeling of stretch along the nerve course of the radial nerve. No other diagnostic tests were performed on the patient.

Provisional diagnosis:
After evaluating the patient, the therapist diagnosed the patient with the presence of Myofascial Trigger Points in the left Rhomboids causing radial nerve radiculopathy.

Therapeutic Intervention:
The short - term goal for the physiotherapeutic treatment included alleviating pain; stiffness and release of myofascial trigger points in rhomboids. Long - term goals included strengthening of rhomboids triceps, supinator, wrist flexors, and extensors. The long - term goal also included an increase in grip strength.

The first five days of treatment included hot fomentation for 20 - 25 minutes on the upper back followed by Ultrasound therapy for 5 minutes with a frequency of 3 MHz and high - frequency TENS on the pain areas for 15 minutes. The manual therapy included INIT (Integrated Neuromuscular Inhibition Technique) on the trigger points of the rhomboid muscle and MET of the triceps. To relieve the stiffness of muscle innervated by the radial nerve (triceps, supinator, and extensors of wrist and fingers) neural gliding of the radial nerve was performed 30 times.

The INIT on rhomboids was performed 5 times and MET on triceps was performed 3 times.

The patient was advised to avoid sitting for long hours and maintenance of good posture. For home, the patient was instructed to apply hot fomentation for 20 minutes and perform rhomboid stretch for 3 times with a hold period of 30 seconds for every repetition.

After five days, the same regime was followed in addition with strengthening exercises for the triceps, rhomboids, supinator, and wrist extensors. Also, gripping exercises were included.

For the home regime, in addition to the previous regime wall pushups, eccentric triceps strengthening exercises and squeezing of the therapeutic ball were advised.

The treatment continued for ten days in OPD and the patient was discharged after ten days. The patient was then instructed to continue the exercises at home and visit the OPD after 15 days for follow - up.

Prognosis
After the treatment of five days, there was a significant decrease in the stiffness of muscles. The MTrPs of rhomboids were considerably relieved. The NPRS reduced from 7 to 2 and tenderness reduced to grade 1. Although there was presence of weakness in gripping movements. After 10 days there was no pain and stiffness and weakness in the gripping muscles was also reduced.

3. Discussion

The current case showed the effectiveness of the Integrated Neuromuscular Inhibition Technique in releasing the myofascial trigger points in the rhomboid muscles and the effect of radial nerve mobilization in reducing the stiffness of the muscle innervated by the radial nerve.

Myofascial trigger points in the rhomboids can be released by using a variety of techniques, including thoracic spine manipulation [5], post - isometric relaxation [10], foam rolling [11], activator trigger [12] etc. Amongst them, ischaemic compression [9] and ischaemic pressure [14] therapy were found to be more effective as compared to others. But studies related to the effectiveness of INIT in releasing myofascial trigger points in the rhomboids are still scarce.

Although there are studies present that prove the effect of INITin releasing trigger points in other conditions, like non - specific low back pain [15], Upper trapezius trigger points [16] etc. Dayanir et al. [17] conducted a study in non - specific low back pain patients with active myofascial trigger points where they compared the effects of INIT, strain - counterstrain therapy, and manual pressure release and found that INIT was more effective than other physiotherapy techniques.
Although literature related to the effects of INIT is scarce, the current study found INIT to be an effective treatment for releasing trigger points.

Furthermore, radial nerve mobilization was also found to have an effect on decreasing stiffness and increasing strength. There are no studies present that support the current study, but past studies have shown that radial nerve mobilization is an effective technique for treating other conditions like lateral epicondylitis [18], lateral elbow pain [19], thumb carpometacarpal osteoarthritis [20], etc. A study conducted by Villafane et al [20] on ex - factory and home workers with thumb carpometacarpal osteoarthritis showed that radial nerve mobilization not only decreased the pain but also increased motor performance and increased tip pinch grip.

4. Conclusion

The above case study suggests that INIT is an effective technique for the treatment of myofascial trigger points in rhomboids, and radial nerve mobilization can be used to treat radial nerve radiculopathy.

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