IMMEDIATE EFFECTS OF DEEP FRICTION MASSAGE AND STRENGTHENING EXERCISES IN TYPE 1 SCAPULAR DYSKINESIA

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ABSTRACT

BACKGROUND: The chance of experiencing scapular dyskinesis is a higher for athletes who perform overhead activities.

PURPOSE: Assessing the pervasiveness of SD to check the immediate effects of deep friction transverse message along with strengthening exercises in type 1 scapular dyskinesis.

METHODS: A male patient with the age of 20 years, who is competitor swimmer, was taken in this study with type 1 scapular dyskinesis. Scapular dyskinesia was assessed by observation, special test was also used isometric scapular pinch test, and wall push up test was assessed.

RESULTS: The results are positive, as treatment showed results within a week and patient also went back to his game after treatment session.

Introduction

Impairment of the scapula's rhythmic efficiency due to muscle dysfunction contributes in scapular dyskinesis that can be indicative or show no symptoms. High incidence of scapular dyskinesia is more frequent in overhead performers than non-overhead athletes. [6] Typical scapular function is an important factor for performers with overheads. Scapular access facilitates the ideal positioning of the glenohumeral joint, transferring energy from the lower limb to the upper distal extremity. There could be various causes of scapular dyskinesia.[1]

Bone associated scapular dyskinesia due to postural abnormality, thoracic kyphosis, no-union, malunion clavicular fracture. Joint associated reasons could be acromioclacicular instability, acromioclavicular arthrosis, gleno humeral internal dearrangement. Neurological reasons could be cervical radiculopathy, long thoracic nerve palsy, and spinal accessory nerve palsy. Soft tissue related reasons could be intrinsic muscle pathology, hypomobility of the biceps, pectoralis minor, and infraspinatus deficit. SD was identified as a common finding.
among athletes with overhead activities and frequently concomitant with SICK scapula syndrome that might be related to malpositioning of the scapula, prominency of the inferior medial border, atypical or irregular movements of scapula.[2]

In 2016, Burn et al3 documented that SD is a widespread finding across professional athletes; specifically in overhead athletes (61 percent) it was considerably higher than in no overhead performer athletes (33 per cent). [3]

Application of physiotherapy is aimed primarily at reducing the limitation or tightness of the pectoralis major and minor, in order to minimize muscle imbalances such as serratus anterior and all trapezius fibers so that management of all scapular movements can indeed be obtained such as retraction, protraction, elevation, depression and rotation.[8] Approaches to manage scapular dyskinesia provide multiple stabilization exercises for scapula, PNF techniques, rowing exercises. But in this study, we wanted to check the immediate effect of DTFM along with strengthening exercise to increase the limited range of shoulder joint and to decrease the jerky or abnormal movements.[4,5]

Case description

A 22-year-old male patient and competitive swimmer reported to the clinic with the primary pain concern on the right side of the shoulder and upper back as well as getting problems while swimming over the last week. There was no painful past history according to the individual but the discomfort or the pain began gradually and increased over time. According to the case, his personal background included no particular medical condition and he did not use any specific medication. His athletic experience showed that he had regularly gone to swim for more than one hour a session five days a week over the last 3 years.

Until one week, patient felt discomfort in the limited region of the posterior side of the right shoulder or the right side of the upper back, but after several days patients experienced agony in overhead activity. In the pain evaluation of the individual, the pain was situated on the right side of the inferio-medial boundary of the scapula and the pain was placed upon the scale of verbal pain rating in worse condition with pain score 8 on 10 and 4 on 10 on a daily basis.

The right shoulder in the anterio-posterior view was slipped down in posture alignment assessment and scapula was noticeably prominent in posterio-anterior view. The patient is having grade 2 tenderness in the medial border of right scapula. Trigger points were present at the medial border of the scapula and could also induce shoulder joint range limitation. The prominency of the inferior pattern is best visualized when patient was asked to stand straight and place both of the hands-on-hips or asked the patient to perform eccentric activity while lowering the arm from the elevation of the overhead. MMT (all deltoid, biceps, triceps, lower trapezius, and anterior serratus fibers) was also weak as contrasted to the left.
There was almost complete range of motion present but with the pain of shoulder movements particularly shoulder flexion and abduction movement, the examiner also observes jerky and irregular movements of the scapula during arm movements. For the further investigation, special test was performed, asked the patient to stand straight and tightly squeeze the scapular muscles together or pinching the both scapula together, the normal result was a person can able to maintain the squeeze or muscle contraction for 15-20 seconds, but in this case, pain was felt by the patient after 15-20 seconds. For making undisputable diagnosis, patient performed another special test i.e., wall push-up test, in this patient was asked to do wall push-ups, but pain and muscle weakness was again felt by the patient.

TREATMENT

After the evaluation, during the first day, the patients were provided cryotherapy, intermittent DTFM for 3 minutes ultrasound treatment for 5 minutes with 1 MHZ on the specific region on the upper right side of the back to alleviate discomfort for two days, twice a day. The aim of the deep friction massage is to preserve stability inside the ligament, tendon and muscle structures of the soft tissue and to avoid the development of adherent scars. In comparison to the superficial massage provided in the longitudinal direction parallel to the vessels which promotes circulation and the return of fluids, the massage is deep and must be applied transversely to the actual tissue involved. Until friction massage can be effectively done, the relevant structure must be identified by appropriate evaluation procedures.[7]

On the second day, patient was asked to do slow, control, active and complete movements of the scapula and shoulder joint for twice a day for 15 repetitions of each movements. After four cryotherapy, DTFM and ultrasound therapy sessions, and when the discomfort fell to 4 out of 8 in the 10-point verbal intensity assessment system, the rehabilitation plan was implemented. The individual was primarily taught with the active range of motion exercises of all scapular and shoulder movements along with the session of deep transverse friction message.[9] Following two sessions of active ROM sessions, the patient was taught isometric exercises for the same movements. Isometric exercises was taught to the patients of upper trapezius and levator scapulae for the elevation, lower trapezius for the depression, rhomboids and middle trapezius for the retraction, serratus anterior for the protraction of the scapulae and also taught the strengthening exercises of rotator muscles of the scapulae.[10]

But nevertheless, the patient was given just two sessions of isometric exercises. Now, pain decreased by two more grades this time and was ranked as 2 out of 10. But according to MMT the muscles were weak as comparison to the unaffected side.

Now to improve the strength of the scapular muscles, the first position taught to the patient was a prone horizontal abduction of both of arms in a neutral position, where the patient had to lie in a prone position on
the table with the abduction of the shoulder in a horizontal position and instruct the patient to continue the same position for 5 seconds and then relax.

The second position which instructed the position was much like the last position with the conjunction of an external shoulder rotation. In this position, the patient has been inquired to keep lying in the prone position with the thumb in the hitch-hiking position and continue to carry for 5 seconds and then relax.

The third exercise demonstrated to the patient that it was in the same place with the shoulder in scaption posture with extended elbow, the arms would be slightly forward by around 30 degrees relative to the horizontal abduction and told the patient to uphold this position for 5 seconds and then relax.

RESULTS

While examining on palpation, Trigger points was treated within 2 days and 4 sessions of DTFM along with cryotherapy and ultrasound therapy. Manual muscle testing was verified again at the end of the 5th day of care and treatment and there was no discomfort experienced by the patient when performing resistance exercises, range of motion was also full of the shoulder joint without any jerky or irregular scapular movement. When attesting the measurement on observation, both shoulder levels were at the same level, no droop was observed from anterior-posterior view, and the examiner noticed no prominence of the scapular border when verifying from posterior-anterior view. After one week of using the same treatment patient was able to play his sports without any performance impediment.

DISCUSSION

Tests suggest a very significant change in shoulder and scapular muscle pain and weakness. Such results suggest that strengthening exercise therapy has a positive impact in a rapid period of time that is just one week. Using strengthening exercises, it uses muscle activation study to achieve the goal of through muscle strengthening with the help of facilitation. Therapeutic exercises should pay attention in the recovery of scapular dyskinesis to restore balance of the scapulothoracic region and control of scapular muscles.[11]

In elite young swimmers, SD could be an asymptomatic condition; it was present in 8.5 per cent of our cohort, and it did not appear to affect results. Form I was the most common pattern; male sportsmen were twice as prone to SD as female athletes. We also found that SD was associated with the respiratory side and the specialization of long distances.

REFERENCES:


