Case Study

Comparison of a retraction exercise and passive scapular lifting for acute scapular medial pain

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Abstract. [Purpose] This study developed an effective self-relaxation exercise for acute scapular medial pain and investigated its pain relief effects. [Subject and Methods] The subject was a 41-year-old male with scapular medial pain. During session 1, the subject performed a retraction exercise. During session 2, the subject performed a passive scapular lifting exercise. [Results] After session 2, the frequency of the pain decreased to about once a month, and the patient’s VAS score for acute scapular medial pain was 2/10. After session 1, there was no change compared to the initial values. [Conclusion] Therefore, the results of this study suggest that the passive scapular lifting exercise offers effective control of acute scapular medial pain.

Key words: Acute scapular medial pain, Retraction exercise, Scapular lifting

INTRODUCTION

Scapulocostal or scapular medial pain commonly involves the major and minor rhomboids and levator scapulae muscles¹). Clinical reports indicate that upper thoracic pain commonly occurs with repetitive or prolonged bending, twisting, or sitting activities, such as in industrial work involving combinations of these movements²). Recently, it has frequently been reported in workers who engage in forward-leaning tasks, such as computer work, for several hours a day¹, ³). Patients sometimes report sudden scapular medial pain during a movement such as picking up a pencil², ³).

Scapular medial pain is evoked by overstretching the muscles on the medial border of the scapula¹, ³). Thus, intervention for scapular medial pain is focused on exercises designed to strengthen overstretched medial-border muscles¹, ²). Chronic pain may benefit from strengthening exercises, but acute pain first requires exercises to relax the muscle³). However, patients cannot easily relax when they are experiencing muscle pain due to the manual pressure required for muscle relaxation interventions. Yet, it is difficult for them to create a passive force by themselves. Thus, an effective self-relaxation exercise is needed. This study developed an effective self-relaxation exercise for acute scapular medial pain and investigated its pain relief effects.

SUBJECT AND METHODS

The subject was a 41-year-old male with scapular medial pain. The purpose and methods of the study were explained to the patient, and written informed consent was obtained, in keeping with the ethical principles of the Declaration of Helsinki. The subject complained of severe scapulocostal pain over the previous 3 months. He had not received any specific treatment. He felt acute scapular medial pain after work requiring a prolonged forward-leaning posture. The pain occurred suddenly after about an hour’s work and then slowly disappeared. The patient’s visual analog scale (VAS) score for scapular medial pain was 5/10. The pain occurred about six times a month. During session 1, the subject performed a retraction exercise in a...
standing position for 10 minutes every 4 hours, every day for 2 weeks. The scapular retraction exercise was performed using Thera-band (blue color), with the elbows at the patient’s sides and bent to 90 degrees. He first pulled the band back to move his shoulder blades toward each other, then returned to the starting position. During session 2, the subject performed a passive scapular lifting exercise in a standing position for 10 minutes every 4 hours for 2 weeks. The scapular passive lifting exercise entailed the patient supporting both elbows on the table and using his body weight to lower his trunk for 20 seconds. Pain was evaluated after each session. The total exercise and evaluation period lasted more than 2 months.

RESULTS

After session 1, the frequency of pain was six episodes a month, and the patient’s VAS score for acute scapular medial pain was 5/10. Thus, there was no change compared to the initial values. After session 2, the frequency of the pain decreased to about once a month, and the patient’s VAS score for acute scapular medial pain was 2/10.

DISCUSSION

According to a previous study report, the question of whether stretching or strengthening exercises can correct faulty posture such as that associated with abducted scapulae has remained unanswered⁴. That study suggested that to determine which component of the intervention is most effective and whether the results are additive future research should include a stretching only, a strengthening only, and a combined stretching and strengthening group⁴.

The rhomboid muscle stabilizes the scapula against the traction of the posterior deltoid, the long head of the triceps brachii, and the serratus anterior; these muscles are particularly active during pulling movements of the arms¹. Therefore, for the abovementioned muscles that displayed weakening, clinicians used a Thera-Band to strengthen the rhomboid³. A previous study reported that the proposed pulling exercise has been found to be an effective method for selectively strengthening the rhomboid muscle over a short period of time, serving as a primary therapeutic approach to treating scapulocostal pain or scapulocostal syndrome⁵. However, in the present study, the retraction exercise did not relieve acute scapular medial pain. Compared to the initial values, the frequency of pain and the VAS score showed no change after session 1. However, after session 2, the frequency of pain was decreased, as was the VAS score for acute scapular medial pain. The scapular passive lifting exercise is a self-relaxation method for the medial scapular muscles. This study considered the hypothesis that the passive scapular lifting exercise would change the origins and insertions of the scapular medial muscles, such as the major and minor rhomboids muscles, in a downward direction. These changes effectively resulted in muscle relaxation. Finally, acute scapular medial pain is a type of muscle spasm caused by excessive fatigue due to overwork, in contrast to pain caused by muscle overstretching. It is difficult for patients to relax without manual pressure because it is difficult to create a passive force that would induce relaxation. Therefore, the results of this study suggest that the passive scapular lifting exercise offers effective control of acute scapular medial pain.

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