

## Scapular Stabilization Exercises for the Management of Bilateral Snapping Scapula Syndrome.

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### ABSTRACT

This case reports depicts the effect of scapular stabilization regimen for managing clinical symptoms of scapular dyskinesia presenting with crepitus during shoulder movement. A 35 old banker with history of peri scapular, shoulder and coracoid area pain with auditory joint noise visited our department. Scapular stabilization exercise regimen with emphasis on normalizing anatomical symmetry, scapular motor control was done for 40 mins, three times a week for 8 weeks. Follow up was maintained once a month after that or as per the need. Measurements included scapular deviations, muscle strength, pain intensity, quality of life and global rate of change. These changes were assessed at the beginning before the intervention, 8 weeks after treatment and during 1 year follow-up. Data shows favourable improvement on pain, strength, scapular symmetry and quality of life. Thus, it can be concluded that the scapular stabilization exercise is helpful in alleviating symptoms related to scapular dyskinesia and snapping scapula syndrome.

**Key Words :** Bursitis; Scapular Dyskinesia; Scapulothoracic Crepitus; Snapping

### INTRODUCTION

Scapulothoracic crepitus or scapulothoracic bursitis are often misdiagnosed and is often less understood. Snapping Scapula or Washboard syndrome are also used to describe these impairments.<sup>1,2</sup> The source of persistent pain and disability is often due to bony alterations, inflamed/injured soft tissue such as bursa, muscle fibres.<sup>3</sup> Scapulothoracic bursitis refers to inflammation of the bursae secondary to trauma or overuse owing to sports activities or work. Scapulothoracic crepitus is defined by a grinding, popping, or thumping sound or sensation secondary to abnormal scapulothoracic motion.<sup>1</sup> Snapping scapula syndrome are usually diagnosed primarily by clinical examination.<sup>1-3</sup> Clinical examination primarily begins with history taking and physical examination. Patient might complain of pain and crepitus in rest or certain movement and extreme tenderness can be found in medial and superolateral aspect of scapula. Physical examination might also include measurement of scapular positions and angle.<sup>1</sup> Other

findings may include focal muscle weakness/ atrophy, winging of scapula, scapular dyskinesia, altered scapulohumeral rhythm, increased thoracic kyphosis, Forward head posture.<sup>4</sup> Depending upon the cause of impairments and severity of symptoms, clinicians usually opt for therapeutic exercise and postural training for managing scapular and shoulder related problems.<sup>1,5</sup> Scapular stabilization exercises are regarded as a crucial component to optimize scapular alignment and control during upper limb movement and thus allow appropriate length-tension relationships of shoulder musculature.<sup>6</sup> Various literature has discussed about the non-operative and operative management of snapping scapula syndrome. However, there exists discrepancies and no rigid guidelines have yet developed in the context of snapping scapula syndrome. Therefore, the purpose of this study was to examine and report the outcome of scapular stabilization exercises for treating snapping

CASE REPORT

A 35 yrs old male banker, suffering from shoulder, chest and scapular pain with crepitus for about 2 years visited Annapurna Neuro Hospital Physiotherapy department on October 2, 2019. Previously he was diagnosed as mechanical pain and prescribed with NSAIDS, STEROIDS. He also went for physiotherapy but was not well. During these periods of 2 year, he has on and off pain for which he used these medications multiple times and was merely a symptomatic relief. On examination, he had a deep dull aching, diffuse pain (NPRS 7/10) over medial border, superolateral and inferior angle. He could feel pain and tightness over pectoralis, upper trapezius and nape of neck region. Patient was also asked to fill Nepali version of NPRS, 2 item QOL, GROC as an outcome measure. On static observation, it was found that he has winging of scapula, forward head posture, rounded shoulder was present. On dynamic observation, we could observe aberrant scapulohumeral rhythm, scapular dyskinesia with crepitus. On palpation we could find multiple trigger point over the nape of neck, tenderness over medial aspect of scapula, scapular angles, pectoralis region. On examination we performed MMT from which we found that patients have weak scapular depressor and retractor, weak scapular adductors and abductors. Similarly, levator scapulae, Sternocleidomastoid, upper trapezius, pectoralis major and minor were tight. Scapular dyskinesia test (KIBLER classification, Type III: superior positioning), Scapular Assistant test, isometric scapular pinch test was positive. Measurement from infera, lateral displacement, abduction was taken.

**Table 1: Descriptive Data Over a Time**

Static measure-ments of scapula	0 week		8 week		1 year	
	Right	Left	Right	Left	Right	Left
Infera (cm)	2	0	1.5	0	0	0
Lateral (cm)	5.5	4.5	4	4.5	3.5	3.5
Dynamic	30°	20°	10°	7°	<5°	<5°
<b>Manual Muscle Testing</b>						
Upper Trapezius	3	3	4	4	5	5
Middle Trapezius	3	3	4	4	5	5
Lower Trapezius	2	3	3	4	5	5
Serratus Anterior	2	3	4	4	5	5
Rhomboid Major	2	2	3	4	5	5
Rhomboid Minor	2	3	3	4	5	5
<b>Outcome Measures</b>						
NPRS	7/10		4/10		0/10	
GROC	5		6		7	
2 item QOLS	2		6		9	

NPRS= Numeric pain rating scale, GROC = Global rate of change, QOLS: Quality of life Scale

Table 1 shows changes in measurement, strength and outcome measure scoring during the course of time. Xray finding were normal and MRI was not done. A diagnosis of snapping scapulae was made based on these finding. Scapular stabilization/motor control exercise, scapular endurance exercise and postural re-education were the backbone of physiotherapeutic management.

He was initially treated with soft tissue mobilization and trigger point release, hot fermentation, stretching exercises and strengthening exercises as per the clinical finding. Exercise and interventions were added as per patient response and outcome measure was used to get scores at each follow up. We advised him to take pain medication as per need. We also included him in pain education session. Patient was well explained about the condition and need for follow-ups. Consensus was reached so that follow ups were to be maintained S.O.S or at least once in every month after 8 weeks intensive training and can be increased with improvement.

DISCUSSION

We found that scapular stabilization regimen to be effective in managing snapping scapula syndrome. Many literatures have focussed scapular stabilization exercise as first line of treatment for treating snapping scapula syndrome.<sup>1</sup> However, some study has also shown surgical management to be effective when the conservative management fails.<sup>3</sup> Being a banker, his daily work comprises of table work and some upper limb activities like reaching out, sending or receiving files/hardcopy. Therefore, in the early stage, we focussed on normalizing the posture, release the tight musculatures and strengthening for scapular stabilizers to gain neutral scapula position. In the next phase, we added increased load/ resistance in close kinematics chains using ball or through TheraBand depending on the increment of muscle strength and tolerance. The limitation of our study is that we did not use hand held dynamometer to assess muscle strength rather than we used oxford grading for Manual muscle testing. Similarly, in the absence of CT and MRI reporting, static measurements were used to quantify changes in scapular position.

The strength of our study is that we used Nepali version of NPRS, GROC and 2 item QOL to assess the changes during 1 year time. We also gave pain neuroscience education session to alleviate any psychosocial issues he might have developed during this period. Scapular disorders rarely have been studied and diagnosed in context of Nepal and this can be reference for some naïve researcher to look into this field. Finding from our study suggests, it is

possible to treat snapping scapula with minimum source and equipment. However, patient adherence to treatment over a time is must.

## CONCLUSION

There was significant improvement on pain, crepitus, scapular motor control following scapular stabilization regimen for individuals with snapping scapula syndrome. We achieved normal symmetry of scapula, dynamic setting was symmetrical and signification improvement on NPRS, quality-of-life Scale and GROCC scores. Thus, early diagnosis and treatment may be promising for individuals with snapping scapula syndrome.

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