



Case Report

## Comprehensive rehabilitation of a patient with upper crossed syndrome

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### ABSTRACT

Background: In upper cross syndrome (UCS), weaker neck flexors, anterior and middle serratus and lower trapezius along with rhomboids usually develop, and stiffness of the levator scapulae, pectoralis major as well as upper trapezius are biomechanically adapted. Muscle imbalance is the primary cause for the upper cross syndrome between the tonic and phasic muscles. Individuals with upper cross syndrome may also exhibit any of the following issues text neck syndrome, round upper back, reduced thoracic spine mobility, winged scapulae. Active Release Technique (ART) helps to reduce discomfort and improve the range of movement. Also, Active Release Technique (ART) is a manual procedure which is also being used for other soft tissue rehabilitation as well as for the management of the scar tissues. UCS and neck pain is common with uncomfortable job postures as well as in stress and anxiety, due to which muscle dysfunction starts which can further followed by altered posture around the neck. Active Release Technique was also used earlier for muscle dysfunction and for scar tissue mobilization. Changes in musculature structure may exhibit chronic headaches among the patients of upper cross syndrome also unbalanced soft tissue near the neck may create barriers for the head's range of motion (ROM). Patients complaints were pain, decreased job efficiency for which he was later diagnosed as a case of upper cross syndrome. The patient showed great co-operation during the treatment and now the patient is able to perform his job-related tasks without discomfort.

**Keywords:** Upper cross syndrome, neck pain, ART, weak muscles, posture

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### INTRODUCTION

The position of the neck and the bottom of the head and shoulders is at greater risk as people sit in the wrong way for long periods of time as there is a rapid rise of time span in the following activities like studying, writing or using a computer [1].

In upper cross syndrome (UCS), there will be weakened neck flexors, anterior and middle serratus and lower trapezius along with rhomboids, and you will observe the stiffness of the levator scapulae, pectoralis major as well as upper trapezius. This condition is assigned cross name because it can draw "X" (a cross) across the upper body, in UCS primarily muscle imbalance occurs, which eventually happens in tonic and phasic muscles [2].

Individuals having upper cross syndrome may exhibit the following features which can be text neck posture, rounded upper back, elevated and prolonged shoulders, winged scapulae, and reduced

thoracic spine mobility. The root of symptoms in mechanical neck pain is not well known, but has been hypothesized to be linked to various anatomical structures, especially the cervical spine's zygapophyseal or uncovertebral joint. A major reason of neck pain is awkward working posture, anxiety, fatigue, heavy lifting and physically challenging jobs [3].

Manual material handling activities may sometimes lead to the start of the musculoskeletal disorders, for example, employees who do their work in an unacceptable role or in an unhealthy posture and perform the same behaviour during their working day.[3] UCS may lead to irregular kyphosis in thoracic spine, as well as changed glenohumeral joint, altered cervical spine biomechanics, may result in loss of cervical curve and may lead to cervical spine degeneration. Changes in musculature function, in people having UCS frequently may cause these individuals to experience chronic headaches [4]. The

occurrence of such disorders can be due to various factors such as unsuitable/ inappropriate posture at workplace and lack of regular exercise. Data suggests that in the shoulder-girdle and cervico-thoracic area 6-48 percent of the UCS population complain of pain.

Mechanical neck pain usually presents as neck and/or shoulder pain with mechanical features which may include signs exaggerated as a result of sustained postures of the neck, neck movement, or cervical muscle palpation. The root cause of mechanical neck pain symptoms is not completely recognized. Uncomfortable job posture, anxiety, exhaustion, heavy weight lifting and physically demanding activities are typical causes/ reasons for the neck pain.<sup>[4]</sup> Mechanical dysfunction, which triggers unusual joint movement, is a known possibility of neck disorders, because improper cervical area mobility near and around the joint capsule can restrict cervical area motion. Unbalanced soft tissue around or near the head and neck structure can create barriers on the head's range of motion (ROM) and cause discomfort to the neck. Therefore, once the muscle dysfunction starts, traditional muscle imbalance trends and altered posture follow<sup>[5]</sup>. In many musculoskeletal conditions, manual therapy is the preferred form of treatment.

#### Patient information

A 27-year-old male working in an IT company for 3 years was complaining of neck pain since a month between his working hours, the pain was gradually progressing. As per the history given by the patient, he managed the pain conservatively at home with dry hot bag which managed to reduce his neck pain for a short duration, after two weeks he visited physical therapist with his complaints for further management.

#### Clinical findings

After the evaluation it was found that on screening, the pectoralis major was tight in a seated position with the arm at the subject's side and elbow flexed to ninety degrees. we evaluated the levator scapulae and upper trapezius and tightness was observed for both the muscles. While the patient abducted their arm, then we evaluated for shoulder hike within the first sixty degrees and tight levator scapulae and upper trapezius respectively. Neck disability score was 38% with pain rating of 7/10. The ART consisted of protocols for the pectoralis major, levator scapulae, and upper trapezius bilaterally.

#### Physiotherapy intervention

1. Thermotherapy: Prior to every treatment session the patient was given HCP for pain relief and relaxation
2. ART: The ART was administered to the patient which consist of protocols on both sides for the pectorals, the levator scapulae and the upper trapezius. The musculature was examined at every session before administering the active release technique. During a therapy session, the active release procedure was administered

once to the pectoralis major involved for 8-10 minutes. 4 sessions a week for 3 weeks.

3. Static Stretching: Door way stretch was given for pectoralis major tightness. It was given with 15 seconds hold three times per session.
  4. HEP: The patient was taught how to perform self-stretching
- Pre Treatment and Post 3 Week Treatment



Pre- treatment observations	Post- treatment observations
Forward head posture	Corrected cervical lordosis
Protective spasm was observed	No spasm noticed
Tight pectoral musculature led to rounded shoulders	Improved posture with shoulders in neutral.

#### RESULT

Patient showed gradual improvement in regards to alleviating pain and to improve the range of motion around the neck.

#### DISCUSSION

According to the previous studies the effects of conventional physiotherapy in management for the upper cross syndrome is proven. Heat enhances the ROM-improving effects of stretching a set of muscle groups<sup>[6]</sup>. More over this case report has shown that the active release technique was found to be effective in treating his condition as ART helped in correcting his soft tissue restrictions which was restricting his mobility as well as to break the adhesions along with the help of well-established and widely used methods with appropriate reliability and validity to assess the pain, neck disability, cervical ROM and the length of muscle<sup>[5]</sup>. Stretch relaxation of the musculotendinous unit is caused by ART stretching<sup>[7]</sup>. Numerous manual therapy strategies for reducing muscle tightness have been explored<sup>[8]</sup>. This study was unique with its UCS management with the help ART and static stretching for the involved musculature. Physical therapy is an essential aspect of the patient's recovery. The limitation of the case was the time limit which was made available for the treatment as he was a full time IT professional. Therefore, this study intends to manage UCS with active release technique.

#### CONCLUSION

Patient showed great co-operation during the intervention period and now the patient has experienced increase in his pain free range of motion.

#### Author's contribution

All author made best contribution for the concept, assessment and

evaluation, data acquisition and analysis and interpretation of the data.

#### **Conflict of Interest**

None.

#### **Patient consent**

A proper consent from the patient was taken for writing the case report.

#### **List of abbreviations**

ART- Active Release Technique

UCS- Upper Cross Syndrome

HCP- Hydro collater Pack

HEP- Home Exercise Program

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