

# Acute Traumatic Anterior Dislocation of Sternoclavicular Joint-A Case Report

Shreef Abdallah<sup>†</sup>

## ABSTRACT

Despite weak stability of sternoclavicular joint its dislocation is a rare occurrence because less stresses across the joint and limited range of movement it represents only 1% of joints dislocation. We reported a case of 47 years old male presented with sternoclavicular dislocation after falling on his shoulder from 3 meters height who managed by closed reduction under general anesthesia we present a case to focus on its rarity giving idea about proper diagnosis and adequate management.

**Key Words:** Sternoclavicular joint dislocations, Radiography, Analgesia trauma

## Introduction

Sternoclavicular joint dislocations are rare and represent only 3% of all dislocations around the shoulder [1]. The sternoclavicular joint is a diarthrodial joint composed of the sternum and clavicle. It is stabilized by the posterior capsular ligament which provides the most anterior-posterior stability and the anterior sternoclavicular ligament which restricts superior displacement [2].

Sternoclavicular dislocations may be either traumatic or atraumatic. Traumatic dislocations may be either anterior or posterior, with anterior dislocation being approximately nine times more common [3]. The anterior and posterior dislocations depend upon the displacement of the sternal clavicle end over the sternum, anterior dislocation is usually caused by a lateral compressive force to the shoulder girdle which results in the posterior capsule being spared but the anterior capsule and frequently a portion of the cost clavicular ligament being ruptured [1]. We will report a case of 47 years old male manual worker presented to us with anterior dislocation of right sternoclavicular joint which is successfully managed by closed reduction following this by a brief review about sternoclavicular dislocations regarding anatomy, biomechanics, and mechanism of injury, classification, diagnosis and management [4].

## Case Presentation

A 47 years old male active manual worker with no history of medical co morbidities ,drug intake nor special habits of medical importance presented to our emergency department complaining of localized pain and swelling over upper right side of the chest and inability to move his right shoulder after falling down a roof about 3.5 meters height on his right shoulder. Patient upon presentation was fully conscious vitally stable well oriented to time, place and surrounding people, neurovascular status was constant. And has no other complaints.

Local examination reveals marked swelling and lumb upon the sternal end of right clavicle which was very tender and painful any attempt to move the right shoulder. Suspected diagnosis was anterior dislocation of right sternoclavicular joint and considering fracture medial end of clavicle as differential diagnosis (Figure 1).

After giving patient adequate analgesia Trauma survey was done showing anterior dislocation of right sternoclavicular joint as expected and no other injuries was found (Figure 2).

After counseling with patient about diagnosis and management decision was to do closed reduction under general anesthesia taking in consideration possible need for open reduction. With patient supine and shoulder supported closed reduction

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Faculty of Physical Education, Egypt

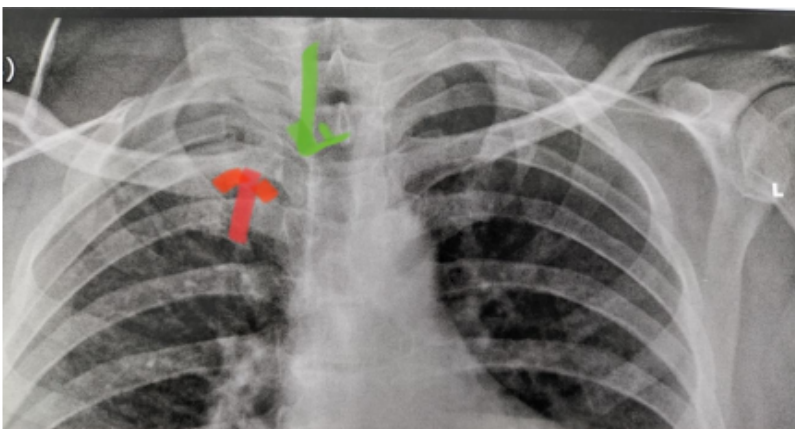
<sup>†</sup>Author for correspondence: Shreef Abdallah, Faculty of Physical Education, Egypt, E-mail: shreefomar252@gmail.com



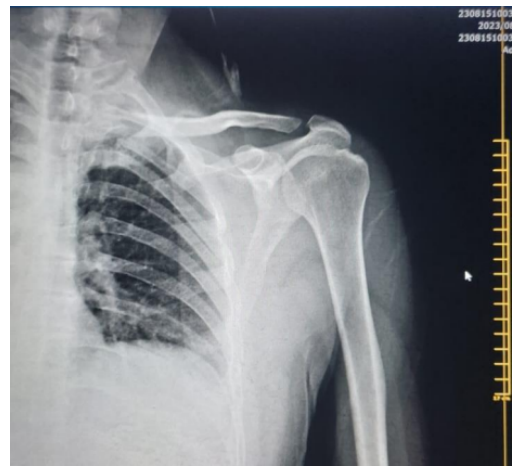
**Figure 1:** Clinical photo showing swelling and lump at right sternoclavicular junction.



**Figure 3:** Clinical photo for the patient after successful reduction and lump disappears.



**Figure 2:** Plain x-ray radiograph showing right sternoclavicular joint dislocation.



**Figure 4:** Plain x-ray radiograph after successful reduction of sternoclavicular joint.

was attempted by traction of the right upper limb while shoulder abducted and externally rotated while direct pressure over the medial end of the clavicle with force directed in downward and lateral direction. Closed reduction was successful which confirmed clinically and radiologically (Figure 3).

Arm to chest was applied and patient admitted for hours and discharged at night with instruction to visit outpatient clinic. Follow up 4 weeks no tenderness over medial end of clavicle and range of motion of shoulder joint was allowed (Figure 4).

### Discussion

The Sternoclavicular Joint (SCJ) is a diarthrodial saddle type synovial joint which is inherently unstable. Less than 50% of the medial clavicular surface articulates with its corresponding articular surface on the manubrium sterni. Its stability is therefore derived from intrinsic and extrinsic ligamentous structures surrounding the joint [5, 6]. Any movement at the shoulder

girdle results in some degree of movement at the SCJ. The clavicle elevates about 4 degrees for every 10 degrees of arm forward flexion [7]. When the shoulders are retracted the SCJ translates anteriorly and the reverse for shoulder protraction. With combined movements the clavicle can rotate up to 40 degrees along its longitudinal axis. Patients with a short clavicle can result in significantly more torque at the SCJ.

Dislocations of the SCJ can be broadly classified by the direction of displacement, which may be anterior or posterior, superior or inferior. Dislocation of the SCJ is often not an isolated event and may be due to other structural causes than trauma. It can therefore be thought of as instability, which can be acute, recurrent or persistent. Posterior dislocation of the SCJ occurs if there is application of force directly over the anteromedial aspect of the clavicle or if the posterolateral shoulder undergoes an indirect force thereby forcing the sternal clavicle posteriorly. Meanwhile, anterior dislocation is usually caused by a lateral compressive force to the shoulder girdle which results in the posterior capsule being spared but the anterior capsule and frequently a portion of the cost clavicular ligament being ruptured [8].

Patients presenting with these injuries are often in high energy collisions, whether that be sporting or through a motor vehicle accident. Those with anterior dislocations of the SCJ will complain of a painful lump just lateral to the sternum. Care needs to be taken to determine whether this is indeed a true dislocation or a fracture of the medial clavicle [3]. Diagnosis usually clear from history and clinical finding but Sometimes, the physical findings are subtle, and diagnosis will depend on imaging studies which is highly depend on the positioning of the

limb Visualization of the followed by imaging to confirm the diagnosis and exclude other injuries. SCJ on plain radiographs can be technically challenging due to the anatomical complexity of the region. The view of choice for SCJ dislocation is the 'serendipity' view, which shows asymmetry in the sternal ends of the clavicles. Anterior dislocation is seen as a superiorly displaced medial end of the dislocated clavicle while posterior dislocation presents as inferiorly displaced medial end of dislocated clavicle Computed Tomography (CT) scan with three-dimensional reconstruction has become the choice of imaging in doubtful SCJ dislocations [9, 10]. There is debate about whether anterior dislocation warrants reduction. This is based on the theory that persistent anterior clavicular prominence causes no significant functional difficulties, and that recurrent, and even irreducible, anterior dislocations are usually tolerated without significant sequelae or complications [11-15].

Management usually started by trial of closed reduction which is successful only in 38% of cases and even if successful residual instability usually remains. If trial for closed reduction fails proceed for open reduction successful closed reduction has similar functional outcome to open reduction.

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### Conclusion

This paper is a prescription of a case sternoclavicular dislocation which has a rare occurrence in clinical practice in this case it was isolated injury but sometimes it may be a part of poly trauma and can be missed high incidence of suspicion and proper examination and adequate investigation is the clue for diagnosis and good management.

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