

## Delayed Presentation of Traumatic anterior Sternoclavicular Joint Dislocation - A Case Report and Literature Review

Muhammad Noman, Sajjad Ahmed, Saleha Bint e Shuaib, Taimoor Ali, Syed Bilal Ali, Muhammad Waqas Khan\*

Department of Orthopedic, Dow University of Health Sciences, Karachi, Pakistan.

**ABSTRACT:** Traumatic sternoclavicular joint dislocations are uncommon, accounting for just 1% of all documented upper limb dislocations, despite the fact that upper limb dislocations are very common literature offers only a handful of documented instances of such dislocations. Among them, anterior dislocations are more frequently observed than posterior dislocations, owing to the robust ligamentous support in this area. We describe the case of a 35-year-old male patient who had isolated anterior sternoclavicular dislocation and a successful reduction procedure used on him. The rarity of such cases is emphasized by the satisfactory outcomes presented in our report.

**Keywords:** Advanced trauma life support, Anterior dislocation, Costoclavicular, Interclavicular, Mediastinum, Sternoclavicular joint.

### INTRODUCTION

The Sternoclavicular Joint (SCJ) is an important landmark as it is near vital, delicate structures, including major blood vessels, nerves, and trachea, and is responsible for a range of movements. However, it is an unstable joint. It is stabilized by surrounding ligaments like costoclavicular, interclavicular, and capsular ligaments that help prevent excessive movements that could lead to dislocations and instability.

Acute and chronic symptomatic SCJ dislocations are still reported, although very rarely. Due to the strong ligamentous support, these dislocations require massive impact.

There are two types of traumatic SCJ dislocations: anterior and posterior, with the former occurring nine times more frequently than the latter [1]. Despite being less frequent, posterior dislocation can be life-threatening because it puts vital mediastinal structures including the trachea, esophagus, and major arteries in jeopardy of injury. When the shoulder girdle experiences lateral compressive stress while the arm is abducted, anterior dislocation frequently results. When a lateral compressive force is applied to the shoulder girdle while the arm is abducted leading to anterior shoulder dislocation. This leading force jeopardizes anterior capsule rupture and frequently a portion of the costoclavicular ligament. We share a case of stable anterior sternoclavicular joint dislocation in the 35 years old male. In our literature review we found only 10 cases reported the traumatic anterior dislocation of SCJ, only 6 recent cases reported only 4 cases showed excellent results for conservative management, 6 studies reported desirable results for surgical management. Mohapatra *et al.* reported a case of 35-year-old man presented

with acute SCJ dislocation successfully treated with close reduction similar to our case without any reported complications. Kalantar *et al.* also reported a conservatively managed patient with sling, analgesics, and physiotherapy. Ogawa *et al.* managed a patient with figure of 8 technique using ipsilateral palmaris longus tendon reporting excellent results. Therefore, due to sparse literature on this subject we present this case report to share our experience on this rare case managed with close reduction.

### CASE PRESENTATION

A 35-year-old man presented in the Trauma Center of Civil Hospital Karachi, a tertiary care hospital with complaints of pain in his chest's middle and right side and inability to move his right upper limb. He had previously experienced a large object (sack) falling on the right side of his chest 3 days back, which was followed by acute symptoms of pain and edema. He was transported to the hospital with delay, as per protocol ATLS was followed. He was conscious, oriented, vitally stable, and showed no danger signs. On inspection, the attitude of the right upper limb was flexed, and it was supported with the other hand. On examination, there was a small lump over the right SCJ with palpable bone (Fig. 1); neurovascular status was intact. The thoracic team was also involved and cleared the patient. A series of trauma radiographs, including x-rays (serendipity view) (Fig. 2) and a CT scan of the chest, were carried out, which confirmed our suspicion of traumatic right anterior SCJ dislocation (Fig. 3).

After a thorough discussion with the relatives and written consent, the patient was taken to the OR. It was decided to reduce the SCJ while sedated. A bolster was placed between the patient's shoulders as he lay on his back. Following that, traction was given to the injured limb in neutral flexion at 90 degrees, and direct pressure was placed across the medial clav-

\*Address correspondence to this author at the Department of Orthopedic, Dow University of Health Sciences, Karachi, Pakistan.  
Email: muhammadwaqad343@gmail.com

icle. Successful reduction of SCJ was confirmed clinically (Fig. 4) and via a plain and three-dimensional chest CT scan (Fig 5. A, B). A poly sling was applied to the affected limb for 4 weeks, and the patient was called for follow-up every week in the OPD.



**Fig. (1).** Clinical Picture Showing the Prominent Lump Just Lateral to the Sternum (Pre-reduction).



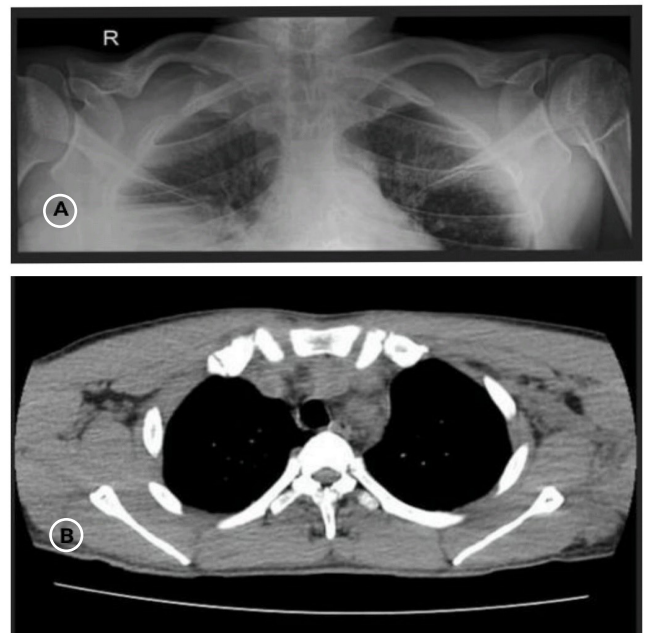
**Fig. (2).** Digital Radiograph Showing the Dislocation of the Sternoclavicular Joint with Separation between the Medial End of Clavicle and Sternum (Black Arrow).



**Fig. (3).** Showing Pre-Reduction CT Scan of the Thorax Axial View, Arrow Head Pointing toward Right Side Anterior Sternoclavicular Joint Dislocation, Comparable to Left Side.



**Fig. (4).** Clinical Picture Showing Normal Contour of Right Sternoclavicular Joint Post Reduction.



**Fig. (5).** (A). Digital Radiograph of the Chest Showing Successful Maintenance of Reduction of the Left Sternoclavicular Joint. (B). CT Scan of the Thorax after Successful Maintenance of the Sternoclavicular Joint.

## DISCUSSION

Being the only joint interconnecting the upper appendicular and axial bones, the SCJ supports the shoulder [2]. The SCJ's range of motion (ROM) is only 35° forward/backward and 45° forward, which is very limited. Despite its limited range of motion (ROM), the SCJ is a highly stable joint [3]. Further stability is provided by the supporting ligaments, which include the intrinsic ligaments and the extrinsic ligaments. It is also reinforced by a strong joint capsule. Because of the SCJ's durability, dislocations and subluxations are uncommon but can happen as a result

of trauma, sports-related activities, and degenerative changes. Anterior dislocations can occur as a result of lateral compressive forces. Joint dislocations or subluxations can cause pain, swelling, limited range of motion, and tenderness. The classic presentation of an anterior SCJ dislocation is pain along the lateral aspect of the clavicle. If the patient is under 25 years of age, the possibility of physical injury should also be considered [4]. In our case, the patient had no associated clavicular fracture or any other osseous injury. It was an isolated case of traumatic SCJ dislocation.

Clinical examination and radiological confirmation are used for diagnosis, with CT imaging being preferred for superiorly displaced medial end dislocated clavicle visualization. MRI is used to rule out ligamentous injury and differentiate physical injury from SCJ dislocations in patients under 23 [5]. Due to its rarity, the approach to go about managing an SCJ dislocation is highly debatable and depends on the setting the case is presented in. The present literature supports that all traumatic SCJ dislocations presenting acutely, i.e., within a period of 7-10 days, should primarily be treated conservatively with a closed reduction maneuver. As described, most cases can be successfully managed by closed reduction under sedation or general anesthesia. However, the patient should be informed regarding the risk of persistent instability, which is relatively rare. Open surgical correction with internal bracing is needed in cases of persistent symptomatic instability and cases refractory to non-operative treatments. While modifying activities is often necessary following surgical intervention for chronic anterior sternoclavicular joint (SCJ) instability, it can lead to significant pain alleviation and restoration of joint functionality [6].

In our specific case, we chose closed reduction as the preferred approach due to the isolated and stable nature of the dislocation, with no accompanying bone injuries. In general, closed reduction should be prioritized in similar cases to mitigate potential risks associated with surgical correction, such as infections, soft tissue and vascular trauma, and the formation of scars.

## CONCLUSION

This report focuses on a case involving an isolated and stable anterior sternoclavicular joint (SCJ) dislocation. Traumatic SCJ dislocations are infrequent and typically diagnosed through clinical examination, although thorough investigations are necessary, particularly in cases of polytrauma. The optimal treatment approach for such dislocations remains a subject of debate. Generally, reduction maneuvers are successful in acute settings, with surgical management reserved for rare cases of chronic instability.

## CONFLICT OF INTEREST

Declared none.

## ACKNOWLEDGEMENTS

Declared none.

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