

Case reports

Scapulothoracic and scapholunate dissociation in the ipsilateral upper limb of a trauma victim

Hitesh Lal, Yashwant Singh Tanwar*, Atin Jaiswal, Satya Prakash Singh, Masood Habib

【Abstract】 Scapulothoracic dissociation is a rare and complex injury pattern with varied presentation. Here we describe a case of a 32-year-old male who presented with scapulothoracic dissociation associated with brachial plexus injury, along with scapholunate dissociation. We also propose an injury mechanism that might link the two injury patterns, suggesting that the association might be more than by chance. The patient was managed according

to established trauma care and resuscitation protocols followed by open reduction and internal fixation of the clavicle fracture, and fixation of scapholunate dissociation and had a successful outcome at follow-up.

Key words: *Scapulothoracic dislocation; Scapholunate dissociation; Manubrium fracture*

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Scapulothoracic dissociation is a rare but devastating injury with grave prognosis, both with respect to morbidity and mortality. The injury pattern has gained the attention of traumatologists ever since Oreck et al¹ first described it in 1984.

As evident by the name, it involves lateral displacement of the scapula with disruption of the scapulothoracic articulation, along with a clavicular fracture or disruption of the sternoclavicular or acromioclavicular joint. The focus on this injury pattern can be attributed to the high incidence and wide range of associated vascular and neurological injuries. It is an extremely high energy injury, often described as an internal forequarter amputation of the limb, with the mechanism of injury being a massive traction force to the upper limb.

Scapholunate dissociation on the other hand is

the most frequent pattern of carpal instability, usually resulting from dorsiflexion and ulnar deviation injury with stress loading of the extended wrist. Many of these injuries are usually missed on initial radiographs leading to delayed treatment and poor functional outcome. We describe a unique case of scapulothoracic and scapholunate dissociation in the ipsilateral upper extremity of a motorcycle accident patient.

CASE REPORT

A 32-year-old male presented to the emergency department with history of motorcycle accident. He was conscious, with normal higher mental functions and a GCS of 15/15 at the time of admission, and complained of pain over the left shoulder and wrist region. The distal pulses were palpable and the extremity was warm. Movements of the left shoulder, elbow and wrist were restricted along with local ecchymosis at the shoulder. There were also complaints of numbness over the medial aspect of the left forearm and hand. Chest and pelvic compression tests were negative, as were the clinical examinations of the abdomen and chest. Bilateral straight leg raising was possible. Patient was managed initially according to the Advanced Trauma Life Support protocol. His ultrasound of

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Orthopedic Surgery, Dr. RML Hospital and PGIMER, New Delhi 110001, India (Lal H, Tanwar YS, Singh SP, Habib M)

Department of Orthopedics, Bokaro General Hospital, Jharkhand, Bokaro 827004, India (Jaiswal A)

*Corresponding author: Tel: 91-9958112912, Email: tanwar_yashwant@yahoo.co.in

the abdomen and pelvis was normal. X-rays of the shoulder raised the suspicion of a scapulothoracic dissociation along with clavicle fracture (Figure 1), which was later confirmed by a CT scan. The scan also demonstrated an associated fracture of the manubrium (Figure 2). To validate the diagnosis of scapulothoracic dissociation, the scapular index was calculated (Figure 3), which is the ratio of the distances between the medial borders of scapulas on either side from the midline. The value was 1.4 as compared to a normal reading of 1.0. A vascular surgeon opinion was sought, and an angiography was performed, which came out normal. X-rays of the left wrist revealed scapholunate dissociation with the Terry-Thomas sign and the scaphoid ring sign (Figure 4), which was confirmed by CT scan (Figure

5). A detailed neurological examination revealed inability to flex the fingers of the left hand along with weakness of digital abductors and adductors and wrist dorsiflexors. The patient also had a complete sensory loss in the C₇ and C₈ dermatomes. A nerve conduction velocity-electromyography study of the upper limb after 4 weeks was suggestive of neuropraxia. Considering the stable condition of the patient, it was decided to proceed with the operative stabilization of the bony injuries. An open reduction and internal fixation of the clavicular fracture (Figure 6) was done, along with open reduction and pinning of the scapholunate dissociation repair of the scapholunate ligament with pull-out sutures (Figure 7). Postoperative recovery was uneventful with nearly full range of motion at the shoulder.

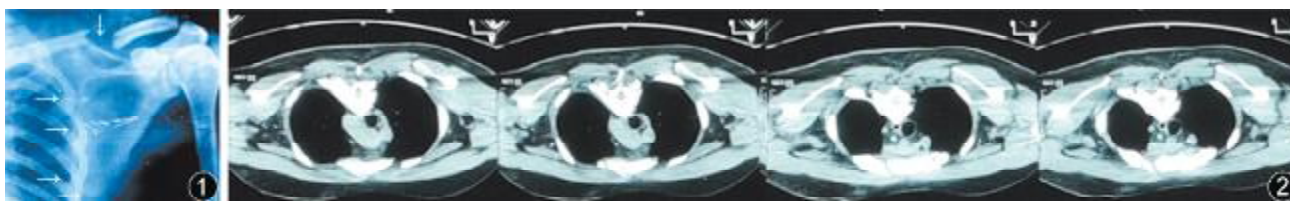


Figure 1. X-rays of the shoulder showing fracture of the clavicle along with lateral displacement of the medial border of the scapula.

Figure 2. Axial CT Scan image showing manubrium fracture.



Figure 3. X-rays of chest showing scapular index and arrow demonstrating soft tissue swelling around left shoulder. **Figure 4.** X-rays of the wrist showing Terry Thomas sign and cortical ring sign. **Figure 5.** Three-D reconstruction CT image showing scapholunate dissociation. **Figure 6.** Postoperative X-rays of the shoulder showing fixation of the clavicle.

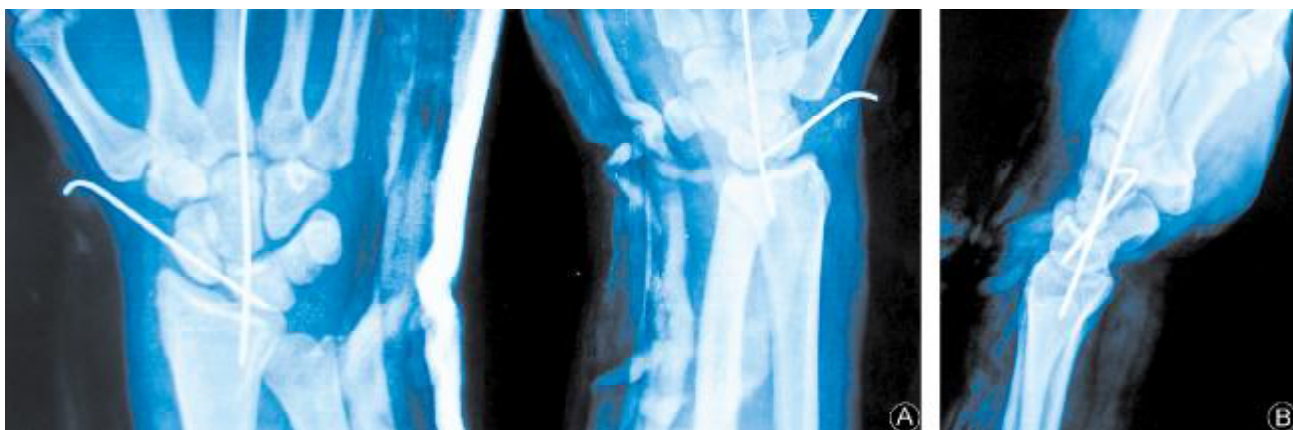


Figure 7. Postoperative AP (A) and lateral (B) views of the wrist showing reduction of the scapholunate dissociation.

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