ISSN: 2581 – 3633
PubMed - National Library of Medicine - ID: 101745081

International Journal of Medical Science and Advanced Clinical Research (IJMACR)

Available Online at: www.ijmacr.com

Volume – 2, Issue – 5, September - October - 2019, Page No. : 04 - 07

Bilateral Traumatic Anterior Sternoclavicular Dislocation: A Case Report

[1]Akhil Taneja, M.S. Orthopaedics, Central Institute of Orthopaedics, VMMC and Safdarjung Hospital, New Delhi.

[2]Arvind Kumar, M.S. Orthopaedics, Central Institute of Orthopaedics, VMMC and Safdarjung Hospital, New Delhi.

[3]R.K.Chopra, M.S. Orthopaedics, Director-Professor, Unit Head(Arthroplasty Unit) Central Institute of Orthopaedics, VMMC and Safdarjung Hospital, New Delhi.

Corresponding Author: Akhil Taneja, M.S. Orthopaedics, Central Institute of Orthopaedics, VMMC and Safdarjung Hospital, New Delhi.

Type of Publication: Case Report

Conflicts of Interest: Nil

Abstract

We are presenting a case report of a patient having closed traumatic fracture right shaft of humerus with bilateral anterior sternoclavicular joint dislocation without any distal neurovascular deficit. A 35 year old male was involved in a road traffic accident and presented to emergency with a deformity of right upper limb and upper chest. Radiographs revealed a fracture of right humeral shaft and chest X-Ray was normal. The humeral shaft fracture was fixed with a lag screw and a plate. For the upper chest wall deformity, the patient was investigated. On clinical evaluation, there was a tender bony swelling at the medial end of clavicle. The patient was planned for a CT Angiography which showed no injury to vital thoracic structures and showed a bilateral anterior dislocation of the sternoclavicular joint. The patient was managed conservatively with a figure of 8 bandage. The patient had a persistent deformity despite the initial reduction but there was no functional deficit with complete range of motion of bilateral shoulder joints post fixation of the humeral shaft fracture. This pattern of injury is rarely documented in the literature and it is important to rule out a posterior sternoclavicular dislocation as it could compress major neurovascular structures at the thoracic inlet which could be life threatening.

Introduction

Sternoclavicular joint dislocation is a relatively rare injury and represents around 3% of dislocations around shoulder joint[1] and only 1% of all joint dislocations[1,2]. Dislocation may be traumatic or atraumatic. Atraumatic injuries may be seen as spontaneous dislocations in patients with Ehlar danlos syndrome[3], hypermobility[4] syndromes, infection and arthritis. Traumatic injuries are seen with high energy trauma and may dislocate the joint anteriorly or posteriorly, with anterior dislocation being approximately nine times more common[5].

Anterior dislocations of the SCJ will present as a painful deformity at the medial end of clavicle. Care must be taken to differentiate it from fracture of the medial end of clavicle. Posterior dislocations present with medial clavicular pain but also may present with compressive symptoms such as dyspnoea, dysphagia or with vascular and neurological compromise like new onset paraesthesia in the upper limb and/or weakened pulses or signs of venous congestion.Diagnosis of such an injury may be missed on conventional xrays and oblique views like serendipity view may help to demonstrate a sternoclavicular joint dislocation[6]. But in cases with high clinical suspicion, a Computed Tomography (CT) with 3D

reconstruction helps to diagnose and identify the nature of injury to the sternoclavicular joint[7]. An anterior dislocation of sternoclavicular joint should primarily be treated conservatively[8]. An attempt of closed reduction under sedation or general anaesthesia may be given. Although there is a high risk of persistent instability with non-operative treatment, but this persistent instability will be well tolerated and have little functional impact in the vast majority[9]. Posterior dislocation on other hand may be life threatening with risk of concomitant injuries to mediastinal structures and hence warrants an urgent surgical intervention.

Case Report

A 35 years old male presented to our orthopaedic ER following road traffic accident (hit by a heavy motor vehicle while sitting on passenger seat of a motor bike) with complains of pain, swelling and deformity of right upper arm and pain and two swellings in the middle of upper part of the chest. The patient was referred to our tertiary care centre from a primary care centre for the management of fracture of humeral shaft, 1 day after the injury. Patient was received in our ER with splintage of right upper limb in situ.

Examination

On general examination, patient was conscious and oriented. Vitals were stable and the pelvic compression test was negative. On local examination, there was swelling, tenderness and visible deformity of right arm with overlying skin being normal. The distal (brachial and radial) pulses were palpable and there was no sensory or motor deficit. On examination of chest, there were visible swellings at the medial ends of bilateral clavicle. The swelling were tender on palpation. On chest compression patient had pain at the medial end of clavicle bilaterally. On auscultation, bilateral air entry was present and was equal on both sides and no abnormal sounds were heard. The movements of the right shoulder joint could not be assessed due to fracture in right arm. The left shoulder joint had complete and painless range of motion and there was no neurovascular deficit in the left upper limb.

Treatment

After splinting the fracture in the right arm, appropriate xrays were taken. Xray of the right arm showed fracture of mid shaft of the humerus and chest xrays were normal showing no abnormality. After obtaining pre anaesthetic clearance, patient was planned for internal fixation of humeral fracture with a lag screw and plating in supine position via anterolateral approach. The surgery was uneventful and figure of 8 bandage was applied for bilateral sternoclavicular joint dislocation. In the post op period patient was further evaluated for bilateral swelling at the medial end of bilateral clavicles. Patient underwent a CT Angiography with showed no injury to the major neurovascular structures in the upper mediastinum. 3D reconstructed images of the CT scan showed anterior dislocation of bilateral sternoclavicular joint. The figure of 8 bandage was applied for 4 weeks. Patient noticed persistent deformity bilaterally at the end of one month. Patient was put on rehabilitation exercises and patient had a full functional recovery. Surgical intervention was discussed but the patient preferred to continue with conservative management, including physiotherapy and analgesics.

Discussion

Sternoclavicular joint dislocation is a rare traumatic injury, accounting for less than 3% of shoulder girdle injuries[1,2]. Dislocations of the sternoclavicular joint, which may be anterior or posterior, superior or inferior, are typically due to a road traffic accident or athletic injury involving great force[3]. Unilateral and bilateral traumatic anterior sternoclavicular joint dislocations have rarely been reported[7,10]. Sternoclavicular joint dislocations can

be an easily overlooked injury in the polytrauma patient, as plain radiographs are difficult to interpret and physical examination findings other than tenderness may not always be present.[11,13]. An injury such as a posterior SCJ dislocation may be associated with mediastinal compression and can be fatal if not treated early, thus warrant an urgent surgical intervention. Symptoms of compression of retrosternal structures have been reported to occur in up to a third of cases with life threatening consequences[14]. Complications include brachial plexus and vascular injuries, oesophageal ruptures and tracheal compression and there have been 5 known reported cases of deaths[15]. For anterior dislocations on the other hand, Bicos et al argues that anterior sternoclavicular joint instability should primarily be treated conservatively[8]. The patients should be informed there is a high risk of persistent instability with non-operative treatment with rates of re-dislocation found to range between 21% and 100%[9,10]. But this persistent instability will be well tolerated and have little functional impact in the vast majority.

So in conclusion we advice that in cases of sternoclavicular joint dislocation may be missed on a normal chest xrays and they must undergo a CT scan to confirm the nature of dislocation. Posterior dislocations can be associated with serious complications and the literature supports urgent intervention. For anterior dislocation, despite closed reduction, re-dislocation rates may be as high as 100% in some series. But despite persistent deformity, there is minimal effect on the functional outcomes, thus explaining the rationale behind conservative management of anterior sternoclavicular dislocation

Figure 1 showing swellings at the medial end of clavicle bilaterally

Figure 2 showing the swellings on inspection from side

Figure 3 showing 3D reconstructed CT images showing anterior dislocation of bilateral sternoclavicular joints

Figure 4 showing anterior dislocation of bilateral sternoclavicular joints

Figure 5 showing complete range of motion 1 month after injury.

References

1. Cave E. Shoulder girdle injuries. In: Fractures and other injuries., editor. Chicago: Year book publishers; 1958. pp. 58–259.
2. Cope R: Dislocations of the sternoclavicular joint. Skeletal Radiol 1993; 22: 233–8.
3. Iglesias JL, Renard T. Diaphragmatic hernia in an 8-year-old with Ehlers-Danlos syndrome. Pediatr Surg Int. 1998;13:553–555.
4. Finsterbush A, Pogrund H. The hypermobility syndrome. Musculoskeletal complaints in 100 consecutive cases of generalized joint hypermobility.
5. Garretson RB III, Williams GR Jr: Clinical evaluation of injuries to the acromioclavicular and sternoclavicular joints. Clin Sports Med 2003; 22: 239 –54
6. Rockwood CA. Dislocations of the sternoclavicular joint. In: Evans E, editor. American academy of orthopaedic surgeons instructional course lectures: Volume XXIV. st. Louis: CV Mosby; 1975. pp. 144–159.
7. Chien LC, Hsu IL, Tsai MC, Lo CJ. Bilateral anterior sternoclavicular dislocation. J Trauma. 2009;66:1504.
8. Bicos J, Nicholson GP. Treatment and results of sternoclavicular joint injuries. Clin Sports Med. 2003;22:359–370.
9. Savastano AA, Stutz SJ. Traumatic sternoclavicular dislocation. Int Surg. 1978;63:10–13.
10. Nettles JL, Linscheid R. Sternoclavicular dislocations. J Trauma. 1968;8:158–64.
11. de Jong KP, Sukul DM. Anterior sternoclavicular dislocation: a long-term follow-up study. *J Orthop Trauma*. 1990;4(4):420-423.
12. Fenig M, Lowman R, Thompson BP, Shayne PH. Fatal posterior sternoclavicular joint dislocation due to occult trauma. *Am J Emerg Med*. 2010;28(3):385.e5-e8. doi:10.1016/j.ajem.2009.05.011.
13. Mirza AH, Alam K, Ali A. Posterior sternoclavicular dislocation in a rugby player as a cause of silent vascular compromise: a case report. *Br J Sports Med*. 2005;39(5):e28.
14. Ono K, Inagawa H, Kiyota K, Terada T, Suzuki S, Maekawa K. Posterior dislocation of the sternoclavicular joint with obstruction of the innominate vein: case report. J Trauma. 1998;44:381–383.
15. Garg S, Alshameeri ZA, Wallace WA. Posterior sternoclavicular joint dislocation in a child: a case report with review of literature. J Shoulder Elbow Surg. 2012;21:e11–e16.