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Case Report

Orthopaedics Section

An Unusual Case of Post-traumatic Bilateral Anterior Shoulder Dislocation

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ABSTRACT

Bilateral anterior shoulder dislocation is a rare entity. It is uncommon for bilateral shoulder dislocations to occur simultaneously and they almost always occur in the posterior direction. On the other hand, only a few cases of anterior shoulder have been reported. A 46-year-old male reported to the Emergency Orthopaedic Department after an automobile accident with complaints of pain and swelling over bilateral shoulders. The patient presented with severe ecchymosis over the anterior aspect of both shoulder joints. There was a bilateral anterior flattening of shoulder contour and anterior fullness. Plain radiographs revealed anterior dislocation of both the shoulder joints. The reduction was done by Kocher's manoeuvre. Radiographs were repeated after the treatment and showed a considerable reduction. Both the shoulder joints were immobilised in arm chest bandaging. Both traumatic and atraumatic causes can lead to bilateral anterior shoulder dislocation. Such dislocations occurring simultaneously are rare. The aetiology behind dislocations should not conflict the emergency physicians or orthopaedic surgeons regarding the diagnosis. Fracture, neurovascular injuries, rotator cuff tear may be associated with such dislocations. Diagnosis can easily be made by clinical and radiological examinations. An early reduction, proper follow-up and adequate physiotherapy can regain a full range of movements.

Keywords: Accident, Emergency, Ecchymosis, Physiotherapy, Reduction, Sedation

CASE REPORT

A 46-year-old male reported to the Emergency Orthopaedic Department with complaint of severe pain and swelling over both shoulders. He had an alleged history of fall while he was riding a two-wheeler bike and got hit by a high-speed truck tempo from behind. Then he suffered a sudden massive blow and was thrown out of his bike outside on the road. Both his arms were abducted and extended, and he fell on the road. Immediately after the accident patient was brought to the Emergency Department of the hospital.

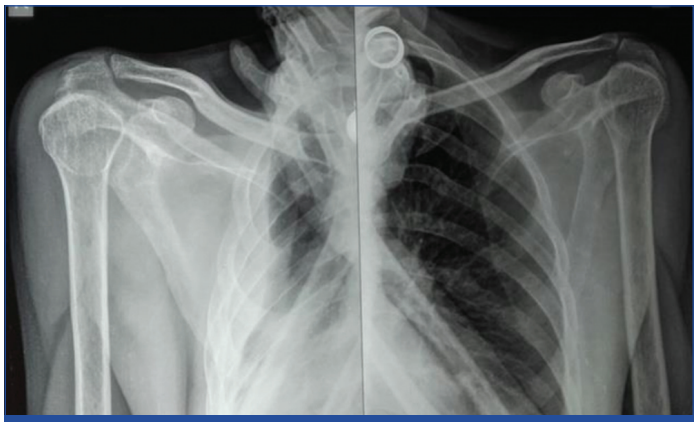
After a proper physical examination, the injuries to the thorax and spine were ruled out. The patient had severe ecchymosis over both the shoulder joints. He complained of severe pain in both shoulders and was unable to perform any movement. Clinical examination showed that arms were in slight abduction and external rotation position. There was a widespread, painful limitation of shoulder mobility in both shoulders when humeral heads were palpated in the anterior aspects of the joints. There was flattening of a contour of the bilateral shoulder below the acromion tip as seen in [Table/Fig-1]. Also, the anterior globular fullness was present. The patient was not able to perform flexion, and adduction, and internal rotation. The examination was done to check for reduced pulse pressure or a transient coolness in the hands to see any axillary artery injury and checked for tingling and numbness over the lateral aspect of the arm and posterior aspect of the shoulder for axillary nerve injury [1]. There were no signs of any distal neurovascular deficit present.

Clinically, bilateral anterior shoulder dislocations without neurological deficit were diagnosed. Radiographs confirmed bilateral dislocation of the shoulder which is of anterior type [Table/Fig-2]. Then immediately the patient was taken for relocation procedure [2] which was done under sedation by giving intravenous (i.v.) fortwin at a dose of 0.1 mg/kg and i.v. midazolam at dose of 0.02 mg/kg. The reduction was done by Kocher's manoeuvre [3] which was done by bending the affected arm of the patient at 90° at the elbow joint, adducting it against the body. Then the shoulder was rotated externally until

[Table/Fig-1]: Pre reduction clinical photograph of bilateral shoulder from front and back showing loss of contour of both the shoulders along with bilateral flattening and anterior fullness (black arrows).

resistance is felt. Simultaneously, the arm was lifted in the sagittal plane as forward as possible, and then the shoulder was internally rotated and brought his hand towards the opposite shoulder. After the reduction Radiographs were taken which showed adequate reduction [Table/Fig-3]. The patient was kept under observation for an hour and sent home with both the upper limbs immobilised in arm chest bandage for the next three weeks [Table/Fig-4]. He was advised analgesics and local ice application to control pain and swelling. Upon follow-up in three weeks, the patient reported having no pain and was doing his normal daily activities without experiencing any discomfort. Neither shoulder showed abnormal ranges of motion, with pain appearing only at the extremes. As well as both shoulders having a power of 5/5, the apprehension was negative.

[Table/Fig-2]: Anteroposterior radiographic view of shoulder joint showing bilateral anterior shoulder dislocation showed with black arrows.



[Table/Fig-3]: Anteroposterior radiographic view of bilateral shoulder showing the adequate reduction.

[Table/Fig-4]: Postreduction clinical photograph of the patient. The patient was given arm chest bandaging.

DISCUSSION

The shoulder joint becomes unstable because of the laxity of the fibrous capsule and the shallow and small glenoid cavity leading to a great range of mobility. Since the shoulder is the most commonly dislocated joint in the body due to its geometry, this joint is capable of great flexibility at the expense of intrinsic stability, resulting in recurrent shoulder dislocation along with subluxation [4].

Shoulder joint dislocation constitutes approximately 85% of all dislocations in the body [5]. The majority of shoulder dislocations occur in individuals 5-29 years of age (48.6%), but the highest rate of recurrent dislocation (64%) has been reported in patients under 30 years of age, with the ratio of male to female incidence rate being 2.64 [5]. Almost 96% are anterior glenohumeral dislocations, followed by posterior, superior, and inferior types among all the dislocations [4]. It is not in favour of the bilateral shoulder dislocations which are posterior and associated with seizure, electrocution or neuromuscular deficiency [6,7].

Injuries involving bilateral anterior shoulder dislocations are rare, and injuries without associated fractures are even rarer. A very few cases have been reported. Mynter H in 1902 had given its description in a patient with an overdose of camphor material [8]. Among the 28 bilateral anterior shoulder dislocations reported in Dinopoulos HT et al., (1999) literature review, only 11 were simple dislocations without any associated fractures [9]. Based on a review of 1966 cases, Dodds SD and Medvecky MJ (2008) described 24 cases of bilateral anterior shoulder dislocations, of which 18 were simple dislocations [10].

Direct blows to the posterior aspect of the shoulder can result in an anterior shoulder dislocation due to forced extension, abduction, and external rotation. A posterior dislocation occurs as a result of sudden and violent contraction of the shoulder muscles, displacing the humeral head superiorly, posteriorly, and medially against the acromion and glenoid fossa [11,12]. There are four muscles responsible for dislocating the shoulder joint, including the infraspinatus, teres minor, medial deltoid, and latissimus dorsi [12].

Bilateral anterior shoulder dislocation is managed similarly as unilateral dislocation [13]. Closed reduction followed by immobilisation for a period of three weeks in the bilateral sling is the standard treatment protocol [14]. Identification of shoulder dislocation can be readily established with a thorough clinical examination. Any suspicion of shoulder dislocation should be addressed urgently and a local radiograph should be performed. If required, the help of an orthopaedic surgeon should be sought [15]. As in this present case, the reduction was done with Kocher's manoeuvre [3] in which the patient bends the affected arm at 90° at the elbow and adducts it against the body. The shoulder is rotated externally until a point of resistance. By externally rotating the upper arm, the patient's hand is brought toward the opposite shoulder after internal rotation. During this process, the head of the humerus slides back into the glenoid fossa with no pain [3]. Also, in the present case, the reduction of shoulder dislocation under sedation was quite satisfactory. If reduction fails under sedation, it can be tried under general anaesthesia when muscles are relax to the maximum. After reduction, most of the fractures fall back in position. However, any undue force and excess of struggle during closed reduction should be avoided to prevent iatrogenic complications.

CONCLUSION(S)

Both traumatic and atraumatic causes can contribute to bilateral anterior shoulder dislocation. Such dislocations which are occurring simultaneously is a rare entity. The aetiology causing dislocation should not bias the emergency physicians or orthopaedic surgeons regarding the diagnosis. Fracture, neurovascular injuries, rotator cuff tear may be associated with such dislocations. Diagnosis can easily be determined by clinical and radiological examinations. An early reduction, proper follow-up and adequate physiotherapy can regain a full range of movements.

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