



A Case of a Successful Bilateral Shoulder Dislocation Reduction Using the Scapular Rotation Method in The Emergency Service

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Abstract: Shoulder joint dislocations are the most common dislocations seen in emergency services and usually seen in the form of unilateral anterior dislocations. Bilateral shoulder joint dislocations, on the other hand, are very rare and usually occur in the form of posterior dislocation. Bilateral anterior shoulder dislocations are also a very rare form of shoulder dislocations. In this article, the main aim of this manuscript is to discuss a case of bilateral anterior shoulder dislocation, accompanied by an epileptic seizure and reduced with scapular rotation method guided by sedation and analgesia.

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1. Introduction:

Bilateral shoulder joint dislocations are very rare and usually occur in the form of posterior dislocation. Most of the cases are reported as secondary to seizures associated with epilepsy, electroconvulsive treatment and hypoglycemia. Bilateral anterior shoulder dislocations occur less often and are usually seen as secondary to trauma (Sharma et al., 2005; Devalia Kailash & Peter, 2005; Dlimi et al., 2012; Galanakos et al., 2008).

Such dislocations can cause major complications as humerus-tuberculum majus fractures and brachial plexus injuries (Galanakos et al., 2008). In this paper, the main aim of this manuscript is to present a case of bilateral anterior shoulder joint dislocation that has no trauma history, occurring as secondary to an epileptic seizure and being successfully treated at our emergency service using the method of scapular rotation.

2. Case Presentation:

A twenty-seven-year-old male patient was admitted to our emergency service with the complaints of pain in both shoulders and loss of mobility. At the time of admission, the patient's arterial blood pressure was 130/80 mmHg, apex beat was 88/min and respiratory rate was 22/min. Moreover, fingertip blood glucose level was 98 mg/dl. According to the information collected from the patient and eyewitnesses, the patient had started to have seizures two hours prior to his admission to the hospital, and afterward, started to suffer from shoulder ptosis, pain and loss of mobility in his arms. The patient's medical

history revealed that he had been receiving epilepsy treatment for 11 years and had been using 2000 mg of Levetiracetam for the last five years, but the usage of these medications was irregular in recent times. It was found out that the patient had a history of dislocation in the right shoulder for five and left shoulder for one time. He also had an operation due to a right shoulder dislocation. The patient added that he had not actively participated in sports activities.

The initial physical examination revealed both arms were in abduction, extension and external rotation. The patient was not able to bring his arms into a midline. A gap in the shoulder joints, below both tips of the upper extremity acromion, was also detected during the physical examination. There was no pathological finding in bilateral axillary nerve examination and the bilateral upper extremity distal pulses were also present. No signs of trauma were identified in the body. The posteroanterior x-ray revealed bilateral anterior dislocation of the shoulder. Taking into account the accompanying epileptic seizure, 4 mg of midazolam and 50 mcg of intravenous administration of fentanyl were given for the patient's sedation and analgesia. While the patient was in sitting position, closed reduction was applied with scapular rotation technique.

Due to the presence of bilateral shoulder dislocation (figure 1) and possible patient discomfort during prone position, the reduction was applied in sitting position. After the reduction, there was no pathologic sign in axillary nerve and distal pulse examinations. Bilateral

velpeau-bandage was applied and epilepsy medicines were re-adjusted for the patient. After being advised to visit an Orthopaedist, the patient was discharged with full recovery. In his examination after three weeks, there was no sign of mobility loss or sensory motorloss.



Figure 1. Bilateral shoulder dislocation is seen in posteroanterior x-ray.

3. Discussion:

Shoulder joint dislocations are the most common dislocations seen in emergency services and are usually encountered in the form of unilateral anterior dislocations (Sharma et al., 2005; Devalia Kailash & Peter, 2005; Dlimi et al., 2012; Galanakos et al., 2008). While unilateral shoulder dislocations form 95% of shoulder joint dislocations, the incidence of posterior dislocations is 4%. Inferior shoulder dislocations, on the other hand, are rare, forming 0,5% of all shoulder dislocation cases. Accordingly, bilateral simultaneous shoulder dislocations are very rare injuries. Most of the bilateral shoulder dislocations occur as inferior dislocations which generally accompany epileptic seizures or other seizures induced by electroconvulsive treatment and electroshock (Dlimi et al., 2012; Galanakos et al., 2008; Tripathy et al., 2011). On the other hand, bilateral anterior shoulder dislocations are mostly seen as secondary to traumas, and rarely induced by epileptic seizures, hypoglycemic-seizures or sports activities (Dunlop, 2002). The dislocation in our case occurred following an epileptic seizure.

Although Devalia Kailash et al. stated that bilateral anterior dislocation was so rare that only 8 cases had been seen until 2005, non-traumatic dislocations induced by a seizure, as seen in our case, are even rarer (Devalia Kailash & Peter, 2005). Another study mentioned that 30 anterior dislocation cases had been reported in 2012 and most of them occurred as secondary to trauma. Moreover, 50% of these cases showed fractured-dislocation as per the study (Dlimi et al., 2012). As a very rare in literature, our study is a case of non-traumatic bilateral dislocation during an epileptic seizure.

In adults, anterior dislocation is caused most frequently by such a mechanism with the shoulder forced into abduction, extension and external rotation (Sharma et al., 2005; Dlimi et al., 2012; Galanakos et al., 2008; Dunlop, 2002). Such dislocations can result major complications as humerus-tuberculum majus fractures and brachial plexus injuries. (Galanakos et al., 2008; Söyüncü et al., 2007). On the other hand, bilateral shoulder joint dislocation is a rarely clinical entity do to the fact that the forces responsible for dislocation are required to affect both of the joints simultaneously and in a similar manner. (Sharma et al., 2005). Bilateral anterior shoulder dislocation usually accompanies traumas, but in our case, it occurred after the seizure and the patient showed no sign of trauma. (Devalia Kailash & Peter, 2005; Tripathy et al., 2011; Dunlop, 2002; Bremner et al., 2013).

Bremner and colleagues reported that bilateral anterior shoulder dislocations accompanied the seizures and usually were seen as posterior fracture-dislocation after electrocution. (Bremner et al., 2013) Other papers suggested that glenohumeral instability following seizures is mostly of posterior type and patients would rarely have anterior dislocation of the shoulder accompanying an epileptic seizure. (Rethnam et al., 2006; Nitesh R et al., 2014). In our case, different and rarer than mentioned above, there was anterior dislocation in the absence of any fracture.

Many techniques have been applied for reduction of shoulder dislocations and regardless of the method used, the success rate is between 70%-96 (Uehara, D. T., & Rudzinski, 2000). For 5%-10% of the cases, dislocation cannot be successfully reduced in the emergency departments. Among the most common techniques are Hippocratic technique, Milch technique, Stimson technique, Kochler technique and scapular rotation technique. Galanakos et al. (2008) successfully reduced (close) an anterior dislocation by applying Kocher technique and stated that it was a fairly common technique (Galanakos et al., 2008).

Hippocratic technique in shoulder dislocation reductions is indicated as a less common method due to high risk of painful inquiries in brachial plexus and veins. On the other hand, Stimson technique is a slow and non-applicable to tall patients. Milch and Kohler's techniques are described as relatively less painful and safe with relatively less risk of complications; however, the maneuvers in the techniques are criticized for being over-complex. As for the Scapular rotation, it is a simple, quick, effective, safe and atraumatic technique. Besides, it is relatively less painful and generally does not require sedation or analgesia; but patient comfort cannot be achieved if the reduction is being performed in a prone position rather than sitting position. According to a study in 2004, the success rate was reported to be 70-100% for Milch and 73-95% for Kocher method, yet the rate was 79-96% for Scapular method (Chung, 2004).



An adequate amount of randomized controlled study is necessary for comparison of these methods. Authors applied scapular rotation method, with prior sedation and analgesia, and successfully performed reduction without any major complications.

4. Conclusions

In this case, authors aimed to elaborate the importance of shoulder examination in emergency services for the patients with epilepsy and trauma, but it should also be noted that shoulder dislocation can occur without any trauma history. It is very important to evaluate advantages and disadvantages of the reduction method and consider patient tolerance for the treatment of shoulder dislocations. All emergency doctors should be cautious of this rare bilateral dislocation that can occur in patients with epilepsy and trauma, and authors believe satisfying results can be achieved through early reduction with the proper reduction method and rehabilitation.

Conflicts of Interest:

Authors declared no conflicts of interest.

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