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Anterior Shoulder Dislocation with Greater Tuberosity Fracture in a Todd's Palsy: Case Report

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Abstract

The postictal (Todd's) palsy a well-known complication of focal or generalized epileptic seizures. Orthopedic injuries can occur during epilepsy and seizures, such as fractures, dislocation. A 32-year-old male was brought to the emergency room after a generalized tonic-clonic seizure, and 2/5 hemiparesia was detected on the right. The lower extremity deficit resolved in the 36th hour of hospitalization of the patient who was thought to have Todd's palsy. However, due to the persistence of the deficit in the upper extremity, right shoulder anterior dislocation was detected in the orthopedic examination and radiology. It should be kept in mind that orthopedic injury may occur in a Todd paralyzed patient with hemiparesis or hemiplegia when improvement in one extremity does not occur in the other extremity.

Keywords: Todd's palsy; Tonic-clonic seizure; Anterior shoulder dislocation; Musculoskeletal injury

Introduction

Postictal (Todd's) paralysis or epileptic hemiplegia is a well-known complication of focal or generalized epileptic seizures [1]. The duration of Todd's paralysis depends on the type of epileptic seizure and the presence of cortical structural damage. The etiology of Todd's paralysis is associated with cerebral perfusion abnormality after seizures [2]. Many orthopedic injuries associated with epileptic seizures, such as joint dislocations and bone fractures, occur when patients collapse during seizures or tonic muscle contractions [3].

Case Study

A 32-year-old male patient was transferred to the emergency room after presenting with a history of generalized tonic clonic seizure. The patient was hospitalized by the neurosurgery department and then transferred to our department. The patient had undergone surgical treatment for left temporoparietal cavernous hemangioma six months earlier. Force examination revealed 2/5 hemiparesis on the right side. Hemiparesis was initially considered to be associated with Todd's paralysis. At the 36th hour of hospitalization, lower extremity deficits resolved and an orthopedic consultation was made due to persistent painless deficits in the upper extremity. A sulcus sign was detected on the right shoulder. Additionally, radiographic examination revealed a right anterior humerus dislocation and tuberculum majus fracture on the right shoulder (Figure 1). The shoulder dislocation was reduced by a traction-contraction maneuver following intravenous propofol administration after monitoring in the operating room (Figure 2). No neurovascular deficit was detected after reduction. The patient was followed up after applying a Velpou bandage.

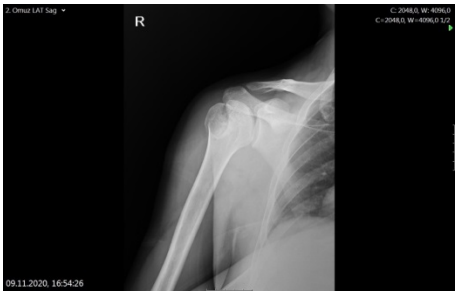

Figure 1: Postictal right shoulder radiography (anterior shoulder dislocation with fracture of greater tuberosity).

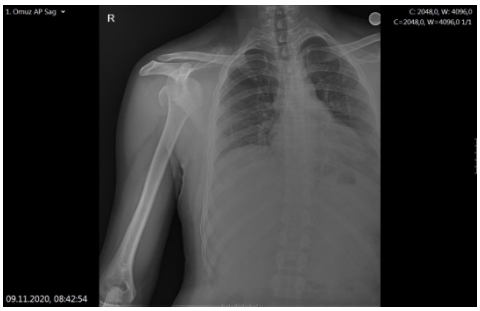

Figure 2: Right shoulder radiography after closed reduction.

Results and Discussion

In the pathophysiology of cavernoma-related epilepsy; astroglial reaction ring, the hemosiderin deposit, other blood-leaking components such as albumin may play a role [4]. Complete excision is recommended for cavernoma surgery because of recurrent bleeding [5]. However, as in our case, resection of the hemosideral ring should be added to the total excision of the cavernoma in cases of cavernoma with epileptic seizures. Resection of the hemosiderin ring can reduce epilepsy and its complications.

Duration of Todd's paralysis varies from minutes to days depending on the type of epilepsy, associated structural damage, and other symptoms that occur after the seizure. Generalized tonic-clonic seizures cause longer durations of Todd's paralysis than partial seizures. The duration of Todd's paralysis after a generalized tonic clonic seizure ranges between 0.5 and 36 hours [2].

In the case presented, lower extremity weakness improved in 36 hours while painless weakness continued in the upper extremity, which was consulted to the orthopedics department. Epileptic seizures can cause complications such as dislocations or fractures. Moreover, although epileptic seizures may cause shoulder dislocation and instability, there is no clear information about which seizure type these dislocations are caused by. Accordingly, patients should be examined

carefully after the seizure. Moreover, brachial plexus damage may occur after shoulder dislocation, which may ultimately lead to limitation of movement and paresis in the arm [6].

Bühler et al. [7] reviewed that 34 shoulders in 26 epileptic patients had bilateral and the remaining 18 patients had unilateral shoulder instability, and the authors noted that shoulder dislocation and instability were associated with previous epileptic seizures. However, 17 shoulders had anterior and 17 shoulders had posterior shoulder instability and the first shoulder dislocations occurred during epileptic convulsions [7]. Langenbruch et al. indicated that seizures accounted for 5.2% of acute shoulder dislocations that included both anterior and posterior shoulder dislocations [8]. Seizures constitute 24%-47% of posterior shoulder dislocations [9]. Vascular injuries are rare complications in patients with shoulder dislocation. Early reduction of shoulder dislocations is highly important for avoiding neurovascular injury and harmful effects of reduction [10,11]. Therefore, if the duration is prolonged due to hemiparesis or limb weakness such as Todd's paralysis after seizures, shoulder fracture-dislocation should be considered in the physical and radiographic examination of the affected extremity, as detected in our patient.

Conclusion

Todd's paralysis and extremity fractures and dislocations are known complications following epileptic seizures. It should be kept in mind that fracture-dislocation may coexist in the presence of ongoing weakness in an extremity following Todd's paralysis.

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