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Bilateral Temporomandibular Joint Dislocation Secondary to Epileptic Seizure

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Dear Editor,

Temporomandibular joint (TMJ) is a complicated joint consisting of temporal bone's glenoid fossa, mandibula's condylar process, disc and joint capsule. It functions while chewing, breathing, swallowing and speaking. TMJ dislocation develops as a result of mandibular condyle getting out from glenoid fossa due to a traumatic or non-traumatic reason. It is seen in 3% of all joint dislocations (1). Most of the dislocations are based on non-traumatic reasons like yawning, eating, dental treatment, convulsion, endoscopic procedure, transoesophageal echocardiography examination or oral intubation (2). It can be diagnosed through the radiography directly, computed tomography (CT) or magnetic resonance imaging (MRI). Its treatment is closed or open reduction. In this study, radiological and clinical findings of the patients with dislocation which is secondary to epileptic seizure which is one of the rare causes of TME dislocation were emphasized.

27 years old male patient diagnosed with epilepsy ten years ago visited emergency department with epileptic seizure complaint. Vital findings such as fever and blood pressure were stable in the patient whose history doesn't include any finding apart from epilepsy. There was suspicious consolidation at lower zone of the left lung according to the P-A chest radiography of the patient having also coughing complaint. Nonspecific treatment was given to the patient. The patient was taken into intensive care unit with the diagnosis of status epilepticus by consulting to neurology department as generalized tonic-clonic seizures started again one hour after the patient was given diazepam and phenytoin. After the patient's seizures were kept under control, complaint of not being able to close mouth and sharp pain at localization of jaw joint evolved. Depression in preauricular region was seen in the physical examination.

It was seen in the examinations of direct graphy (Image 1) and maxillofacial CT carried on with eight-channel multidedector CT system (MDCT) (GE, Medical Systems Milwaukee, WI, USA) that bilateral mandibular condyles were in front of articular eminence (Image 2a,2b,3). There weren't any fracture and erosion in bone structures. Under local anesthesia and sedation, closed reduction was performed by plastic and reconstructive surgery. He was advised to eat soft food.

Figure 1. *It is seen in lateral direct radiography that condyle (blue arrow) is dislocated towards anterior of articular eminence (black arrow).*

TMJ dislocation is the extreme movement of mandibular condyle's to the anterosuperior aspect of the articular eminence and total parting of glenoid fossa and mandibular condyle from each other and getting fixed in this way (3). It has four types as anterior, posterior, superior and lateral based on the condyle's relationship with articular eminence. Clinically it can be classified as acute, chronic and recurrent (1). The most frequent type is bilateral anterior dislocation (4). There was bilateral acute anterior dislocation in our case, too.

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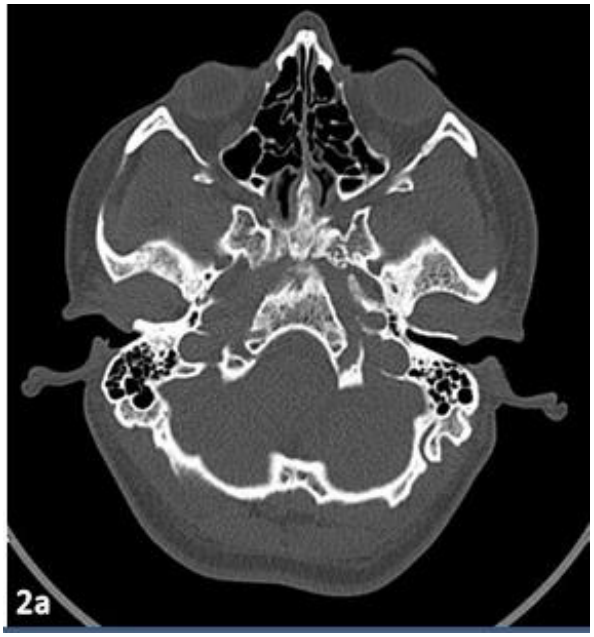

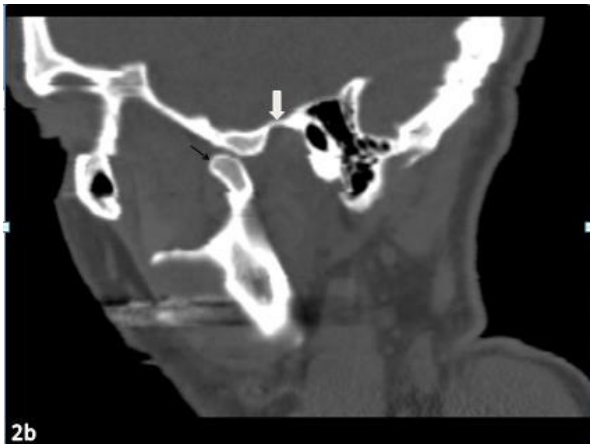

Figure 2a. *Mandibular condyle is not seen in both TMJ localizations in axial CT image.* ***2b.*** *It is seen in sagittal reformat CT that mandibular condyle (black arrow) is dislocated towards anterior of normal joint (white arrow).*

Most common cause of the TMJ dislocation is excessive opening of the mouth during yawning. Other non-traumatic mechanisms which spreads mouth excessively include taking a big bite while eating and laughing. Masseter, temporalis, and internal pterygoid muscles spasms result in trismus which prevents return of the condyle to the temporal fossa (5). It can also develop secondary to some systemic diseases such as chronic cough, eclampsia. Drug use and alcoholism can be other underlying causes (1). In our case, cause was epileptic seizure. In a study conducted by Ugboko et al. with 96 TMJ dislocation patient, epileptic seizure was detected as the cause in only 4 patients (4). In literature, cases having unilateral or bilateral TMJ dislocation secondary to epileptic seizure have been reported rarely. The reason of TMJ

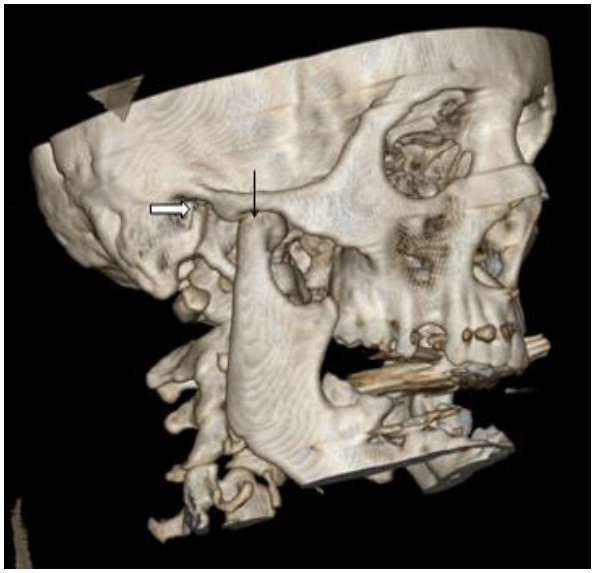

Figure 3. *The findings can be seen as three-dimensional in three-dimensional reformat CT image.*

dislocation in epilepsy is due to the muscle contraction during the seizure (7). Moreover, factors like joint capsule weakness, muscle tone lowness, flattening of eminence can have predisposing roles. (6) TMJ dislocation can be diagnosed easily when there is pain in preauricular region and when the patient cannot close his mouth. Radiological examination is performed for the exclusion of fracture accompanying TME dislocation in general.

However, diagnosis can be easily overlooked in subacute clinics (8). TMJ dislocation was diagnosed on time by clear physical examination, direct radiography and CT in our patient

Acute TMJ dislocation treatment is manual reduction with or without anesthesia-analgesia (5). Closed reduction techniques were discussed in detail in study conducted by Chan et al. (9). Surgery techniques like condylectomy are used for the treatment in long lasting chronic cases. If the treatment is delayed, masseter and pterygoid muscles' spasticity increases, fibrosis develops and thus reduction becomes difficult. Also, possibility of fractures increases (10). Closed reduction was done without any problem by applying local anesthesia and sedation to the patient in our case

There are many causes of temperomandibular joint dislocation. TMJ dislocation following epileptic seizure develops rarely. Its treatment is easy in general unless the diagnosis is done late. When the diagnosis is done late, spasm develops in masseter and pterygoid muscles, and fibrosis and fractures can be seen in cases lasting more than 14 days. Therefore, quick diagnosis and early treatment are important in prognosis of the dislocation.

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