Superolateral dislocation of bilateral mandibular condyles: A case report

Mostafa Govahi, Alireza Navabazam, Hamidreza Ajami *

Department of Oral and Maxillofacial Surgery, School of Dentistry, Shahid Sadoughi University of Medical Sciences, Yazd, Iran.

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*Corresponding author:
Hamidreza Ajami
Department of Oral and Maxillofacial Surgery, School of Dentistry, Shahid Sadoughi University of Medical Sciences, Yazd, Iran.

Tel: -------
Fax: -------
Email: hamidrezaajami@yahoo.com

ABSTRACT

Dislocation of the mandibular condyle has been described as a clinical condition when the condyle head is displaced out of the glenoid fossa but still remains within the capsule of the joint. This dislocation of mandibular condyle can occur in anterior, posterior, lateral and superior direction. Here, we report a case of superolateral dislocation of bilateral condyles associated with symphysis fracture. The purpose of this report is to present this dislocation and its clinical management.

Keywords: Mandible fracture, Condylar dislocation, Bilateral superolateral dislocation.

Introduction

Dislocation of the mandibular condyle has been described as a clinical condition when the condyle head is displaced out of the glenoid fossa but still remains within the capsule of the joint [1]. Fractures of the mandibular condyle are unique among maxillofacial injuries as they affect mandibular function to a great extent. This is by far the most frequently involved in mandibular fractures, as the condylar neck forms the weakest portion and tends to get fractured when there is an impact on the chin. In few instances the impact can cause the condyle to be only displaced out of the glenoid fossa, but within the capsule either unilaterally or bilaterally, without its fracturing [2].

This dislocation of mandibular condyle can occur in anterior, posterior, lateral and superior direction. Among these, the anterior dislocation is most commonly encountered, owing to the lateral pterygoid muscle pull. On the contrary, the lateral and superior dislocations of condyle are less frequent as the condylar movement is restricted by the attachment of various structures such as temporomandibular joint ligament, capsule, articular disc and lateral pterygoid muscle [2]. Here, we report a case of superolateral dislocation of bilateral condyles associated with symphysis fracture.

Case Report

A 23-year-old man victim of motor vehicle accident referred to the oral and maxillofacial department of Yazd University of medical sciences. He lost consciousness but was conscious at the time of the admission and his vital signs were within normal limits. The patient was unable
Superolateral dislocation of bilateral mandibular condyles to close his mouth with associated anterior open bite. The crown of maxillary central incisors, left lateral incisor and canine were missing. Further examination revealed the patient could barely move his mandible with persistent open bite, his lateral excursive and protrusive movement were nil, and he had severe pain in the bilateral preauricular region when he attempted movement.

The patient underwent facial computed tomography (CT) and three-dimensional CT, which revealed superolateral dislocation of bilateral condyles, sagittal fractures of the head of both condyles, mandibular symphysis fracture with a step between left and right central incisors, bilateral zygomatico maxillary complexes fracture, lefort I fracture of maxilla and fracture of the palate of the maxilla. There was also associated dentoalveolar fracture in relation to maxillary anterior teeth (Figure 1).

Surgery was performed under general anesthesia 11 days after admission. Manual manipulation and reduction of the condyles were done using bilateral external gonial pressure toward midline under general anesthesia and the mandibular symphysis fracture site was exposed intraorally and reduced. Pretrauma occlusion was achieved and maxillomandibular fixation was done while applying bilateral gonial pressure for maintaining proper occlusion.

The fracture site was fixed with a six-hole reconstruction plate at the lower border and a six-hole miniplate superiorly while applying bilateral gonial pressure. A mouth opening of 35-mm was achieved intraoperatively. Open reduction and rigid fixation for other facial bone fractures were performed.

The patient in this case was kept under intermaxillary fixation following reduction, for 2 weeks, followed by vigorous mouth opening exercise. During the initial follow-up, the patient had limited mouth opening for which he was kept on aggressive physiotherapy and responded well. On 3-month follow-up, the patient maintained a maximal incisal opening of 35 mm with adequate mandibular function and a satisfactory occlusion. The postoperative CT revealed a complete reduction of both the condyles and all the fracture sites (Figure 2 A, B).

Figure 1. Tree-dimentional reconstruction showing superolateral dislocation of condyles and mandibular symphysis fracture and coronal CT showing sagittal fractures of the head of both condyles.
Figure 2 A: Three-dimensional reconstruction showing complete reduction of the condyles and symphysis fracture site and all the other fracture sites; open reduction and rigid fixation. B: PA view showing reduced condyles.

Discussion

Superolateral dislocation of the mandibular condyle is a rare event and has been reported to be always combined with fractures near the symphysis, sometimes also the condyle and fractures of the malar complex [3]. This case had accompanying fractures near the symphyseal regions thereby being consistent with this etiology. The first-choice treatment for patients with superolateral dislocation is to reduce and fix the fractures within the first week after injury. In bilateral dislocation accompanied by mandibular fracture, it was necessary to combine a reconstruction plate with a mini-titanium plate for rigid internal fixation [4]. Manual reduction is the first choice for a condyle dislocation. A dislocation of a few days may often be corrected by closed/manual reduction [5]. Closed reduction is by far the simplest, least traumatic, and safest of all the alternatives [6]. If the closed reduction under general anesthesia is unsuccessful, one of the combined methods involving open traction with closed reduction should be attempted as soon as possible [1]. In our patient, the first attempt was made by manual reduction under general anesthesia, which was successful.

The goal of the treatment for superior dislocation of mandibular condyle is to reposition the condyle into its original physiological position. Maximal interincisal mouth opening of 30mm and good occlusal relationship, 5 months post operatively are regarded as good signs of successful treatment of condylar dislocation [7]. Various techniques of reduction of bilateral superolaterally dislocated condyles have been described in literature such as Finck's technique in which traction wires are passed through the holes drilled in the mandibular angle region to facilitate the reduction of dislocated condyle into the glenoid fossa [2]. The other method of reduction is the application of bone hook placed at the sigmoid notch through a stab incision at the same level, followed by applying an outward traction to facilitate the reduction of condyle into glenoid fossa [8]. More recently, Temiz et al introduced the muselet technique as a useful intraoral method of reduction of the laterally displaced condyle. It consists of a placement of 0.8 mm thick wire through the hole drilled in the rami and twisting the wire on itself while pulling it in the inferior direction. This maneuver pulls bilateral rami inferiorly and medially providing the reduction of the joint, which can be accessed by palpation [9].

Facial nerve damage may occur if the degree of displacement causing its traction is more than its anatomical limit, thereby resulting in variable degrees of neurological complication [7]. Therefore, in conclusion, an interplay of multiple factors determines the successful outcome of such cases. The elapsed time between the trauma and definitive management, and type of treatment and reduction and postoperative maxillomandibular fixation followed by patient compliance in terms of postoperative aggressive physiotherapy, are the major factors.

Conflict of Interest

There is no conflict of interest to declare.

References


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