Unusual Superolateral Dislocation of Mandibular Condyle

Tabishur Rahman, MDS¹

¹Department of Oral and Maxillofacial Surgery, Faculty of Medicine, Aligarh Muslim University, Aligarh, India

Address for correspondence Tabishur Rahman, MDS, Department of Oral and Maxillofacial Surgery, Aligarh Muslim University, Faculty of Medicine, Aligarh 202002, India (e-mail: tabishalig05@gmail.com).

Craniomaxillofac Trauma Reconstruction 2018;11:142–144.

Abstract

Keywords

- mandible
- fracture
- dislocation
- condyle
- trauma

We describe a case of maxillofacial trauma in a pediatric patient in whom the mandibular condyle was superolaterally displaced into the temporal fossa, medial to the zygomatic arch which was intact. In addition, there was an associated mandibular symphyseal fracture. To our knowledge, this case is the first of its kind to be reported in the literature. We also observed a complication in the form of development of ankylosis in the involved joint which required another surgery.

Superolateral dislocation of the intact mandibular condyle occurs very rarely. Only a handful of such cases are reported in the literature^{1–7} (► **Table 1**). The rarity of these dislocations can be attributed to the varying anatomy of the condyle, the direction of pull of muscles attached to the condyle, and position of the jaw at the time of impact. Superolateral dislocation of the intact condyle into temporal fossa is often overlooked and requires a thorough clinical and radiographic examination for correct diagnosis. In addition, there is a need for prompt management, as delay leads to imperfect reduction of the condyle due to trauma-induced fibrosis in glenoid fossa. We describe a case in which the patient reported late for treatment leading to ankylosis after successful reduction of the condyle into its anatomic position.

Case Report

A 7-year-old female reported to our OPD with the chief complaint of pain in lower jaw and facial deviation. History revealed that she sustained facial injuries 12 days back when she fell from a swing while playing. She had fractured right femur for which she was operated at a private hospital. After discharge, she reported to us.

On examination, the jaw movements were severely restricted by pain with chin deviated toward right. The patient was unable to bring the teeth into occlusion. Left preauricular tenderness was apparent. Intraorally, perma-

nent lower central and lateral incisor and deciduous upper right central incisor were missing and fracture was evident in the mandibular symphyseal region. A computed tomography (CT) was ordered which revealed that left mandibular condyle was dislodged from glenoid fossa into the temporal fossa deep to the zygomatic arch which was intact (► **Figs. 1 and 2**).

We decided to reduce the condyle under general anesthesia. A mouth gag was placed between left posterior teeth and rotated clockwise to reduce the left condyle back into its normal position. The symphyseal fracture was reduced and fixed using 2.0-mm four hole miniplates. Mandibular movements and occlusion were verified and patient was extubated. The patient was discharged on the third postoperative day with intermaxillary fixation (IMF) for 10 days to prevent the reduced condyle from returning to the preoperative position. Thereafter, IMF was released and aggressive physiotherapy was advised. On follow-up, the patient exhibited continuously decreasing mouth opening with restriction of left temporomandibular joint (TMJ) movements and bony protuberance in left preauricular region. CT scan was ordered which confirmed ankylosis of left TMJ. Extended preauricular incision was given on the left side and interpositional arthroplasty was done using dermal fat from abdominal region after achieving an intraoperative mouth opening of 3.8 cm, and upon recovering the patient was discharged with instructions for aggressive physiotherapy. Patient was followed up till 6 months after which she was noncompliant to the follow-up schedule. The

received

October 21, 2016

accepted after revision

December 18, 2016

published online

April 3, 2017

Copyright © 2018 by Thieme Medical Publishers, Inc., Inc., 333 Seventh Avenue, New York, NY 10001, USA
Tel: +1(212) 584-4662.

DOI <https://doi.org/10.1055/s-0037-1601433>.
ISSN 1943-3875.

Table 1 Review of literature

Author (year)	Type	Unilateral/ Bilateral (U/B)	Condition of dislocation	Method of reduction	Condition of mandible	Result
Bu et al ¹ (2007)	II	U	Left condyle dislocated into temporal fossa and lodged inside the zygomatic arch	Closed reduction	No associated fracture of the mandible	37 mm mouth opening with normal mandibular movements
Li et al ² (2009)	II	U	Left condyle was hooked above the zygomatic arch with the coronoid process penetrating into the temporal fossa	Closed reduction	No associated fracture of the mandible	30 mm mouth opening and normal mandibular movement
Hegde et al ³ (2010)	II	U	Left condyle was hooked above the zygomatic arch	Open reduction	No associated fracture of the mandible	-
Papadopoulos and Edwards ⁴ (2010)	II	U	Right condyle displaced outside the glenoid fossa, superiorly and laterally into the temporal fossa	Open reduction	No associated fracture of the mandible	32 mm mouth opening, with lateral excursions ~5 mm bilaterally
Prabhakar and Singla ⁵ (2011)	III	B	Anterosuperior displacement of the intact left and right condyles in the temporal fossa	Open reduction	No associated fracture of the mandible	33 mm mouth opening and normal mandibular movements
Singh et al ⁶ (2013)	II	B	Both the intact condyles were dislocated laterally and superiorly, crossing the zygomatic arches	Open reduction	Left mandibular parasymphysis fracture	34 mm mouth opening and normal mandibular function
Rahman et al ⁷ (2016)	II	U	Medial portion of the left condyle was fractured and the lateral fragment was hooked on the zygomatic arch	Closed reduction	No associated fracture of the mandible	3 cm mouth opening and normal mandibular movement

mouth opening measured at last follow-up appointment was 3.1 cm which was considered satisfactory.

Discussion

Allen and Young⁸ classified lateral dislocations of the mandibular condyle into type I (lateral subluxation) and type II (complete dislocation), in which the condyle is forced laterally and then superiorly. Type II dislocations were further

subclassified by Satoh⁹ et al into type IIA (where the condyle is not hooked above the zygomatic arch); type IIB (where the condyle is hooked above the zygomatic arch); and type IIC (where the condyle is lodged inside the zygomatic arch, which is fractured). Allen and Young also suggested that an associated fracture of the anterior mandible is necessary for a type II dislocation. Our case had a unique presentation in a way that the intact condyle was dislodged inside the zygomatic arch, but the arch itself was intact. However, an

Fig. 1 Three-dimensional computed tomographic image showing the displaced condyle and the intact zygomatic arch.

Fig. 2 Coronal section of computed tomographic image demonstrating the displaced condyle lying medial to the arch (arrow).

associated symphyseal fracture was present. Bu¹ et al reported a similar case but with anterior dislocation of right condyle and without any associated mandibular fracture.

Worthington's¹⁰ criteria for diagnosis of these types of dislocation include malocclusion persisting after the jaw fracture was reduced, persistence of an open bite, persistent restriction of mandibular movement, an apparent loss of ramus height with elevation of the ramus fragment, and facial asymmetry.

CT scan proves very handy in diagnosing such conditions, as it can demonstrate the dislocated condyle, dislocation type, and whether or not there is a fracture,; which is evident in our case. Open traction with closed reduction should be attempted at the earliest if manual reduction or closed reduction under general anesthesia is unsuccessful.^{9–11} In our case, the presence of symphyseal fracture facilitated easy reduction of the dislodged condyle. However, we believe that the ankylosis resulted from imperfect reduction of the condyle due to possible fibrosis of glenoid fossa caused by the delay in treatment.

References

- 1 Bu SS, Jin SL, Yin L. Superolateral dislocation of the intact mandibular condyle into the temporal fossa: review of the literature and report of a case. *Oral Surg Oral Med Oral Pathol Oral Radiol Endod* 2007;103(2):185–189
- 2 Li Z, Li ZB, Shang ZJ, Wu ZX. An unusual type of superolateral dislocation of mandibular condyle: discussion of the causative mechanisms and clinical characteristics. *J Oral Maxillofac Surg* 2009;67(2):431–435
- 3 Hegde S, Kamath VV, Deepa M, Priya A. Superolateral dislocation of the mandibular condyle not associated with fracture: a case report. *J Maxillofac Oral Surg* 2010;9(4):424–427
- 4 Papadopoulos H, Edwards RS. Superolateral dislocation of the condyle: report of a rare case. *Int J Oral Maxillofac Surg* 2010;39(5):508–510
- 5 Prabhakar V, Singla S. Bilateral anterosuperior dislocation of intact mandibular condyles in the temporal fossa. *Int J Oral Maxillofac Surg* 2011;40(6):640–643
- 6 Singh V, Gupta P, Khatana S, Bhagol A. Superolateral dislocation of bilateral intact condyles—an unusual presentation: report of a case and review of literature. *Craniofac Trauma Reconstr* 2013;6(3):205–210
- 7 Rahman T, Hashmi GS, Ansari MK. Traumatic superolateral dislocation of the mandibular condyle: case report and review. *Br J Oral Maxillofac Surg* 2016;54(4):457–459
- 8 Allen FJ, Young AH. Lateral displacement of the intact mandibular condyle. A report of five cases. *Br J Oral Surg* 1969;7(1):24–30
- 9 Satoh K, Suzuki H, Matsuzaki S. A type II lateral dislocation of bilateral intact mandibular condyles with a proposed new classification. *Plast Reconstr Surg* 1994;93(3):598–602
- 10 Worthington P. Dislocation of the mandibular condyle into the temporal fossa. *J Maxillofac Surg* 1982;10(1):24–27
- 11 Kallal RH, Gans BJ, Lagrotteria LB. Cranial dislocation of mandibular condyle. *Oral Surg Oral Med Oral Pathol* 1977;43(1):2–10