CASE REPORT

Unusual Superolateral Dislocation of Bilateral Mandibular Condyles

Tabishur Rahman¹ · Syed Saeed Ahmed¹ · G. S. Hashmi¹ · Sajjad A. Rahman¹ · Md. Kalim Ansari¹

Received: 12 May 2017 / Accepted: 7 September 2017 / Published online: 9 September 2017
© The Association of Oral and Maxillofacial Surgeons of India 2017

Abstract We describe a case of maxillofacial trauma in a paediatric patient in which the left mandibular condyle was superolaterally displaced into the temporal fossa, medial to the zygomatic arch which was intact and the right condyle was also displaced similarly but the zygomatic arch was also fractured on this side. Also, there was an associated mandibular symphyseal fracture.

Keywords Condyle · Dislocation · Fracture · Unusual

Introduction

Superolateral dislocation of the intact mandibular condyle occurs very rarely. Only a handful of such cases are reported in the literature (Table 1). Superolateral dislocation of the intact condyle into temporal fossa is often overlooked and requires a thorough clinical and radiographic examination for correct diagnosis. Also, there is a need for prompt management as delay leads to imperfect reduction of the condyle due to trauma-induced fibrosis in glenoid fossa.

Case Report

A 6-year-old female reported to our OPD with the chief complaint of pain in lower jaw and inability to close the mouth. History revealed that she sustained facial injuries 2 days back when she fell from roof of her house while playing.

On examination the jaw movements were severely restricted by pain with anterior open bite present. Bilateral preauricular tenderness was apparent with depressed malar prominence on right side. Intraorally, a fracture line was evident in the mandibular symphyseal region. A CT scan was ordered which revealed that left mandibular condyle was dislodged anterior, superior and lateral to the glenoid fossa into the temporal fossa deep to the zygomatic arch which was intact, whereas the right condyle was displaced in a similar fashion but the zygomatic arch on this side was also fractured (Figs. 1, 2).

It was decided to reduce the condyles under GA and plate the anterior fractured segment. A mouth gag was placed between left posterior teeth and rotated clockwise to reduce the left condyle back into its normal position. The right condyle was reduced via direct approach using preauricular incision. The same incision was used to elevate the fractured zygomatic arch back to 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 fourth postop day with inter-maxillary fixation for 10 days to prevent the reduced condyles from returning to the preoperative position. Thereafter, IMF was released and aggressive physiotherapy was advised. On 3-month follow-up, the patient had a mouth opening of 27 mm after which the patient did not show up for next follow-up visit.

Electronic supplementary material The online version of this article (doi:10.1007/s12663-017-1042-7) contains supplementary material, which is available to authorized users.

✉ Tabishur Rahman
tabishalig05@gmail.com

¹ Department of Oral and Maxillofacial Surgery, Aligarh Muslim University, Aligarh Uttar Pradesh, 202002, India

Table 1 Review of literature

References	Type	Unilateral/bilateral (U/B)	Condition of dislocation	Method of reduction	Condition of mandible	Result
Bu et al. [1]	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]	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]	II	U	Left condyle was hooked above the zygomatic arch	Open reduction	No associated fracture of the mandible	–
Papadopoulos and Edwards [4]	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 approximately 5 mm bilaterally
Prabhakar and Singla [5]	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]	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]	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

Fig. 1 3D reconstructed image on CT demonstrating condylar dislocation on left side **Fig. 2** 3D reconstructed image on CT demonstrating condylar dislocation on right side

Discussion

Allen and Young [8] have subdivided such displacement into type I (lateral subluxation) where the condyle has been laterally displaced out of the fossa, and type II (complete

dislocation) where the condyle passes laterally and then superiorly to enter the temporal fossa as occurred in the present case (Fig. 3). They also suggested that an associated fracture of the anterior mandible is necessary for a type II dislocation. Satoh et al. [9] further subdivided type II dislocations into type II A (where the condyle is not

Fig. 3 Graphical representation of different types of superolateral dislocations of mandibular condyle. Type I (a), Type II A (b), Type II B (c) and Type II C (d)

hooked above the zygomatic arch); type II B (where the condyle is hooked above the zygomatic arch); and type II C (where the condyle is lodged inside the zygomatic arch, which is fractured) (Fig. 3). Our case had a unique presentation in a way that the intact condyles were dislodged inside the zygomatic arches in which the left arch was intact and the right arch was fractured. Also, an associated symphyseal fracture was present. Although the dislocation on the left side does fit the criteria of type II dislocation according to classification proposed by Allen and Young, it cannot be categorized into any subtype as proposed by Satoh. However, the dislocation on the right side is of type II C. Bu et al. [1] reported a case with anterior dislocation of unilateral condyle lodged inside an intact zygomatic arch and without any associated mandibular fracture. In his case, however, the other condyle was in normal position.

Worthington [10] suggested a mechanism for such a dislocation stating that the soft tissue attachments around the condyle must rupture and the transverse dimension of the condylar head must exceed the lateral dimensions of the space between the zygomatic arch and the medial bony wall of the temporal fossa. For this to occur, it is necessary for at least one of following three things to happen: the zygomatic arch may fracture to provide more room for the

condyle to pass; the condylar head may fracture thus decreasing the bulk; the condyle head may rotate about a vertical axis, which would require an associated mandibular fracture to facilitate rotation of the ramus.

Manual reduction is the first choice for a dislocation of the condyle [1]. Dislocation that has lasted for a few days can be corrected by closed or manual reduction [7]. In dislocations that are complicated and of long standing, reduction after midline mandibulotomy may be used, or a direct reduction through a preauricular incision. In our case, the presence of symphyseal fracture facilitated easy reduction of the dislocated condyles.

Compliance with Ethical standards

Conflict of interest The authors declare that they have no conflict of interest.

References

1. Bu SS, Jin SL, Yin L (2007) 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* 103:185–189

2. Li Z, Li ZB, Shang ZJ, Wu ZX (2009) An unusual type of superolateral dislocation of mandibular condyle: discussion of the causative mechanisms and clinical characteristics. *J Oral Maxillofac Surg* 67(2):431–435
3. Hegde S et al (2010) Superolateral dislocation of the mandibular condyle not associated with fracture: a case report. *J Maxillofac Oral Surg* 9(4):424–427
4. Papadopoulos H, Edwards RS (2010) Superolateral dislocation of the condyle: report of a rare case. *Int J Oral Maxillofac Surg* 39:508–510
5. Prabhakar V, Singla S (2011) Bilateral anterosuperior dislocation of intact mandibular condyles in the temporal fossa. *Int J Oral Maxillofac Surg* 40:640–643
6. Singh V et al (2013) Superolateral dislocation of bilateral intact condyles—an unusual presentation: report of a case and review of literature. *Craniomaxillofac Trauma Reconstr* 6:205–210
7. Rahman T et al (2016) Traumatic superolateral dislocation of the mandibular condyle: case report and review. *Br J Oral Surg* 54:457–459
8. Allen FJ, Young AH (1969) Lateral displacement of the intact mandibular condyle. A report of five cases. *Br J Oral Surg* 7:24–30
9. Satoh K, Suzuki H, Matsuzaki S (1994) A type II lateral dislocation of bilateral intact mandibular condyles with a proposed new classification. *Plast Reconstr Surg* 93:598–602
10. Worthington P (1982) Dislocation of the mandibular condyle into the temporal fossa. *J Maxillofac Surg* 10:24–27