Superolateral Dislocation of the Mandibular Condyle Not Associated With Fracture: A Case Report

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Abstract

Background Superolateral dislocation is rarely encountered in clinical practice. It is usually associated with fracture of the contralateral mandibular body or zygoma. The occurrence of type II superolateral dislocation of the condyle without associated fracture is very rare and only a few cases are reported in literature.

Methods We present a case report in which the patient had a type II superolateral dislocation of the mandibular condyle which is not associated with any fracture. The condyle was hooked laterally above the zygomatic arch. The fracture was reduced surgically and good results were obtained.

Conclusion We thereby would like to ascertain the fact that a type II superolateral dislocation of the mandibular condyle can occur without any associated fractures.

Keywords Superolateral dislocation · Mandibular condyle · Fracture

Introduction

Dislocation of mandibular condyle has been described as a condition when the condylar head is displaced out of the

glenoid fossa and cannot be reduced by the patient himself. Complete dislocation of mandibular condyle from the glenoid fossa can be classified into 4 groups: anterior, posterior, lateral, and superior dislocation, of which anterior dislocation is by far the most commonest [1]. Lateral dislocation, is rare, it is usually associated with a fracture of the symphysis or body of the mandible. Allen and Young (1969) [2] subdivided such dislocation into: type I (lateral subluxation), in which the condyle has been laterally dislocated out of the fossa, and: type II (complete dislocation), in which the condyle has passed laterally and then superiorly to enter the temporal fossa outside the zygomatic arch.

Satoh et al. [3] in 1994 further classified type II dislocations into type IIA, in which the condyle is not hooked above the zygomatic arch; type IIb, in which the condyle is hooked above the zygomatic arch; and type IIc, in which the condyle is lodged inside the zygomatic arch, which is fractured.

We present an unusual case of superolateral type IIb dislocation of the condyle without any associated zygomatic or mandibular fracture.

Case Report

A 32 year old male patient reported to our unit with a complaint of locking of the lower jaw, which was deviated to the left side with total immobility. Patient was conscious, oriented. His chief complaint was pain and drooling saliva. (Fig. 1).

Patient gave a history of road traffic accident 5 days back, which resulted in deviation of the lower jaw. There was no history of loss of consciousness, vomiting but the patient had bleeding from left ear.

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Fig. 1 Preoperative intraoral picture

On examination deviation of mandible to the left side with a contralateral preauricular depression on the right side was seen. Other signs and symptoms including malocclusion, edema, laceration on the chin and locked jaw were seen. Open bite on the left side and gagging of occlusion on the right side was seen. Clinically there was no evidence of mandibular, maxillary or zygomatic bone fracture. Left condyle was palpable above the zygomatic arch and the right condyle was not palpable in the glenoid fossa (Fig. 2).

Posteroanterior view, OPG and trans cranial radiographs confirmed lateral deviation of the mandible to the left side and absence of any fractures (Fig. 3).

A diagnosis of lateral dislocation of the left condyle was made and it was decided to operate on the patient under general anesthesia. Manual reduction was attempted but it was unsuccessful. Surgical exposure of the joint was planned by an Al Khayat–Bramley incision. The left condyle was found hooked lateral to the zygomatic arch and found to be protruding through the temporal fascia (Fig. 4).

An incision was given on the temporal fascia to expose the dislocated condyle, which was levered into the glenoid fossa by applying downward traction with a blunt heavy

Fig. 3 Radiograph showing lateral deviation of the mandible

Fig. 4 Intraoperative picture showing condyle hooked over the zygomatic arch

periosteal elevator. The condyle glided easily into the glenoid fossa and the patient's mouth opening and occlusion both were achieved immediately. The patient was placed into postoperative intermaxillary fixation for a period of 2 weeks (Fig. 5).

Fig. 2 Preoperative extra oral picture

Fig. 5 Immediate post operative picture

Discussion

The first recorded description of a reduction technique of lateral condylar dislocation was by Roberts in 1849. This consisted of strong outward pressure on the ramus with inferior traction and medial pressure on the condylar head [3]. Satoh et al. classified type II lateral dislocation and suggested treatment protocols based on these types.

A medline search revealed that there were only six reported cases of type IIb dislocation. All the cases were associated with fracture of either the mandible or zygomatic arch. Li et al. [4] reported a case of superolateral dislocation of type IIb but even in that case a tiny piece of condyle had broken but in our case the condyle, zygomatic arch and the mandible were intact. The cases and the associated fractures are listed in Table 1.

Rattan [5] stressed that, for the cases with lateral dislocation of the mandibular condyle, there was always a history of trauma to the side of the chin and there is an associated fracture in the symphyseal or body region, usually on the contralateral side. The associated mandibular fracture facilitates the rotation and movement of the ramus, which will contribute to the superolateral dislocation of the mandibular condyle.

During this process of superolateral dislocation, the condyle crosses over the root of the zygomatic arch and, during this crossing, either bone can become fractured [4] but in our case there was no associated mandibular or zygomatic fracture. This could be due to the amount and direction of applied force, the position of jaw during injury and the joint capsule, pterygoid muscle flabbiness. It has been suggested that when the driver in the motorbike accident is frightened, he suddenly opens his mouth either to scream or from fright. The jaw hits against the ground or any other hard body, the force of this impact displaces the condyle and causes a fracture in the body or symphysis. In our case, neither the mandible nor the zygomatic arch was fractured [1, 6]. The cause may be that the patient had an impact first on the right body of the mandible which might have moved the mandible laterally (Fig. 6).

Fig. 6 Impact 1 moving the condyle laterally

This was followed by a second immediate impact from below which may be the reason for the superior movement of the laterally displaced condyle, without causing any fracture of the body or symphysis of the mandible (Fig. 7).

Thus, we consider not all the lateral dislocations of the mandibular condyle need be accompanied with a fracture of the symphysis, body of the mandible or zygomatic arch.

Superolateral dislocations are rare and because of its rarity, this type of dislocation may be misdiagnosed or completely overlooked. Worthington [7] described the diagnostic features of this type dislocation as follows: 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 [5].

The diagnosis can be proved by radiography and CT scans, particularly by 3D CT. 3D CT scans can clearly demonstrate the dislocated condyle, dislocation type, and the presence of a fracture. It is very effective and useful in the diagnosis of this type of dislocation especially when there is failure of reduction manually. In our case a 3D CT scan could not be done due to the cost factor [1].

Although treatment modalities like closed and open reduction are suggested, the time of treatment is a very important factor, which governs the type of treatment. An early diagnosis is imperative for successful management of the dislocation. Kapila et al. [8] reported that delayed reduction of a laterally dislocated condyle is more difficult and less accurate due to establishment of fibrous adhesions and organization resulting in imperfect reduction.

Closed reduction should receive priority as this is by far the simplest, least traumatic, and safest of all the alternatives. Closed reduction methods used are placement of mouth props in the molar region with an upward pressure on the chin, slow elastic traction with splint and use of a traction wire at the angle of the mandible. Closed reduction methods are successful in cases in which early diagnosis of injury has been made. The infrequency of such conditions and complexity in diagnosis means considerable confusion in the execution of adequate treatment.

In our case we were operating on the patient 2 weeks after the occurrence of the dislocation and after an unsuccessful attempt at manual reduction, surgical reduction was done.

Postoperatively the patient was put on IMF for 2 weeks to prevent the condyle from reverting back to its preoperative position and possibly to heal damaged ligaments.

Papadopoulos et al. [9] reported a case of type IIc dislocation of right side which they reduced by doing coronoidectomy of right side, followed by medial pressure to right ramus to reduce the dislocation.

Table 1 Cases of type IIb dislocation of mandibular condyle

Authors	Dislocation	Associated fractures	Reduction
Brusati and Painsi [10]	External dislocation of left condyle that had been thrust up in front of the ear	Midline fracture of the mandible and fracture of the left coronoid process	Closed
	Upward and lateral dislocation of the right mandibular condyle	Fracture of the right mandibular body and left condyle	Open
Ferguson et al. [4]	Lateral displacement of the condyle that was hooked above the zygomatic arch	Symphyseal fracture of the mandible Closed reduction	Closed reduction
Kapila lata [8]	Superior dislocation of left condyle into the temporal fossa and hooked above the zygomatic arch	Symphyseal fracture and fracture of right condyle	Closed reduction
Rattan [5]	Right Medial portion of the right condyle was fractured and the lateral fragment was hooked on the zygomatic arch. Left and right Both the condyles were hooked above and fused to the zygomatic arch	Left symphyseal fracture of the mandible Symphyseal fracture of the mandible	Open reduction 3.0-cm mouth opening and there was satisfactory occlusion Not reduced, interpositional gap arthroplasty
Li et al. [4]	Left condyle was hooked above the zygomatic arch with the coronoid process penetrating into the temporal fossa	Without associated mandible fracture. But fracture of a small piece of left condyle enabled easy dislocation.	Closed reduction
Hegde et al. (current study)	Superolateral dislocation of left condyle and hooked above the zygomatic arch	No associated fracture	Open reduction

Fig. 7 Impact 2 moving the condyle superiorly to hook above the zygomatic arch

Conclusion

Most of the reported cases in the literature concluded that lateral dislocation is usually associated with fracture of the body of the mandible on the contralateral side or symphysis but in this case the patient had superolateral dislocation without fracture of the body or symphysis. Thus, from our observation we conclude that condylar dislocation can occur with or without fracture of body or symphysis does not favour it.

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