Antero-medially displaced condylar head leading to pseudoankylosis: A case report

ABSTRACT
Ankylosis is one of the most disruptive maladies affecting the masticatory system with trauma being the most common cause. Pseudoankylosis though uncommon can cause functional and psychological discomforts for the patient. Described here is operative management of a case of posttraumatic pseudoankylosis in a 27-year-old female, having fractured condylar head dislocated anteriorly and medially, with eventual fusion to sigmoid region. Retromandibular approach for condylar fracture has been advocated by many authors to be advantageous over other approaches given that they cause good cosmetic results, lower risk of facial nerve injury, reduced operation time. The question still remains whether open reduction internal fixation or removal of the condylar head should be favored for restricted mouth opening after closed reduction.

Keywords: Condylar fracture, pseudoankylosis, retromandibular approach, trauma

INTRODUCTION
Ankylosis is one of the most disruptive maladies that can afflict the masticatory system with trauma being the most common cause. The condylar region is one of the most frequent sites of mandibular fracture, accounting for 9%–50% of all maxillofacial fractures.

Condylar fractures can ensue as single unilateral or bilateral condylar fractures, and they may occur collectively with fractures of the mandibular symphysis or corpus, or with dentoalveolar injuries.

Kazanjian (1938) classified temporomandibular joint (TMJ) ankylosis, according to the site involved, into true (intracapsular) and false/pseudoankylosis (extracapsular). While true ankylosis denotes fibrous or bony ankylosis that occurs between the condylar head of the mandible and the mandibular fossa of the temporal bone, false/pseudo ankylosis refers to the restriction of mandibular movement that occurs as a result of pathology or physical obstruction that is outside the TMJ. Pseudo-ankylosis is uncommon than true ankylosis. Sawhney reported that 52 of 70 (74.2%) patients had, a Types III and IV ankylosis, which he believed were due to medially dislocated condylar fractures.

The inability to move the mandible has significant functional and psychological ramifications, such as the inability to eat a normal diet, altered facial appearance, difficulty in speaking.

In reviewing the types and patterns of disruption in TMJ function, we describe a case of pseudo-ankylosis of a low Antero-medially displaced condylar head leading to pseudoankylosis: A case report

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condylar fracture, medially dislocated, and fused near to the sigmoid notch.

CASE REPORT

A 27-year-old female had reported to our maxillofacial trauma unit with complaints of difficulty in mouth opening. She gave an alleged history of RTA 4 months prior following which she had sustained injury to the lower face. There was no history of loss of consciousness, vomiting, seizure. There was no history of epistaxis. There was history of right hemotympanum.

With clinical evaluation at the time of trauma, diagnosis of mandibular left parasymphysis and right condylar fracture with the displaced condylar head was made. Her radiologic scan (computed tomography [CT]) revealed linear non-displaced fracture of the body of mandible on the left side close to midline and medially displaced right subcondylar fracture. Conservative management (intermaxillary fixation) was done from the local clinic with the least improvement in mouth opening.

On local examination, there was a depression over the right condylar area and condylar movements could not be assessed on the right side. The mouth opening was 6 mm with deviation to the right side. The occlusion was stable. No step deformity was elicited on palpation of the inferior border of the mandible.

CT mandible taken at the time of trauma revealed, the displaced condylar head [Figure 1]. A present-day orthopantomogram showed condylar head fused to the medial part of the sigmoid region obstructing the mandibular movements during the opening [Figures 2 and 3]. Surgical removal of the pseudo-ankylosis mass was planned under general anesthesia.

To gain access to the sigmoid region a retromandibular transparotid approach was planned. A 3-cm long incision was marked from a point just below the earlobe inferior to a point just above the angle of the mandible, 2 cm behind the posterior border of the mandible, and 0.5 cm below the ear lobe. The initial incision was made through the skin and subcutaneous tissue to the level of the scant platysma muscle. Then the superficial musculoaponeurotic system and parotid capsule were incised. Blunt dissection was then followed within the gland in an anteromedial direction following the anticipated course of the facial nerve toward the posterior border of the mandible. The pterygomasseteric muscular sling was sharply dissected and blunt dissection was done superiorly with periosteal stripping to expose fracture ends.

The displaced condylar head was identified. The obstruction for the movement was confirmed with the opening and closing of the mandible. Using chisel and mallet, the fibrosed fracture segment was carefully osteotomed and removed in multiple pieces to prevent injury to the major vessels medially [Figure 4]. Adequate mouth opening (>30 mm) was achieved. Hemostasis was achieved and closure done using 3-0 vicryl and 4-0 prolene. Patient reversal and recovery were uneventful. Further, follow-up visits 6 months postoperatively showed maintained mouth opening.

DISCUSSION

Universal increase in maxillofacial trauma in recent years with an increase in mandibular condylar fracture has been
observed. Despite the frequency with which it is combatted, there exists no consensus “gold standard” treatment of condylar fractures, and there is continued debate on whether condylar fractures should undergo surgical or conservative management.

In 1927, Wassmund differentiated between fractures of the condyle head and neck and described additional types in 1934. The direction of displacement was included in a classification by Thoma in 1945. In 2014, the Association for Osteosynthesis in Craniomaxillofacial defined 4 anatomical references, the posterior ramus line, the sigmoid notch line, the condyle head reference line, and the masseteric tuberosity notch line that divided the condyle process into the condyle head, condylar neck, and condyle base (subcondyle) subregions.

Poorly managed condylar fractures can result in numerous chronic problems for patients. Malocclusion and deviation of the jaw on opening are common complaints. Ankylosis and pain in the TMJ can develop, and a diminished mouth opening, as calculated by the interincisal distance, can endure. Muscle spasm, osteonecrosis, and facial asymmetry have also been witnessed.

Zide and Kent have projected criteria for the surgical approach of condylar fractures, such as bony displacement outside the TMJ capsule or into adjacent structures, foreign body in the joint, bilateral condylar fractures, and when the treatment with maxillomandibular fixation is contraindicated.

Eckelt et al. piloted a randomized prospective study which generated functional results which were clearly in favor of open reduction and fixation of displaced condylar fractures. Moreover, they advocate that better results for operative treatment obtained in their study suggest that the general trend for conservative treatment be discontinued.

Fracture dislocation of the mandibular condyle is a common injury and an anteromedial dislocation is the most common one owing to the pull of the lateral pterygoid muscle. Condylar fracture with dislocation causes extensive hemorrhage spreading to extracapsular sites. Ossification occurs whenever the hematoma is populated by endosseous vessels in the presence of a sufficient degree of immobility.

A well-chosen surgical approach is a key step to avoid hitches associated with the procedure, such as facial nerve injuries and massive bleeding. Any surgical approach chosen must provide direct visualization of the fractured segment, adequate accessibility for reduction and placement of fixation materials, and minimal invasiveness with few postoperative complications. The decision regarding the surgical approach that will be used mainly depends on the location and type of fracture along with the anatomical structures in and around such as nerves, blood vessels, and the parotid gland.

The retromandibular approach was first described by Hinds and Girotti (2001) to provide excellent visualization of the neck and base of the condyle. Advantages include a shorter working distance from the skin incision to the condyle; good access and visualization of the posterior border of the mandible and sigmoid notch, enabling fracture manipulation and reduction. As the entire ramus is easily visible from behind, this technique is useful for procedures involving areas on or near the condylar neck to the ramus itself. Other benefits include unconspicuous facial surgical scarring, a minimally invasive procedure, short operation time. However, this method requires a dissection through the parotid gland, increasing the risk of facial nerve injury and the formation of sialoceles or salivary fistulas.

Ellis and Deanrev viewed the anatomy and various surgical approaches for treating fractures of the mandibular condyle with plate and screw fixation. He presented advantages and disadvantages of the preauricular, submandibular, intraoral, retromandibular, and rhytidectomy approaches and accomplished that the retromandibular approach is advantageous over the others.

In 2018, Al-Moraissi et al. estimated the risk of facial nerve injury in reference to various surgical approaches, they concluded that the retromandibular approach with either trans-masseteric anteroparotid or subparotid dissection for condylar base and condylar neck fractures and the deep subfascial approach for condylar head fractures are associated with the lowest risk of nerve damage.
CONCLUSION

We have tried to discuss an interesting radiological picture of posttraumatic TMJ ankylosis which resulted as a sequelae from conservative management of a bilateral condylar fracture. The dilemma for a clinician as to whether to intervene in a condylar fracture or to go for conservative management still remains at large.

In our experience in cases where the mouth opening continues to be restricted even after physiotherapy and a radiologically wedged condylar segment is observed, removal of the fractured condylar segment to achieve mouth opening and subsequently managing the occlusion may prove to be beneficial to the patient and can be added as an indication for surgical correction.

Declaration of patient consent
The authors certify that they have obtained all appropriate patient consent forms. In the form, the patient has given her consent for her images and other clinical information to be reported in the journal. The patient understands that her name and initials will not be published and due efforts will be made to conceal identity, but anonymity cannot be guaranteed.

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Conflicts of interest
There are no conflicts of interest.

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