

Unilateral Condylar fracture: A Case Report and Review of Literature

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Abstract:

Trauma to the maxillofacial structures is very not very uncommon. About 12-56% of trauma constitutes mandibular fractures, out of which condylar fracture accounts for 29-52%. Condylar region has its unique anatomy and healing potential hence requiring special considerations. Direct or indirect impact to the symphysis and/or parasymphysis region can transfer the forces directly to the condyle leading to its fracture. The clinical manifestation depends upon the location of fracture on the condyle. Presenting here is a case of a 57-year-old female patient who reported with chief complaint of pain and discomfort in the right side of jaw while opening her mouth, immediately after trauma to the face.

Key Word: Unilateral Condylar fracture; Intra-capsular fracture ; Vertical condylar head fracture; Split fracture of condyle ; CBCT ; Conservative ; Surgical

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I. Introduction

The mandible is a U-shaped bone and is the most prominent facial bone. Though it is the largest and strongest facial bone, it is the second most commonly fractured bone after the nasal bone. About 12-56% of trauma constitutes mandibular fractures, out of which condylar fracture accounts for 29-52%.¹ According to Widmark and Santler, condylar fracture is the most common fracture of the mandibular bone.² The most frequent cause of trauma to the maxillofacial region is road traffic accidents (RTA) followed by sports injuries, work-related injuries, and assault. Recent statistics recorded 3,54,796 cases of road accidents during 2021.³ Complications caused due to condylar fracture are deranged occlusion, deviation of the mandible, internal meniscal derangements of the temporomandibular joint (TMJ), ankylosis of the joint with a resultant inability to move the jaw, and growth disruption. Hence proper assessment of the exact location of the fracture by clinical examination and radiological investigations, followed by proper treatment protocol is of utmost importance. Lindhal L classified the condyle of mandible fracture based on the fracture location, deviation, and/or displacement and position of the condylar head within the articulating fossa: Sub condylar fracture - fracture line extends from the sigmoid notch to the posterior border of the mandible; Condylar neck fracture - fracture located below the level of condylar head at the condylar process; Condylar head fracture - fracture enclosed by the capsule of the temporomandibular joint.⁴ Condylar fractures can be managed by two procedures: conservative treatment and surgical treatment.

II. Case Report

A 57-year-old female patient reported to the department of Oral Medicine Radiology with a chief complaint of pain and discomfort in the right side of the jaw while opening her mouth, immediately after trauma to the face. She mentioned that she faced an RTA 15 days ago which had a direct impact on her chin region. After trauma, the patient was conscious and gave no history of nausea, vomiting, epistaxis, ear bleeding, or intra-oral bleed.

Clinical examination:

Soft tissue lacerations and bruising were noted over the right side of facial skin near outer canthus of eye and the perioral area. (Figure 1) Mouth opening was unaffected, but the patient voluntarily restricted mouth opening due to pain. Deviation of mandible was seen to the affected side. On extra auricular palpation, edema and tenderness along with mild depression were present over the right TMJ region. Assisted mouth opening was 38mm and lateral movements were restricted. The movements of TM joint were not prominently appreciable.

Intra-orally, patient's occlusion was in harmony. The lateral pterygoid muscle of the right side was tender on palpation.



Figure 1: Front and Lateral view

Radiological examination:

The axial section of CBCT scan (Figure 2) revealed, an vertical and oblique fracture line starting from the right condylar head, splitting the condyle vertically and displacing the medial portion antero-medially. (Figure 3) The glenoid fossa, joint space and articular eminence were normal and the fracture was within the capsule giving an impression of intra-capsular vertical split fracture of the right condylar head.

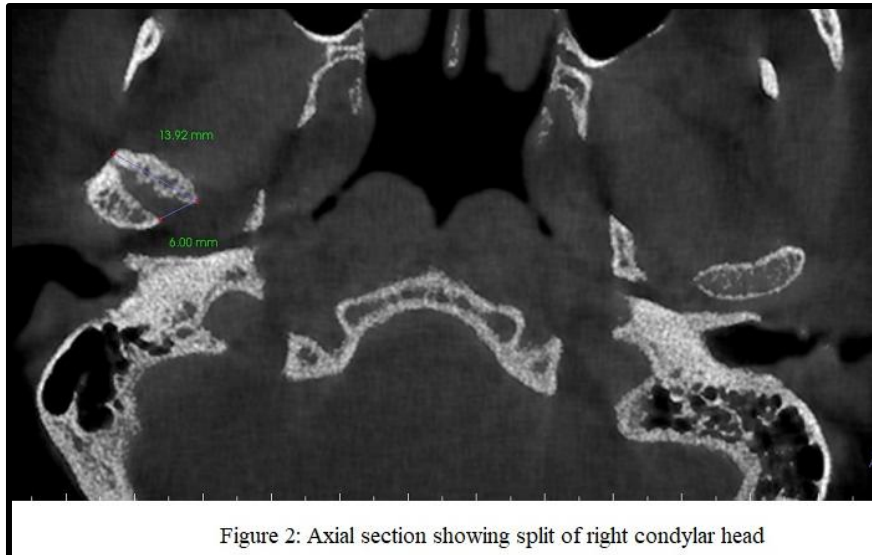


Figure 2: Axial section showing split of right condylar head

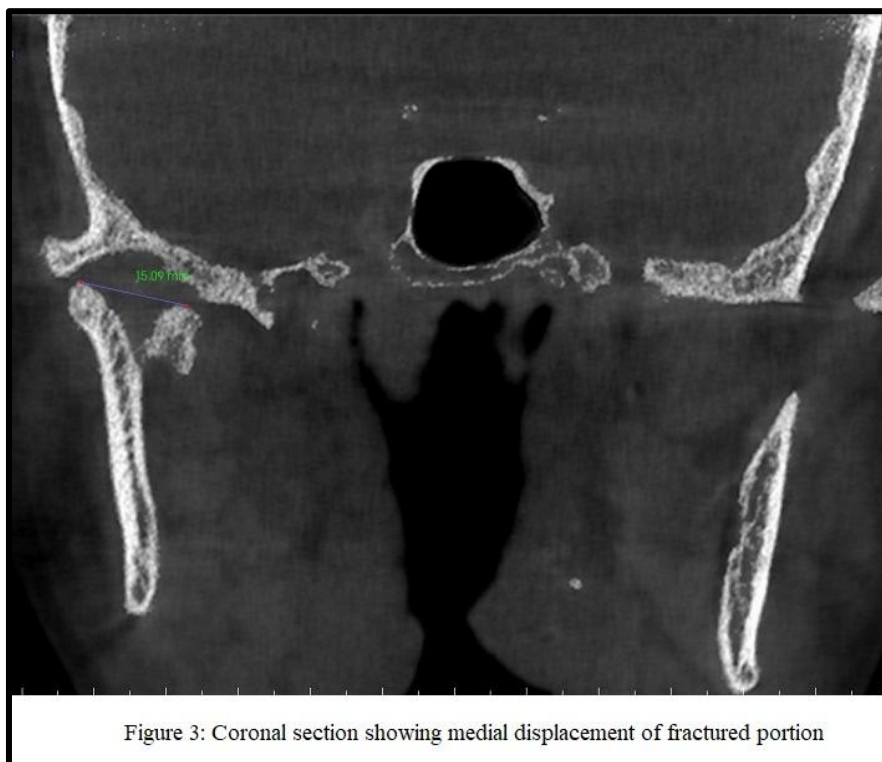


Figure 3: Coronal section showing medial displacement of fractured portion

Treatment: Patient was surgically treated with open reduction

III. Discussion

The Mandible which is weak at the ends and strong in the midline and the condyles are enclosed by the glenoid fossa resembles a Hunting bow.⁵ Any blow to the midline of the mandible can cause bilateral condylar fracture and any blow to the parasymphysis may cause a contralateral fracture. The fracture of condyle following trauma to the chin is an example of contrecoup injury.

In a review by Barde D et al⁶, 464 patients with age ranging from 7 to 89 years were evaluated who had mandibular fractures with age. According to the study, Male (343, 79%) to female (91, 21%) ratio was 3.7:1, significantly higher for males. The highest incidence (37.5%) of mandibular fractures was in the age group of 21–30 years. The main cause was road traffic accidents (RTAs, 68.8%) followed by falls (16.8%), assaults (11%) and other reasons (3.8%). However, Subhashraj et al⁷ in their study showed Female:Male ratio of approximately 3:1. This shows an increasing trend of female involvement in maxillofacial trauma.

There are two principal management procedures for condylar fractures: conservative treatment and surgical treatment. Many authors have described the conservative treatment as safe, noninvasive, easy, and low cost, but they have also described complications including poor oral hygiene, gingivitis, facial deformity, TMJ dysfunction, and even TMJ ankylosis.¹ A well-chosen surgical approach is the first and key step during the surgical procedure to maximally avoid complications associated with the procedure, such as facial nerve injuries and massive bleeding.⁸ Any surgical approach chosen must provide direct visualisation of the fractured segment, adequate accessibility for reduction and placement of fixation materials, and minimal invasiveness with few postoperative complications.⁹ The decision regarding the surgical approach that will be used to reach the condylar fracture mainly depends on the location and type of fracture. Several important anatomical structures must also be considered, including nerves, blood vessels, and the parotid gland.

IV. Conclusion

With such a high frequency of trauma to the maxillofacial region, fractures of the mandibular condyle are not uncommon. TMJ if left untreated, may lead to serious complications like TMJ ankylosis, restricted mouth opening. Hence proper assessment of the patient and adequate imaging modalities are important for proper treatment planning.

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