

CASE REPORT

Management Of Saggital Fracture Of Condylar Head: A Case Report

Naqoosh Haidry¹, Anil Managutti², Dishan Shah³, Hemal Katwala³

ABSTRACT

Introduction: Isolated fractures of mandibular condylar head are uncommon and among them fractures of the condylar head along the sagittal plane is very rare with only 25 reported cases. Management of condylar head fractures has always remained controversial, whether to go for open reduction or closed reduction.

Case Report: 25 year old male patient reported to the department of oral surgery with complain of pain and swelling since 2 days in right TMJ region. Patient gave history of trauma in left parasymphysis region before 2 days. Clinically occlusion was normal while guided properly, jaw deviation while opening the mouth was present and mouth opening was slightly restricted. Conventional radiographs did not reveal any abnormality so CT scan of mandible was done which showed right condylar head fracture along the sagittal plane and displacement of medial pole. Intermaxillary fixation was done for 21 days followed by vigorous physiotherapy.

Conclusion: Due to complex anatomy of the region every case of suspected TMJ fracture should undergo thorough investigations and use of CT scan is indispensable. Unless there is a presence of gross functional abnormalities or presence of grossly displaced fragments, these fractures are best treated by closed reduction methods as shown in this case.

Keywords: Bifid condyle, Computed Tomography, Medial pole of the condyle, Sagittal condylar fracture.

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¹Senior Lecturer, ²Professor and HOD, ³Resident, Department of Oral and Maxillofacial Surgery Narsinhbhai Patel Dental College And Hospital, Visnagar, North Gujarat, India.

Corresponding author: Dr. Dishan Sunilkumar Shah Department of Oral & Maxillofacial Surgery₂, Narsinhbhai Patel College and Hospital, Visnagar, North Gujarat, India

INTRODUCTION

Mandibular condylar fractures are relatively commonly encountered with its incidence varying from 25 to 30% of all mandibular fractures. Fractures of the condyle can be classified according to fracture site, the relation of the fractured segment to glenoid fossa and relation of the fractured segment to ramus. Dislocation of the fractured condyle can be anterior, posterior, medial or lateral. Among these antero-medial dislocation is common due to the pull of lateral pterygoid muscle.^{1,2} Isolated fractures of the mandibular condylar head are uncommon and among them fracture of the condylar head along the sagittal plane is very rare with only 25 cases having been reported. Neff et al. gave subclassification of the condylar head (intracapsular) fractures. They designated medial condylar pole fracture maintaining the vertical dimension as Type A, lateral condylar pole fracture along with reduction in mandibular ramus height as Type B, and high extracapsular, dislocated or comminuted condylar head fractures as Type M.¹ Type A fracture represents the only medial pole of condyle fracture which is the rarest of all types. These types of fractures are difficult to diagnose because they are usually not visible on plain film or conventional radiographs including panoramic or lateral oblique views and thus often left undiagnosed. It is mandatory to get either anteroposterior, trans orbital views or

computed tomography to detect these kind of fractures.^{1,3,4} Management of condylar head fractures has remained controversial. Both open reduction and closed reduction methods have been employed to treat these fractures. The selection of treatment modality depends upon degree of displacement of fracture segment and anatomic location of the fracture. Open reduction methods have many disadvantages including possible chance of facial nerve damage, limited accessibility to fracture segment and possibility of condylar resorption post-operatively due to hampered blood supply. So, in minimally displaced isolated intracapsular condylar head fractures closed reduction is preferred.⁵ We report a case of isolated Type A mandibular condylar head fracture in a young male patient, which was not diagnosed by any conventional radiographs so CT scan was done to rule out condylar fracture which revealed a medial condylar pole fracture and was treated by closed reduction.

CASE REPORT

25 year old male patient reported to the Department of Oral and Maxillofacial Surgery, Narsinhbhai Patel Dental College and Hospital, Visnagar with the chief complain of pain and swelling since 2 days. (Fig.1) There was history of fall from bicycle before 2 days and had direct blow over the left parasymphysis region. No history of loss of consciousness at the time of trauma. Bleeding was present from right side ear. Pain and swelling was present on the right side of the face over the condylar region since 2 days. Patient's family history, personal history was not significant. Extraoral examination revealed asymmetrical face due to swelling on the right side of the face and multiple abrasions all over the face. Sutured CLW was present on chin region. Jaw movements were restricted with 30 mm mouth opening, the deviation of the jaw towards the right side while opening and mild pain while opening. Intraoral examination did not reveal any abnormalities. The occlusion was normal when guided properly. (Fig.2) Lateral oblique view and Orthopantomogram did not reveal any abnormality so to rule out condylar fracture CT scan of mandible was done which

showed the sagittal fracture of the right mandibular condyle and displacement of the medial pole of condylar head (Fig. 3). So, Intermaxillary fixation was done using Erich arch bars to restrict the movements and guide the occlusion in proper position (Fig. 4). Intermaxillary fixation was removed after 21 days followed by vigorous physiotherapy for proper mobilization of jaws. Six months follow-up did not show any complications. The satisfactory mouth opening (42 mm) was achieved, there was no deviation of the jaw, and TMJ views suggested healing of the fractured segment in its position with the lateral mandibular segment.

DISCUSSION

Splitting of mandibular condyle along the sagittal plane is a rare occurrence. In a study done by Yamakoa et al.⁶ in 1994 on 33 patients for assessment of condylar fracture by CT, the incidence of sagittal splitting of condyle was found only 9.8% of all cases. If left untreated these fractures can result in ankylosis. Vertical fractures of the condyle is an inadequately recognized cause of ankylosis both in young adults and elder children as stated by Rowe. So, early diagnosis and prompt treatment is necessary in these cases.^{1,2} Clinical as well as radiographic findings are important for the diagnosis of vertical condylar fracture. Clinically symptoms like pain in TMJ region, jaw deviation and slight reduction in mouth opening can be observed in vertical condylar fracture as in the present case. Conventional radiographs does not provide adequate information due to the complex anatomical structure of the area.^{3,7} The use of CT scans has increased in the maxillofacial surgery field in recent years for the observations of various pathologies and determination of fractures. In the present case also CT scan proved to be very useful in reaching the diagnosis. With the use of CT scan we can determine the exact position of deviated or dislocated bone fragments and the position of the fracture line. 3D CT scans are very useful when fractures of the mandibular condyle are suspected as reported by Honda et al.³ The study done by Avrahami et al.⁷ noted the use of coronal CT scan in a patient who did not

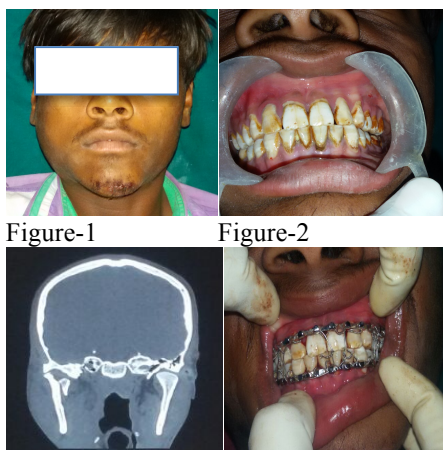


Figure-3

Figure-4

Figure-1: Mild swelling at right TMJ region; **Figure-2:** Occlusion was normal; **Figure-3:** Coronal CT section shows fractured right condylar head along the sagittal plane and displaced fragment; **Figure-4:** Intermaxillary fixation done using Erich Arch bars for 21 days.

show any fracture line on conventional radiographs but TMJ ankylosis developed in the later course of time, so they suggested mandatory use of coronal CT scans whenever TMJ fractures are suspected.⁷ We also agree to observations of these authors and recommend the use of CT scan for every suspected condylar fracture case. Anatomically, the mandibular condyle is composed of cancellous bone covered by a thin layer of cortical bone. The medial pole of the condyle extends beyond the neck of the condyle and has greater possibility of being split in the sagittal plane.⁷ In sagittal fracture of the mandibular condyle (SMFC), fracture line generally passes through an area between lateral one-third and medial one-third of the condyle.^{8,9} Maintenance of occlusion and preservation of jaw motor function are the primary goals of the treatment for vertical fractures of the mandibular condyle. It's easier to do an occlusal reduction in sagittal fractures of the condylar head than in subcondylar fractures because vertical height of the ramus is unchanged in most of the cases of sagittal condylar fractures. So, the selected modality for treatment should give emphasis on the recovery of the jaw motor function.^{3,10} In the present case fracture was recent and the fractured portion was nearer to lateral segment so emphasis was given to correct the jaw motor function by

giving conservative therapy in form of Intermaxillary fixation and follow-up showed relief from pain, correction of jaw deviation and improvement in mouth opening. Sagittal fractures of the condylar head have been treated by closed methods or open reduction with removal of the fragments.¹ Open treatment with removal of small bone fragments and resection of the mandibular condyle was reported by Eguchi et al.¹¹ who suggested this as the best treatment modality for treating this kind of fractures. One old mandibular condylar head fracture was treated by removal of small bony fragments by inverting zygomatic arch by Onizawa et al.¹² They suggested that the case could have been better managed just by closed reduction instead of open reduction. Yamakoa et al.⁶ suggested 14 days of Intermaxillary fixation as the best treatment modality for these kind of fractures. Various pitfalls of using a surgical approach for these fractures include narrow surgical field, marked surgical invasion to remove small bony fragments and unnecessary removal of normal a condylar portion for the better access. Thus, the fresh, undisplaced or minimally displaced intracapsular sagittal fractures of the condylar head should be treated by conservative means alone, as in this case and open surgical treatment should be reserved only for old injury showing marked dysfunction.^{6,13}

CONCLUSION

Fracture of the condylar head along the sagittal plane is a rare finding and it is very difficult to evaluate it on conventional radiographs. So, every case of suspected TMJ fracture should undergo thorough investigations and use of CT scan is indispensable. Unless there is a presence of gross functional abnormalities or presence of grossly displaced fragments, these fractures are best treated by closed reduction methods as shown in this case.

REFERENCES

1. Pattathan B, Kumar R, Rai KK, Shiva kumar H.R, Shah A. Evaluation of Fractured Condylar Head Along the Sagittal Plane: Report of Three Cases. *J. Maxillofac. Oral Surg* 2012; 11: 231-234.

2. Antoniadis K, Karakasis D, Elcphtheriadcs J. Bifid mandibular condyle resulting from a sagittal fracture of the condylar head. *Br J Oral Maxillofac Surg*.1993; 31: 124 – 126.
3. Yonezu H, Yakushiji T, Suga K, Takano N, Uchiyama T, Wakoh M. Vertical fracture of mandibular condyle treated with intra-articular pumping therapy: a case report. *Bull Tokyo Dent Coll*. 2009; 50: 37-40.
4. Loukota RA, Neff A, Rasse M. Nomenclature/classification of fractures of the mandibular condylar head. *Br J Oral Maxillofac Surg*.2010; 48: 477-478.
5. Rutges JP, Kruizinga EH, Rosenberg A, Koole R. Functional results after conservative treatment of fractures of the mandibular condyle. *Br J Oral Maxillofac Surg*. 2007; 45: 30-4.
6. Yamaoka M. The assessment of fracture of the mandibular condyle by use of computerized tomography. Incidence of sagittal split fracture. *Br J Oral Maxillofac Surg* 32: 77-79
7. Wadhwa A, Shah G, Sharma S, Bhatnagar A, Malaviya P. Conventional radiograph verses CT for evaluation of sagittal fracture of mandibular condyle. *Int J App Basic Med Res* 2014; 4: 181-184.
8. Jing J, Han Y, Song Y, Wan Y. Surgical treatment on displaced and dislocated sagittal fractures of the mandibular condyle. *Oral Surg Oral Med Oral Pathol Oral Radiol Endod* 2011; 111: 693-699.
9. Rattan Vidya. Superolateral Dislocation of the Mandibular Condyle: Report of 2 cases and Review of Literature. *J Oral Maxillofac Surg* 2002; 60: 1366-1369.
10. Eckelt U. Commentary regarding the publication "Fractures of the mandibular condyle--a review of 466 cases. Literature review, reflections on treatment and proposals" by N. Zachariades et al. *J Craniomaxillofac Surg*. 2006 ;34: 433-4.
11. Eguchi T, Nakajima T, Harada Y, Hirose T. A sagittal fracture of mandibular condyle: Report of a case. *Jpn J Oral Surg* 17; 539-542
12. Onizawa K, Fukuda H, Nemoto K. Sagittal fracture of mandibular condylar head: Report of a case. *Jpn J Oral Maxillofac Surg* 36; 162-165
13. Hlawitschka M, Eckelt U. Assessment of Patients Treated For Intracapsular Fractures of the Mandibular Condyle by Closed Techniques. *J Oral Maxillofac Surg* 2002; 60: 784-791.