

Original ARTICLE

Assessment of incidence, etiology and demographic profile of condylar fractures: An observational study

Santosh Kumar¹, Sandeep Vaidya²

¹MDS (Oral and Maxillofacial Surgery), Medical Officer (Dental), Himachal Pradesh

²MDS (Oral and maxillofacial surgery), Private Practitioner, Himachal Pradesh

ABSTRACT

Background: Condylar fractures lead to a multitude of problems such as malocclusion, particularly open bite, reduced posterior facial height and facial asymmetry in addition to chronic pain and mobility limitation. Hence; the present study was undertaken for assessing the incidence, etiology and demographic profile of condylar fractures. **Materials & methods:** Data records of a total of 432 patients with fracture of head and neck region were analysed. Out of these 432 patients, incidence of condylar fractures was analysed. Complete demographic and clinical details of all the patients were obtained from record files. Age and gender-wise distribution of all the patients was done. All the results were recorded in Microsoft excel sheet. **Results:** Overall, prevalence of condylar fractures was found to be 11.57 percent (50 patients). Among these patients, 40 percent of the patients belonged to the age group of 21 to 30 years. 86 percent of the patients were males while the remaining were females. In the present study, in 60 percent of the patients, etiologic profile was road traffic accidents. Significant results were obtained while evaluating the etiologic profile of patients and analysing the patients on the basis of gender. **Conclusion:** Road traffic accidents are the most common cause of condylar fractures with significantly higher prevalence among young males.

Key words: Condylar, Fracture

Corresponding author: Dr. Sandeep Vaidya, MDS (Oral and maxillofacial surgery), Private Practitioner, Himachal Pradesh

This article may be cited as: Kumar S, Vaidya S. Assessment of incidence, etiology and demographic profile of condylar fractures: An observational study. HECS Int J Comm Health Med Res 2020; 6(1): 82- 84.

INTRODUCTION

Mandible is the second most commonly fractured bone after nasal bone, though it is the largest and strongest facial bone. Mandibular fractures can involve only one site or can often involve multiple anatomic sites simultaneously. The etiology and pattern of mandibular fracture vary considerably among different study populations. Recent overall shift in the mechanism of injury and age distribution of patients sustaining these injuries are well-documented.¹⁻³

In the entire spectrum of maxillofacial trauma no other topic has created so much of debate and controversies than that of mandibular condyle fractures (MCF), both among children and adult population.²

Though a small non weight bearing joint, the significance of its nominal functioning has been best demonstrated in the statement by Ellis III and Gaylord "Complications of trauma to the temporomandibular joint (TMJ) are far-reaching in their effects and not always immediately apparent."⁴⁻⁶

Condylar fractures lead to a multitude of problems such as malocclusion, particularly open bite, reduced posterior facial height and facial asymmetry in addition to chronic pain and mobility limitation. Despite the high incidence rate of condylar fractures, the management of such injuries continues to be controversial. Decision making between surgical versus non-surgical management of condylar fractures is widely debatable. Treatment of condylar fracture depends on a number of factors such as age, co-existence of other facial injuries, level of fracture, status of dentition and degree of displacement / dislocation.⁵⁻⁷ Hence; the present study was undertaken for assessing the incidence, etiology and demographic profile of condylar fractures.

MATERIALS & METHODS

The present study was conducted for assessing the incidence, etiology and demographic profile of condylar fractures. Data records of a total of 432 patients with fracture of head and neck region were analysed. Out of these 432 patients, incidence of condylar fractures was analysed. Complete demographic and

clinical details of all the patients were obtained from record files. Age and gender-wise distribution of all the patients was done. All the results were recorded in Microsoft excel sheet. Analysis of all the results was done by SPSS software. Chi-square test was used for evaluation of level of significance.

RESULTS

In the present study, data of a total of 432 patients were analysed. Overall, prevalence of condylar fractures was found to be 11.57 percent (50 patients). Among these patients, 40 percent of the patients belonged to the age group of 21 to 30 years. 28 percent of the patients belonged to the age group of 31 to 40 years. In the present study, 86 percent of the patients were males while the remaining were females. In the present study, in 60 percent of the patients, etiologic profile was road traffic accidents. In 32 percent of the patients, the etiologic factor was fall from height. Significant results were obtained while evaluating the etiologic profile of patients and analysing the patients on the basis of gender.

Table 1: Incidence of condylar fractures

Parameter	Number of patients	Percentage
Incidence of condylar fractures	50	11.57

Table 2: Age-wise distribution

Age – Group (years)	Number of patients	Percentage	p-value
11-20	6	12	0.85
21-30	20	40	
31-40	14	28	
41-50	6	12	
51-60	4	8	
Total	50	100	

Table 3: Gender-wise distribution

Gender	Number of patients	Percentage	p-value
Male	43	86	0.00 (Significant)
Female	7	14	
Total	50	100	

Table 4: Etiologic profile

Etiology	Number	Percentage (%)	p-value
Road Traffic Accidents	30	60	0.00
Falls	16	32	
Inter Personal Violence	4	8	
Total	50	100	

DISCUSSION

The type and direction of traumatic force can be extremely helpful in diagnosis. Fractures sustained in vehicular accidents are usually far different from those sustained in personal altercation. Since the magnitude of force can be much greater, victims of automobile and motorcycle accidents tends to have multiple mandibular fractures, whereas the patient hit by a fist may sustain single, nondisplaced fracture. Condylar fracture is associated with pain,

reduced mouth opening, and deviation of the mandible. With suboptimal treatment, temporomandibular joint (TMJ) ankylosis, and internal derangement may occur. Since 1925, there was debate for approaching condylar fracture. The most commonly used incisions to expose the condyle are as follows: intraoral, coronal, preauricular, postauricular, endaural, endoscopic, rhytidectomy, transparotid, submandibular, and retromandibular approach.⁸⁻¹⁰ Hence; the present study was undertaken for assessing the incidence, etiology and demographic profile of condylar fractures.

In the present study, data of a total of 432 patients were analysed. Overall, prevalence of condylar fractures was found to be 11.57 percent (50 patients). Among these patients, 40 percent of the patients belonged to the age group of 21 to 30 years. 28 percent of the patients belonged to the age group of 31 to 40 years. Sawazaki R et al evaluated the epidemiologic characteristics of the prevalence, type, and treatment modalities of condylar fractures of the mandible. 209 unilateral fractures and 54 bilateral fractures were treated, with a male/female ratio of 3.05:1 and a mean age of 28.4 years, for a total of 317 condylar fractures. Male gender was significantly associated with the presence of a condylar fracture (P < .05). The most common cause of condylar fractures was road traffic accidents (57.8%). Of the 317 fractures, 300 were classified as simple fractures, and 249 fractures were not displaced. Protective devices significantly decreased the number of condylar fractures occurring from road traffic accidents (P < .05). Symphysis fractures were significantly associated with both unilateral and bilateral fractures of the mandibular condyle (P < .05). Subcondylar displaced fractures were significantly associated with surgical treatment (P < .05). Young adults were involved in most of the accidents. Road traffic accidents were the main cause of condylar fractures.¹¹

In the present study, 86 percent of the patients were males while the remaining were females. In the present study, in 60 percent of the patients, etiologic profile was road traffic accidents. Thapa S et al described the demography, etiology, fracture characteristics, and hospital utilization of surgically treated 208 mandibular condylar fractures in 166 patients in a tertiary referral hospital. Most of the patients had unilateral mandibular condylar fractures (74.7%). Male patients (76.51%) outnumbered female patients (23.49%) in this cohort. The average age of the patients was 37 years. The fractures were mostly caused by fall from height (60.84%) and were located at the condylar neck (53.61%). Most of the patients had other associated maxillofacial injuries (71.08%) which were mostly located at symphysis and parasymphysis (44.59%). It took 12.58 +/- 0.35 days of hospitalization for the treatment. Fall from height was the most prevalent cause of mandibular condylar injury.¹²

In the present study, in 32 percent of the patients, the etiologic factor was fall from height. Significant results were obtained while evaluating the etiologic profile of patients and analysing the patients on the basis of gender. Mahgoub MA conducted a study to put an algorithmic approach for the treatment of condylar fractures according to the condition of occlusion. Forty patients were included (6 females and 34 males) with their ages ranged between 3 and 60 years. Patients were managed through two approaches as follows: maxillomandibular fixation (MMF) only regimen and MMF with open reduction and internal fixation regimen. The operated cases were 12 with bilateral condylar/subcondylar fractures, and the rest were unilateral 28 cases. Data were assessed demographically, time lapse before the intervention, surgically, functionally, and radiologically. In

general, there were no significant differences between closed and open methods. Retromandibular approach was convenient for internal fixation of condylar fracture with a good outcome.¹³

CONCLUSION

From the above results, the authors concluded that road traffic accidents are the most common cause of condylar fractures with significantly higher prevalence among young males.

REFERENCES

1. Haug RH, Prather J, Indresano AT. An epidemiologic survey of facial fractures and concomitant injuries. *J Oral Maxillofac Surg.* 1990;48:926–32.
2. Adebayo ET, Ajike OS, Adekeye EO. Analysis of the pattern of maxillofacial fractures in Kaduna, Nigeria. *Br J Oral Maxillofac Surg.* 2003;41:396–400.
3. Deogratus BK, Isaac MM, Farrid S. Epidemiology and management of maxillofacial fractures treated at Muhimbili National Hospital in Dar es Salaam, Tanzania, 1998-2003. *Int Dent J.* 2006;56:131–4.
4. Ellis III E, Gaylord S. Throckmorton: treatment of mandibular condylar process fractures: biological considerations. *J Oral Maxillofac Surg.* 2005;63:115–134.
5. Lindahl L, Hollender L. Condylar fractures of the mandible II. Radiographic study of remodeling processes in the temporomandibular joint. *Int J Oral Surg.* 1977;6:157–165.
6. Zide MF, Kent JN. Indications for open reduction of mandibular condyle fractures. *J Oral Maxillofac Surg.* 1983;41:89–98. doi: 10.1016/0278-2391(83)90214-8
7. Assael LA. Open Versus Closed Reduction of Adult Mandibular Condyle Fractures : An Alternative Interpretation of the Evidence. *J Oral Maxillofac Surg* 2003;61:1333–39.
8. Villarreal PM, Monje F, Junquera LM, Mateo J, Morillo AJ, González C, et al. Mandibular condyle fractures: Determinants of treatment and outcome. *J Oral Maxillofac Surg.* 2004;62:155–63.
9. Silverman SL. A new operation for displaced fractures at the neck of the mandibular condyle. *Dent Cosmos.* 1925;67:876–7.
10. Klatt J, Pohlenz P, Blessmann M, Blake F, Eichhorn W, Schmelzle R, et al. Clinical follow-up examination of surgically treated fractures of the condylar process using the transparotid approach. *J Oral Maxillofac Surg.* 2010;68:611–7
11. Sawazaki R1, Lima Júnior SM, Asprino L, Moreira RW, de Moraes M. Incidence and patterns of mandibular condyle fractures. *J Oral Maxillofac Surg.* 2010 Jun;68(6):1252-9.
12. Thapa S, Wang J, Hu HT, Zhang FG, Ji P. Epidemiology of Surgically Managed Mandibular Condylar Fractures at a Tertiary Referral Hospital in Urban Southwest China. *Open Dent J.* 2017;11:294-300.
13. Mahgoub MA, El-Sabbagh AH, Abd El-Latif EA, Elhadidy MR. Condylar Fractures: Review of 40 Cases. *Ann Maxillofac Surg.* 2018;8(1):19-27.