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ORIGINAL ARTICLE

Assessment of Various Complains after Non-Surgical Treatment of Condylar Fracture

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ABSTRACT

Objective: To assess various complains of patients after non-surgical treatment of condylar fracture.

Methodology: A cross-sectional study was performed from October 2021 to October 2022 at the Department of Oral and Maxillofacial Surgery, Nishtar Institute of Dentistry, Multan. The sample size collected was 34 patients using a consecutive non-probability sampling. Using pertinent clinical examination, the patient was assessed for disturbed occlusion, limited mouth opening, deviation of the mouth, pain, and clicking sound. The mean follow-up period was six months.

Results: The male-to-female ratio was 1.8: 1, with male predominance. The leading cause of fracture was attributed to incidents involving road traffic accidents (RTAs) (n—26, 76.5%).Twenty-three patients had a positive post-opt complaint after treatment, from which the most complaints presented were with unilateral condylar fracture n=15. The most common complaint presented was TMJ Pain with limited mouth opening n=8(23.5%).

Conclusion: Conservative care for unilateral mandibular condyle fractures is a safe treatment approach. However, it can cause a few post-treatment functional complaints, the most frequent of which is TMJ pain. To further evaluate the improvement in function and discomfort, more research and consistent long-term follow-ups are required.

Keyword: Temporomandibular joint movement (TMJ), TMJ Pain, Maxillomandibular Fixation (MMF)

INTRODUCTION

Mandibular condylar fractures are a common occurrence following traumatic events, constituting approximately 25 to 35% of all mandibular fractures [(1)].The optimal approach and treatment for mandibular condylar fractures remain subjects of controversy in contemporary discussions. Some authors advocate for the closed method, as they believe in the potential remodeling capacity of the mandibular condyle. In certain instances, however, others advocate for the open method, citing late clinical changes observed in patients treated with the closed method. The open method involves direct exploration of the fracture site, reduction, and osteosynthesis. [(2)]

The untreated or undiagnosed mandibular condylar fracture restricts mandibular movement, muscle spasm, deviation, facial asymmetry, deranged occlusion, TMJ ankylosis, and other related issues. In developing children, condylar trauma causes a change in the condylar growth center and the fusion of fracture segments in a position other than that which existed before the injury. This condition is known as TMJ ankylosis. [(3)]

Historically, the standard practice for managing mandibular condylar fractures, particularly in children with high adaptive potential and spontaneous regeneration, involved non-surgical treatment using maxillomandibular fixation (MMF). Non-surgical approaches were favored due to the perceived drawbacks of open surgical interventions. Several approaches have been documented in the literature, including preauricular, submandibular, postauricular, retromandibular, intraoral, coronal, and combined approaches. However, these approaches carry the risk of damaging essential structures like the facial nerve and temporal vessels due to their close anatomical proximity. Furthermore, extraoral approaches often result in visible scars, which can be aesthetically undesirable.[(4)]Despite the choice between surgical and non-surgical approaches, the primary objective of managing mandibular condylar fractures should be the restoration of pre-traumatic function, achieving pain-free mandibular movements, stable occlusion, and the restoration of facial symmetry. [(5,6)]

The department of Oral and Maxillofacial surgery at NID, Multan, treats virtually all condylar fractures conservatively (97%). This study was designed to determine the numerous patient complaints following such treatment.

METHODOLOGY

This cross-sectional study was conducted from October 2021 to October 2022 at the Department of Oral and Maxillofacial Surgery, Nishtar Institute of Dentistry, Multan. The sample size collected was 34 patients using a consecutive non probability sampling. The inclusion criteria were condyle fractures in a patient over 12 years of age, closed fracture, no history of mandibular fracture, and bilateral condyle fracture without ramus height reduction and anterior open bite. Condylar and compound fractures of the mandibular symphysis, body, and mandibular angle or midfacial/zygomatic fractures requiring a surgical approach of open reduction and internal fixation (ORIF) were excluded from the study.

Clinical and radiographic examinations of patients treated with a conservative approach were done during follow-up visits. The following data were collected: gender, age, cause of trauma, type of fracture, side, and site of the condylar fracture, and postoperative complaints the patient witnesses. Thirty-six patients who met the criteria mentioned earlier for condylar fracture treatment were included. The institution's ethics committee granted its approval for the research work. Using a carefully created proforma, informed consent was sought along with pertinent information. Using appropriate clinical examination patient was assessed for disturbed occlusion, limited mouth opening, deviation of the mouth, pain, or clicking sound. The mean follow-up period was six months.

RESULTS

The male-to-female ratio was 1.8: 1 with male predominance.The mean age was thirty-three years. The leading cause of fracture was attributed to incidents involving road traffic accidents (RTAs) (n—26, 76.5%), and the least cause was Gunshot injury and assault injury n=1,2.9%.Twenty-four patients had (70.6%) unilateral, and Ten (29%) had bilateral condylar fractures based on clinical examination and radiographs (OPG and PA view of the face). The most common site involved was the neck of the condyle 38.2%. Most of the condylar fractures were of deviated type 44.1%. Maxillomandibular fixation was kept in all patients for 10 to 14 days.

Twenty-three patients had a positive post-opt complaint after treatment, from which the most complaints presented were with

unilateral condylar fracture n=15. The most common complaint presented was TMJ Pain with limited mouth opening n=8(23.5%), in which n=10(29.4%) patients had expressed the pain to be at a moderate level. Only three patients (13.5%) had disturbed occlusion. The mean duration of follow-up was 2.3 months.

Table 1: Gender

	Frequency	Percentage
Male	21	61.8%
Female	13	38.2%
Total	34	100.0%

Table 2: Mouth Opening

	Frequency	Percent
Above 35mm	26	76.5%
Below 35mm	8	23.5%
Total	34	100.0%

Table 3: Site of Fracture

	Frequency	Percent
Head of condyle	13	38.2%
Neck of condlye	13	38.2%
Subcondyle	8	23.5%
Total	34	100.0%

Table 4: Cause of Fracture

	Frequency	Percent
RTA	26	76.5%
Fall	6	17.6%
Fight	1	2.9%
Gunshot injury	1	2.9%
Total	34	100.0%

Table 5: Post Treatment Complain

	Frequency	Percent
TMJ pain	7	20.6%
Occlusion	2	5.9%
Deviation	1	2.9%
Clicking	2	5.9%
Deviation,Clicking	1	2.9%
TMJ Pain, Mouth opening	8	23.5%
TMJ Pain, Occlusion	1	2.9%
TMJ Pain, Clicking	1	2.9%
None	11	32.4%
Total	34	100.0%

DISCUSSION

This study revealed that the preponderance of patients were male. The mean age of the patients was 33, which is consistent with previous research indicating that this age group is more likely to be involved in motor vehicle collisions. [7] [8]RTA were the predominant cause of condylar fractures in our patient population, likely attributed to the higher involvement of males in outdoor activities. Zachariades also noted that condylar fractures occur frequently as a result of RTA involving bicycle riding. [9]This is consistent with the findings reported by Sawazaki, who identified RTA as the commonly involve cause of condylar fractures; make up for 57.8% of cases [10]. However, it should be noted that etiological variations exist due to diverse lifestyles across different regions of the world.

In our study, employing the Lindahl classification, we observed that 38.2% of fractures involved the condylar head, 38.2% affected the condylar neck, and 8% were condylar base fractures. The incidence of condylar head and neck fractures was equal in our data, which contradicts the studies conducted by Mahgoub [11] and Hassan [12], where condylar base fractures were reported as the most frequent type.

Limited mouth opening is a common complaint following mandibular condylar fractures. In our study, only 23% of cases exhibited a post-traumatic mouth opening below 35mm; however, further follow-up visits may have resulted in improved mouth opening. These findings contradict the studies by Faroughi [13] and Ajithkumar [14], which reported a successful achievement of mouth opening in only 43.47% of cases involving sub-condylar fractures. Similar outcomes were also reported in research conducted by Singh [15], Monna-zzi [7], Mahgoub [11], and Joos [16]. Notably, several studies have established that mouth opening greater than 35mm following condylar fractures is considered within the normal range, and in our study, we successfully attained this outcome in 76% of patients, indicating a favorable treatment outcome [17].However, further research with larger sample sizes is necessary to validate these findings

Assessing TMJ pain during mastication is a crucial parameter in managing condylar fractures. Overall, 49.9% of our patients experienced pain two months postoperatively, with 23.5% of them also reporting limited mouth opening and 2.1% exhibiting disturbed occlusion and TMJ clicking. These outcomes are comparable to those found by Ahmad [18] on 200 patients with condylar fractures, where TMJ pain during mastication was reported in only 7.5% of cases. There is potential for substantial pain reduction in these patients in the future, as reported in multiple works of literature. [13] [15] [19]

It is essential to acknowledge our study's limitations, such as the comparatively small size of the sample and the lack of assessment of other clinical and radiological parameters related to mandibular function. Furthermore, longer-term follow-up studies are warranted to evaluate potential complications, including TMJ ankylosis or persistent joint problems, which may influence the decision in favor of ORIF for mandibular condylar fractures.

CONCLUSION

Despite the absence of associated morbidity from scar formation or facial nerve injury, conservative care of unilateral condylar fracture is a safe treatment option for patients. However, it can also cause a few post-treatment functional complaints, the most frequent of which is TMJ pain, which in some individuals may be related to a limited range of motion in the mouth. Additionally, this could not confirm whether surgical intervention would be a wise substitution. To further evaluate the improvement in function and discomfort, more research and consistent long-term follow-ups are required.

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