



A COMPARATIVE EVALUATION OF SURGICAL VERSUS CONVENTIONAL METHOD IN THE TREATMENT OF MANDIBULAR CONDYLAR FRACTURES

Dentistry

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ABSTRACT

INTRODUCTION: Mandible is one of the prominent bones in the facial skeleton. Since the condyle is the weakest portion of the mandible, it is one of the commonest sites of fractures in the mandible which is a protective mechanism as well. Condylar process fractures occur by the impact of an indirect traumatic force on the chin and seldom arise from direct trauma unless accompanied by fracture of the zygoma. Injury to the condylar region deserves special consideration apart from the rest of the mandible because of anatomical differences and healing potential. **AIM OF STUDY:** This is a prospective randomised study aimed to evaluate the functional outcome following non-surgical and surgical methods in the treatment of condylar process fractures. **MATERIALS AND METHOD:** This study was conducted on 20 patients who visited the Department of Dentistry, Darbhanga Medical College and Hospital, and who fulfilled the inclusion criteria were selected for the study after taking written informed consent and obtaining clearance from institutional ethical committee. **CONCLUSION:** We can conclude that if the condylar fracture is managed by closed reduction, there is more incidence of deviation of mandible towards fracture side as compared to cases managed by open reduction and internal fixation. we can conclude that in cases of un-displaced condylar fracture, conservative treatment is preferred and we advice surgical treatment in cases of deviated or displaced condylar fracture.

KEYWORDS

Condylar Fracture, Mandible, Closed Reduction, Open Reduction.

INTRODUCTION

Mandible is one of the prominent bones in the facial skeleton. Since the condyle is the weakest portion of the mandible, it is one of the commonest sites of fractures in the mandible which is a protective mechanism as well. The term condylar fracture is restricted to those fractures which may involve condylar head, anatomical neck or clinical neck of the condyle. Condylar process fractures occur by the impact of an indirect traumatic force on the chin and seldom arise from direct trauma unless accompanied by fracture of the zygoma. Injury to the condylar region deserves special consideration apart from the rest of the mandible because of anatomical differences and healing potential. The commonly accepted, goal of treatment is the re-establishment of the preoperative function of the masticatory system. This restoration typically involves the reestablishment of the preoperative relationship of the fracture segments, the occlusion and maxillofacial symmetry. However, the exact anatomic re-approximation of the fracture segments may not be absolutely essential. This fact is certainly demonstrated in children, in whom, despite lack of exact reduction at the time of injury, a conservatively treated displaced or dislocated condylar fracture can heal with a perfectly functional and often morphologically reconstituted condylar process. Depending on the size, speed, and direction of the force of impact, condylar neck fractures may occur unilaterally or bilaterally or in combination with other fractures of the mandible. Condylar fractures probably represent the aspect of maxillofacial trauma that is most controversial with respect to classification, diagnosis, and therapeutic management and has generated numerous discussions in the literature. There has been considerable increase in the incidence of long-term complications associated with the closed forms of the treatment despite there are equal studies supporting both open and closed forms of the treatment. This study aimed at comparatively evaluating the outcome of closed and open methods of treatment of condylar process fractures.

AIMS AND OBJECTIVES

This is a prospective randomised study aimed to evaluate the functional outcome following non-surgical and surgical methods in the treatment of condylar process fractures.

Inclusion Criteria For This Study:

- 1) Unilateral fracture of the condylar process.
- 2) Age group of 30 to 40 years.
- 3) Medically fit for surgical intervention.
- 4) Sufficient bilateral dentition to allow MMF and assessment of occlusal relationships.
- 5) No history of temporomandibular dysfunction.
- 6) No gross pre-traumatic skeletal mal-relationship of the jaws.

Exclusion Criteria

Patient refusal, extremes of age, immunocompromised condition, burn scar, hemodynamic instability.

MATERIAL & METHODS

This clinical study was conducted on 20 patients who visited the Department of Dentistry, Darbhanga Medical College and Hospital, Darbhanga, Bihar and who fulfilled the inclusion criteria were selected for the study after taking written informed consent and obtaining clearance from institutional ethical committee.

The patients were grouped into two main categories.

GROUP CR - comprised of 10 patients treated by closed reduction.

GROUP OR - comprised of 10 patients treated by open reduction.

The period of follow up for both categories were ranging from 0- 18 months.

The clinical parameters studied for evaluation in the study:

- Maximum interincisal opening
- Right lateral excursion
- Left lateral excursion
- Occlusion
- Contour Perception
- Pain.

The patients were assessed under the following criteria at intervals of 3 weeks, 6 weeks, 3 months, 6 months, and further.

STATISTICAL STUDY

Descriptive analysis for nonparametric variables expressed in proportion and parametric variables in mean and standard deviation. The t difference was assessed using t test for independent samples for parametric variables and by Chi square test for non-parametric variables. Statistical significance was assessed using $p < 0.05$ as statistically significant. All data were computed using Microsoft excel and analysed using SPSS software for Microsoft.

RESULTS

20 patients with unilateral condylar fractures were included in this study. 10 patients were treated conventionally and 10 patients underwent open reduction and rigid internal fixation. The patients were regularly followed for different clinical parameters.

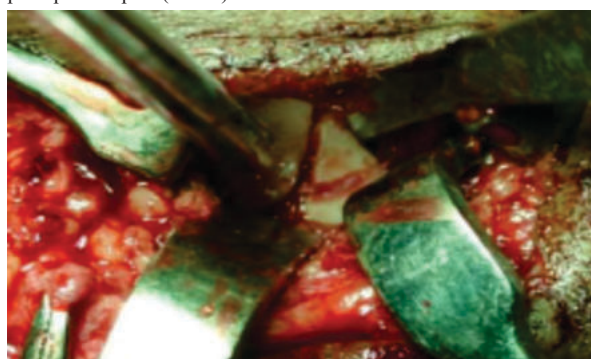
Table 1: Various Parameters Studied In Closed Reduction.

Parameters	Mean(mm)	SD	
Maximum Inter-incisor Opening	32	4.32	NS
Right Lateral Excursion	5	1.65	NS
Left Lateral Excursion	5.20	1.72	NS
Occlusion	1.60	0.74	0.03
Pain	2	0.65	0.04
Contour Perception	1.11	0.25	NS

Table2: Various Parameters Studied In Open Reduction.

Parameters	Mean	SD	P-value
Maximum Inter-incisor Distance	36	6.45	NS
Right Lateral Excursion	6	0.95	NS
Left Lateral Excursion	6.5	1.12	NS
Occlusion	1.15	0.52	0.03
Contour Perception	1.10	0.22	NS
Pain	1.25	0.34	0.04

Significant statistical differences were noted among the two groups in the category of maximum interincisal opening, occlusion, and pain. No statistically significant differences were noted between the two groups for the right and left lateral excursive movements, and contour perception. Statistically significant differences were noted in the perception of pain (<0.05).

**Fig 1: Showing Fracture Site During Closed Reduction.****Fig 2: Application Of Miniplates.****Graph 1: Comparative Graph Of Both Procedure.**

(miid: Maximum Inter- incisor Distance,
Rle: Right Lateral Excursion,
Llt: Left Lateral Excursion)

CONCLUSION

Therefore, we can conclude that if the condylar fracture is managed by closed reduction, there is more incidence of deviation of mandible

towards fracture side as compared to cases managed by open reduction and internal fixation. Mouth opening was significantly better in patients treated by open reduction. Also, Pain perceived by conventionally treated patients in the temporomandibular region was found to be comparatively more.

Therefore, we can conclude that in cases of un-displaced condylar fracture, conservative treatment is preferred whereas we advice surgical treatment in cases of deviated or displaced condylar fracture.

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