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Original Article

# A Study Determining the Extent of Weight Loss amongst Subjects Reporting to the Hospital for Closed Reduction

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## ABSTRACT

***Background:*** *The basic and fundamental technique for managing cases of maxillofacial trauma is maxillomandibular fixation. The aim of the present study was to determine the amount of weight loss amongst subjects going for closed reduction for mandibular fracture.*
***Methods:*** *The present prospective study enrolled 50 subjects reporting to the department with simple mandibular fractures(excluding condyle fractures). All the subjects between 25-50 years of age were included in the study. All the subjects were refrained from any kind of physical activity and could have only liquid diet. Body weight of the subjects was noted preoperatively, on 1st postoperative week, 2nd postoperative week, 3rd postoperative week and 4th postoperative week. All the data was arranged in a tabulated form and analyzed using SPSS software.*
***Results:*** *The present study enrolled 50 subjects with the mean age of 37.29+/- 7.98 years. The mean postoperative weight at 1 week was 75.80+/-9.21 kilograms. The mean postoperative weight at 2 weeks was 74.97+/-8.23 kilograms. The mean postoperative weight at 3 weeks was 74.22+/-8.25 kilograms.*
***Conclusion****: From the above study, we can conclude that there was a significant weight loss amongst the subjects during the follow up period.*

***Key words:*** *Maxillofacial, Mandibular, Fracture*

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## INTRODUCTION

The basic and fundamental technique for managing cases of maxillofacial trauma is maxillomandibular fixation.[1] It is the cornerstone for reconstruction of maxillofacial esthetics and functions. It aids in reestablishing the preoperative occlusion and hence assists while performing open reduction and internal fixation.[2] There are various techniques for maxillomandibular fixation.[1] It was first reported in the 17th century and is frequently used for the management of mandibular fractures.[3] Maxillomandibular fixation works by providing an indirect method of fixation. It is a simple technique to perform and does not require much expertise. It is also inexpensive and can be performed under local anaesthesia.[1,3] MMF is also associated with few drawbacks like it cannot be performed in cases of missing teeth, in cases of unfavorable fractures the muscle pull displaces the bony fragments and therefore adjusting occlusion won't be of much help.[1,4] They require crucial follow up during fist postoperative day.[4,5] Patient compliance is also poor with MMF as it is difficult to maintain oral hygiene and normal diet.[4,6] There are also chances of muscle atrophy, loss of bite force and weight loss with prolonged duration of MMF.[7-9] At times maxillomandibular fixation becomes unpleasant for the patients and they willingly get it removed early. The

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aim of the present study was to determine the amount of weight loss amongst subjects going for closed reduction for mandibular fracture.

## METHODS

The present prospective study enrolled 50 subjects reporting to the department with simple mandibular fractures excluding condylar fractures. All the subjects between 25-50 years of age were included in the study. Subjects below 25 years and more than 50 years were not included in the study. Subjects belonging to ASA grade III and IV categories were also excluded from the study. Subjects undergoing MMF other than trauma were also excluded from the study. All the subjects underwent MMF for a duration of 4 weeks with Erich Arch bar wiring. All the subjects were kept on Ensure, boiled pulses, fresh juices, milk and other forms of liquid diet as a nutritional supplement. All the subjects were refrained from any kind of physical activity and could have only liquid diet. Body weight of the subjects was noted preoperatively, on 1st postoperative week, 2nd postoperative week, 3rd postoperative week and 4th postoperative week. The complete demographic detail and medical history of all the subjects were also noted. All the data was arranged in a tabulated form and analyzed using SPSS software. Student t test was used for the analysis of the data. Probability value of less than 0.05 was considered significant.

## RESULTS

The present study enrolled 50 subjects with the mean age of 37.29+/- 7.98 years. There were 35(70%) males and 15 (30%) females in the study. The age range of the study subjects was 25-50 years. The mean body weight of the subjects preoperatively was 78.95+/- 6.35 kgs. (Table 1)

The mean preoperative weight of subjects was 80.62 +/- 8.46 kilograms. The mean postoperative weight at 1 week was 75.80+/-9.21 kilograms. The mean postoperative weight at 2 week was 74.97+/-8.23 kilograms. The mean postoperative weight at 3 week was 74.22+/-8.25 kilograms. The mean postoperative weight at 4 weeks was 73.55+/-8.21 kilograms. The mean preoperative weight range was between 54-97 Kgs. The mean postoperative weight range at 1 week was 43-91 Kgs. The mean postoperative weight range at 4 weeks was 48-90 Kgs. On applying student t test there was a significant weight loss amongst the subjects at 4th week.

**Table 1: Demographic characteristics of the study**

| Variable | Frequency | Percentage |
|---|---|---|
| Males | 35 | 70% |
| Females | 15 | 30% |
| Mean age | 37.29+/- 7.98 years | |
| Age range | 25-50 years | |
| Mean body weight | 78.95+/- 6.35 kgs | |

**Table 2: Mean pre and post-operative weight amongst subjects**

| Variable | Preoperative weight | Postoperative weight (1 week) | Postoperative weight (2 week) | Postoperative weight (3 week) | Postoperative weight (4 weeks) | P value |
|---|---|---|---|---|---|---|
| Mean | 80.62 | 75.80 | 74.97 | 74.22 | 73.55 | <0.05 |
| Standard deviation | 8.46 | 9.21 | 8.23 | 8.25 | 8.21 | |
| Minimum | 54 | 43 | 42 | 46 | 48 | |
| maximum | 97 | 91 | 90.9 | 90.5 | 90 | |

## DISCUSSION

Patients presenting with numerous fractures in the maxillofacial region require different type of treatments that range from close reduction to open reduction internal fixation or a mixture of both.[1,3,10] Currently open reduction and rigid internal fixation is becoming the gold standard for managing simple as well as complex mandibular fractures, but temporary IMF or postoperative fixation with wire or elastic placement is still being performed using Erich arch bars, splints, embrasure wires, interdental eyelet wiring, pin fixation and bonded brackets. Techniques of closed reduction compromise patients' ability of oral intake during the early postoperative period and the period differs per extent of the procedure. Most of the subjects undergoing simple dentoalveolar surgery feel uncomfortable eating during the first 24 to 48 hrs but after few days they can have normal diet.[2,4,11]

Subjects with fractured jaws are not able to have a normal diet for 6 to 8 weeks i.e. the period of maxillomandibular fixation.[9,12] For healing to proceed normally, nutritional requirements play an important role throughout this healing period otherwise patients can become nutritionally deficient and dehydrated.[4] Anesthesia and surgery gives rise to catabolic state and that is personified by limited nutritional intake. A normal human adult needs 1800 to 2000 calories per day 14. According to our study, the mean postoperative weight at 1 week was 75.80+/-9.21 kilograms. The mean postoperative weight at 2 week was 74.97+/-8.23 kilograms. The mean postoperative weight at 3 week was 74.22+/-8.25 kilograms. The mean postoperative weight at 4 weeks was 73.55+/-8.21 kilograms. The mean preoperative weight range was between 54-97 Kgs. The mean postoperative weight range at 1 week was 43-91 Kgs. The mean postoperative weight range at 4 weeks was 48-90 Kgs. On applying student t test there was a significant weight loss amongst the subjects at 4th week. In our study, during the first week of the postoperative period there was measurable weight loss amongst the subjects. This clearly indicated patients had significant difficulty in oral intake during the first postoperative period. Our study only noted the weight during the study period, there was no information about the complications encountered during the study. As per the study conducted by Worall SF et al, a total weight loss of 4.6 Kgs was seen amongst the subjects undergoing closed reduction.[9] At 4th postoperative the subjects started to gain weight like our study.[4] In various other studies, there was no significant weight loss during 4 to 6 weeks. In various other studies that tried to lose weight using MMF showed no significant effect on weight of subjects.[13-15] The limitations of the study include smaller sample size and short duration of follow up period.

## CONCLUSION

From the above study, we can conclude that there was a significant weight loss amongst the subjects during the follow up period. Closed reduction is not a widely accepted method amongst patients of mandibular fracture. Now a day open reduction and internal fixation is the method of choice that allows for temporary MMF.

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