**ORIGINAL ARTICLE**

# Efficacy of Erich Arch bar in Delayed Healed Maxillomandibular Fractures

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## ABSTRACT

The purpose of this study is to evaluate the efficacy of Erich arch bar in delayed healed maxillomandibular fractures. This prospective descriptive study was conducted in Islam Dental College/ Islam Teaching Hospital Sialkot from 2nd February 2019 to 31th January 2020.Total 9 cases were operated including 4 Maxillary fractures and 5 mandibular fractures.

**Keywords**; Erich arch bar,maxillomandibular fractures,elastics

## INTRODUCTION

Maxillofacial injuries are the most common injuries associated with other injuries. Incidence of Maxillofacial injuries has increased in high speed motor vehicle accidents[1]. The management of Maxillofacial injuries always remain challenging. Prime concern of Maxillofacial injuries management is to correct function and esthetic of patient. Correction of occlusion has pivotal role in the management of maxillomandibular fractures because intact mandible is necessary in biting, chewing and speaking. Beside modern techniques of Reduction and internal fixation like use of microplates and mini plates, the role of Erich arch bar with elastics for passive reduction of displaced fracture segments is still valuable[2,3].

For open reduction and internal fixation of delayed healed maxillofacial fractures, patients need to undergo G.A. Sometimes patients are not fit for G.A or delayed healed fractures need osteotomy and more tissue dissection[4].

## MATERIAL AND METHODS

This Descriptive prospective study was conducted at Islam Medical and Dental College/ Islam Teaching hospital Sialkot from 2nd February 2019 to 31th January 2020. Ethical approval was taken from Islam Ethical committee. Nine cases were selected through randomized pattern, reported in Islam dental college OPD with complain of oral functional disturbances. Patients were diagnosed delayed healed maxillomandibular fractures after clinical and radiographic examination[9]. Cases presented after 3-5 weeks of injury labelled as delayed healed fractures. All patients were verbally explained and written consent was taken for surgical procedure. All patients were admitted in Islam teaching hospital. After giving effective local anesthesia with 2% lignocaine and epinephrine 1:200,000, Ericharch bar was placed in maxilla and mandible. Rubber elastics with guiding pattern were used to achieve good occlusion.MMF was done for 4-6 weeks. After first post-operative day and one week, elastics guiding pattern were reviewed. Patients were instructed to maintain good oral hygiene. Antibiotics and analgesic were prescribed for all 9 cases pre and post operatively.

Disadvantage of open reduction in case of old healed fractures:

1. Bleeding by angiogenesis
2. Margins are not clear
3. Distorted anatomy (difficult to reduce)
4. Sometimes comminuted bone pieces (difficulty in reduction)[5]
5. Need bone grafting if bone gap
6. Sometimes use of distraction
7. Facial scars[11]

Disadvantages of arch bar

1. High plaque ra
2. Pain problems
3. Time consuming with IMF 3-4 weeks
4. Liquid diet restriction
5. Patient poor compliance
6. Risk of needle stick injury

With the help of arch bar displaced segments can distract to its desire position (pre-trauma and late)[6]

## RESULTS

Out of nine cases, male to female ratio was 2:7.Patients presented from 2nd decade to 4th decade(18-45 years).Average age was about 28 years. The individual ages of patients in years were,18,22,24,25,45,32 35,27,23 respectively. Four patients had maxillary fractures (Lefort II) and five patients were of mandibular fractures. In mandibular fractures, two were right angle fractures and three were parasymphysis. Out of these three parasymphysis two were right parasymphysis and one was left side.

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| Gender | Age | Site of fracture | Fracture side |
|---|---|---|---|
| F | 18 | Parasymphysis | Left |
| M | 22 | Angle | Right |
| M | 24 | Lefort II | Bilateral |
| M | 25 | Lefort II | Bilateral |
| M | 45 | Lefort II | Bilateral |
| F | 32 | Parasymphysis | Right |
| M | 35 | Parasymphysis | Right |
| M | 27 | Angle | Right |
| M | 23 | Lefort II | Bilateral |

## DISCUSSION

There are different methods to treat the Maxillofacial fractures. The aims of management of maxillofacial fractures are to achieve function and esthetic. To achieve these results, open reduction and internal fixation are being used throughout the world. The Lefort fractures also requires open reduction and internal fixation to get optimum results[10]. Different materials for internal fixation are available i.e., titanium microplates, reconstruction plates and bioresorbable[7,12]. The goal is to correct oral function with minimum tissue damage, cost effective and with short duration[8]. The use of Erich arch bars in upper and lower jaws, then using guiding elastics, the occlusion can be achieved with minimum expenditures and tissue damage. There is no need to open the fractures segments and post-operative complications can be avoided[13]. Segmental arch bars can closely reduce the fractures segments slowly and bring the teeth, alveolar and basal bone into good occlusion. The main disadvantage of this method was facial asymmetry which cannot be corrected without ORIF. The other manageable disadvantage was bad oral hygiene. The good oral hygiene instructions, pre-operative and post-operative scaling and mouthwashes were prescribed to overcome this difficultly. Overall occlusion was satisfactory. In all cases patient compliance was good. Poor patients were happy because of no financial burden. Medically compromised patients were saved from general anesthesia complications. They were very happy in this closed conservative approach.

## CONCLUSION

Even in the presence of modern developed technology, the role of Erich arch bars with guiding elastics is still valuable for under developed countries to correct delayed healed Maxillomandibular fractures where only occlusion was disturbed.

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