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Research Article

**POST-OPERATIVE OUTCOME OF MANDIBULAR
FRACTURES TREATED WITH RIGID INTERNAL FIXATION**¹Dr. Ayesha Sattar, ²Dr. Iqra Shahid, ³Dr. Urva Salahuddin¹Allied Hospital, Faisalabad²Punjab Dental Hospital Lahore³University of Medical and Dental College Faisalabad**Abstract:**

Objective: To access the postoperative results in 80 patients with mandibular fractures managed surgically with internal fixation and open reduction in the Oral and Maxillofacial Surgery Department.

Study design: A prospective study.

Place and duration: From April 2017 to April 2018, at Mayo Hospital, Lahore, Oral and Maxillofacial Department, for one year.

Methods: The fracture pattern and postoperative outcome data were reviewed and evaluated.

Results: The mandibular fracture most common etiology was parasymphysis and traffic accident. 62 patients (n = 62, 77%) had good postoperative outcome without any complications.

Conclusion: The most common complication was infection (n = 8, 9.01%), followed by malocclusion (n = 6, 5.99%).

Key words: rigid internal fixation, postoperative complications, mandibular fracture.

Corresponding author:

Dr. Ayesha Sattar,
Allied Hospital,
Faisalabad

QR code



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INTRODUCTION:

In facial skeleton the most common fractures are Mandibular fractures due to its prominent place in the maxillofacial region. They may be in combination with other facial bone fractures or occurs alone. The site of fracture depends on the size of injury and impact force direction, the jaw forward and the anatomy mechanism of the site. Treatment of mandibular fractures differs between maxillofacial units worldwide. It rely on the patients presentation clinically, the operator's surgical experience, and the possibilities available in the maxillofacial surgery units. Anatomic reduction, immobilization, protection against infections and treatment of function traditionally, the surgeon tried to achieve four main objectives in the treatment of jaw fractures. The fulfillment of these objectives is necessary for proper postoperative operation and successful bone healing of the stomatognathic system. To ensure early functional and aesthetic recovery, maxillofacial surgeons have innovative surgical methods to offer superior options for managing mandibular bills. A trend in the treatment of lower jaw fractures is the reduction of open reduction and rods with threaded rods, ferrules, open reduction and intraosseous cable MFI and intermaxillary fixation (MFI), and the mini plate compression plates and compression screws without compression. Fixed internal fixation promotes primary bone healing without long-term intermaxillary fixation for immobilization. The IMF's elimination usually results in anterior mandibular function, better nutrition and oral hygiene. In children, early mobilization prevents the possibility of ankylosis and decreases the postoperative complications in patients with immobilized and polymorphic in likelihood. With multi-traumas, mentally disabled, epilepsy, war injuries and prevents people from life-threatening events with people. However, internal fixation has increased the morbidity, although it has advantages, longer duration of the procedure, the difficulty of the cost of equipment, the long-term disposal of the plate required for the second surgery and hospital stay. The aim of this analysis was to determine postoperative complications and the results linked with a rigid internal fixation and open reduction. This study will help us to take necessary measures to reduce postoperative complications.

MATERIALS AND METHODS:

This clinical study was performed in 80 patients presented in the Oral and Maxillofacial Department of Mayo Hospital Lahore for one year duration from April 2017 to April 2018. Patients who were diagnosed as mandibular fracture, managed with rigid internal fixation and open reduction and who did not

have other facial fractures were selected for the study. Patients with pathological fractures, some serious systemic diseases and coronary fractures were not selected for the analysis. With the consent of the selectees, all important information about the study variables written in a pre-formed form were collected by a clinical history and a complete clinical examination. Sensory disorders, Occlusion and preoperative infection were determined by clinical examination. Patients were investigated for infection, normal union, defective union, union, malocclusion and nervous disorders 5 and 7. Data were analyzed using descriptive statistics and analyzed.

RESULTS:

21-30 years was the most common age group and the mean age was 25.01 ± 16.04 years. In terms of gender distribution, the ratio of the majority of patients to females was 6.7: 2.

The traffic accidents were the most common cause of injury (n = 38, 39.07%) followed by a fracture (n = 26, 30.99%). The parasymphysis was the common area of the fracture (n = 27; 31.95%), followed by an angle (n = 23; 28.05%), (Table 1).

TABLE 1: DISTRIBUTION OF MANDIBULAR FRACTURES ACCORDING TO SITE

Site	No. of fractures	%age
Symphysis	13	16.2
Parasymphysis	26	32.5
Body	17	21.2
Angle	22	27.5
Ramus	2	2.5
Total	80	100

In general, 63 patients had better outcome (77%), which was characterized by clinical association, anatomic reduction, normal function and pre-traumatic obstruction improvement.

TABLE 2: POSTOPERATIVE OUTCOME

Study variable	No	%age
Normal union	77	96.2
Non-union	0	0
Malunion	3	3.7
Delayed union	0	0
Infection	7	8.7
Malocclusion	5	6.2
5 th nerve injury	3	3.7
7 th nerve injury	0	0

The malocclusion was the most common complication (n = 8, 9.07%) followed by (n = 6, 5.99%), malignancy and injury to the fifth nerve (n = 3, 3.7%), Table 2).

DISCUSSION:

The aim of any fracture management is the restoration of form and function with minimal morbidity. In this study, the main cause of fractures was the common site of RTA and paraphyses. These findings are consistent with previous studies. Bone fusion is expected to result in adequate reduction and immobilization within 4-6 weeks. 99% of the patients had clinically successful normal bone union results. The results of this study were consistent with Iizuka and Lindqvist C T studies in 93.9% reporting of jaw fractures in a normal association. This study also associated with the study of Peled M et al., TBC Dodson et al., 83% and 82.6%, respectively. Previous studies have reported an infection rate between 3% and 27% using ORIF. The fracture site and the incompatibility of the patient are taken into account in the most severe fractures, technical errors, lack of prophylactic antibiotics, and factors that may play a role in the development of mobility infection. This study shows that infection is the most common complication (8.7%). Five patients responded to the antibiotic and two patients responded to the premature removal of the plaque. A similar infection rate has been reported in previous studies. Some studies have documented a higher infection rate in hard internal fixation. A study by Moreno JC and al.10, 12.5% and Renton TF et al., 915% B Jaques, and al.n21 is an infection of 2.9% compared with that reported in the literature and literature. current study. The second most common complication was postoperative malocclusion (6.2%). Malocclusion was evaluated according to the evaluation of occlusion, maximum interference, midline relationship, molar ratio, abrasion rate and complaints of patients. The presence of postoperative malocclusion depends on the patient's dental condition, number of fractures, type of fracture, degree of replacement, type of reduction, fixation and immobilization. Smith, WP20 (7.5%), Cawood JI19 (8%), Peled M et al 4 (7.8%) and Dodson et al TBC 7 (7.7%) Previous reports have also been consistent with this study. In some studies, it has been reported that malocclusion at different rates is between 2.5% and 18.2% in solid internal fixation. The observed postoperative malocclusion was minimal and treated with selective occlusal grinding. Malunion is the healing of bone segments in a non-physiological position due to insufficient treatment of displaced fractures. This may occur as a result of plaque flexion or poor intraoperative reduction of fracture segments. Malunion found in this study had less nature and did not require surgical intervention. Occlusal inconsistencies were corrected by occlusal balance procedures. Sensory changes were recorded according to the patient's complaint. Sensory changes

were recorded as changes in the inferior alveolar nerve, mental nerve, and lingual nerve. Sensory changes in two mental nerves and lower alveolar nerve were recorded. It was due to the rise of the wing and involuntary placement of the nerves. In this study, Iizuka and Lindqvist and Dodson TB et al. As reported, the involvement of the mandibular branch of the facial nerve was not recorded.

CONCLUSION:

Osteosynthesis with internal fixation and open reduction provides optimal stability for recovery and provides immediate function of the stomatognathic system. Hard internal fixation with screws and plates, superior aesthetic results, precise reduction, safety and greater comfort for patients, early restoration of functional life, and hands of experienced surgeons provide a low complication rate. In addition, more controlled prospective studies on rigid internal fixation and open reduction of mandibular fractures are required to maintain clinical protocols.

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