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POSTOPERATIVE COMPLICATIONS IN PATIENTS WITH MANDIBULAR ANGLE FRACTURES, TREATED WITH SINGLE PLATE

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Abstract:

Introduction: *In the past four decades, there has been an increasing interest in obtaining more immediate return to normal function by using different methods of direct fixation with an open approach and allowing anatomical reduction of the fragments.* ***Objectives:*** *The main objective of the study is to analyse the postoperative complications in patients with mandibular angle fractures, treated with single plate.* ***Material and methods:*** *This retrospective study was conducted in Armed Forces Institute of Dentistry, CMH Rawalpindi during June 2019 to January 2020. 50 patients with insignificant medical history were involved in the study. The selected cases were treated by open reduction and internal fixation using single plate. Detailed case history was recorded and all patients were treated and observed by the same surgeon. Routine clinical, radiological, and haematological examination was carried out and recorded.* ***Results:*** *The data was collected from 50 patients. Mean age of patients was 30.95 ± 12.37 years. Five patients with MAF had postoperative complications that required additional procedures. Three patients had postoperative infection, one patient complained of malocclusion in the first postoperative week, and one patient had miniplate exposure three months after surgery.* ***Conclusion:*** *It is concluded that the use of a single miniplate is therefore encouraged. However, postoperative MMF should be considered with the presence of little contact between bone segments, malocclusion, or extensive tooth loss.*

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INTRODUCTION:

In the past four decades, there has been an increasing interest in obtaining more immediate return to normal function by using different methods of direct fixation with an open approach and allowing anatomical reduction of the fragments. Surgical treatment of mandibular fractures involves intraoral or extraoral opening of the fracture site and direct osteosynthesis with transosseous wires, lag screws, or bone plates. A number of fixation methods have been advocated for the treatment of mandibular fractures [1].

Through the decades, various plate and screw osteosynthesis have been introduced like AO plating system, miniplating system, resorbable plates and screws. Transorally placed miniplates have gained wide acceptance for the treatment of mandibular fractures as described by Champy *et al*. Non-comminated symphyseal and parasymphyseal fractures, as well as condylar fractures, can be treated with two miniplates, and at times, favourable, displaced angle fractures can be treated with an upper border [2].

Mandibular angle fractures (MAFs) are among the most common maxillofacial injuries; they are associated with the highest complication rates of all mandibular fractures, yielding an incidence as high as 32% [3]. These fractures are frequently associated with facial lacerations (32%), cervical spine injuries (2 to 10%), orthopaedic injuries (20%), neurologic injury (24%), and thoracic and abdominal injuries (12%). The MAF is defined as a fracture line that begins where the anterior border of the mandibular ramus meets the body of the mandible and extends inferiorly through the inferior border or posteriorly toward the gonial angle [4]. Fracture osteosynthesis is widely considered the standard treatment of these fractures; however, controversy remains regarding the ideal treatment modality of MAFs [5].

Objectives

The main objective of the study is to analyse the postoperative complications in patients with mandibular angle fractures, treated with single plate.

MATERIAL AND METHODS:

This retrospective study was conducted in Armed Forces Institute of Dentistry, CMH Rawalpindi during June 2019 to January 2020. 50 patients with insignificant medical history were involved in the study. The selected cases were treated by open reduction and internal fixation using single plate. Detailed case history was recorded and all patients were treated and observed by the same surgeon. Routine clinical, radiological, and haematological examination was carried out and recorded. Oral prophylaxis was carried out and Erich arch bar was applied preoperatively. immediate postoperative radiographs were taken within hours after the procedure, followed by at 8^{th} and 12^{th} weeks as normal fracture healing process takes approximately 3 months.

RESULTS:

The data was collected from 50 patients. Mean age of patients was 30.95 ± 12.37 years. Five patients with MAF had postoperative complications that required additional procedures. Three patients had postoperative infection, one patient complained of malocclusion in the first postoperative week, and one patient had miniplate exposure three months after surgery. Postoperative assessment was done for the presence of infection, paresthesia, malocclusion, wound dehiscence, and hardware failure. The assessment was done on 3^{rd} day, 1^{st} week, 2^{nd} week, 4^{th} week, 8^{th} week, and 16^{th} week time intervals.

Table 01: Change in infection status at different follow-up intervals as compared to baseline evaluation

Variable	Infection		Significance of change	
	No.	%	χ^2	*P*
Baseline	0	0	–	–
First follow-up	0	0	–	–
Second follow-up	2	5	1.026	0.311
Third follow-up	2	5	1.026	0.311
Fourth follow-up	0	0	–	–
Fifth follow-up	0	0	–	–
Final follow-up	0	0	–	–

The single plate was observed to be stable at all follow-up intervals, showing no change from baseline status at the first follow up.

DISCUSSION:

The problem of postoperative infection has long been debated and represents a major complication of MAFs. Ellis found that the use of a single miniplate at the superior border was sufficient to treat such fractures, and that the use of plates raises the incidence of infection dramatically [6]. Conversely, some of the literature has reported no relevant difference in rates of infection for 1- versus 2-plate techniques. Mehra and Haitham noted that the use of fewer plates results in less periosteal stripping, which can lead to less blood supply disruption, and decreased operating time, which can decrease the rate of postoperative infections [7]. A recent prospective study on MAFs found that the use of a strut plate at the angle had relatively less or no postoperative complications compared with other techniques [8]. Therefore, which method of fixation yields the least postoperative infections? The present study showed no statistically meaningful correlation between fixation type and rate of postoperative infection [9]. The differences in rates of infection among various studies might be attributed to inherent differences in the patient population being studied variations in socioeconomic status, differences in tobacco and alcohol use and abuse, and levels of nutritional status, and other medical co-morbidities [10-11].

CONCLUSION:

It is concluded that the use of a single miniplate is therefore encouraged. However, postoperative MMF should be considered with the presence of little contact between bone segments, malocclusion, or extensive tooth loss.

REFERENCES:

1. Anand SS, Thangavelu A. Role of indigenous 3-D plating system in oral and maxillo facial surgery. J Maxillofac Oral Surg. 2004;3:24–7.
2. Parmar BS, Shailesh M, Raghani, Manish, Toral K. Three dimensional miniplate rigid fixation in fracture mandible. J Maxillofac Oral Surg. 2007;6:14–6.
3. Juergen Z, Olivier L, Tateyuki L. Use of straight and curved 3- dimensional titanium miiplates for fracture fixation at the mandibular angle. J Oral Maxillofac Surg. 2007;65:1758–63.
4. Saito DM, Murr AH. Internal fixation of mandibular angle fractures with the Champy technique. Oper Techn Otolarynol. 2008;19:123–7.
5. Moreno JC, Fernández A, Ortiz JA, Montalvo JJ. Complication rates associated with different treatments for mandibular fractures. J Oral Maxillofac Surg. 2000;58:273–80.
6. Schliephake H, Lehman H, Schmelzeisen R. Ultrastructural findings in soft tissues adjacent to titanium plates used in jaw fracture treatment. Int J Oral Maxillofac Surg. 1993;22:20–5.
7. Tams J, Loon JP, Otten E, Rozema FR, Bos RR. A three-dimensional study of bending and torsion moments for different fracture sites in the mandible: An *in vitro* study. Int J Oral Maxillofac Surg. 1997;26:383–8.
8. Meyer C, Serhir L, Boutemi P. Experimental evaluation of three osteosynthesis devices used for stabilizing condylar fractures of the mandible. J Craniomaxillofac Surg. 2006;34:173–81.
9. Kalfarentzos EF, Desponia D, Georgios M, Tyllianakis M. Biomechanical evaluation of plating technique for fixing mandibular angle fracture: The introduction of a new 3 D plate approach. Oral Maxillofac Surg. 2009;13:139–44.
10. Boyd N, John DW, Lovald S. Clinical and FEA of low profile 3 D and parallel miniplates in fixation of mandibular symphysis and parasymphysis fracture. J Maxillofacial Oral Surg. 2008;7:431–7.
11. Wittenberg JM, Mukherjee DP, Smith BR, Kruse RN. Biomechanical evaluation of new fixation devices for mandibular angle fractures. Int J Oral Maxillofac Surg. 1997;26:68–73.