

## **TITANIUM MINIPLATE OSTEOSYNTHESIS OF MANDIBULAR FRACTURES**

**Haithem A. Ziarah<sup>1</sup>** *M Med. Sc., F.F.D.R.C.S.I*, **Ammar Yass Khidr<sup>2</sup>** *F.I.C.M.S*

### **Abstract**

**Background:** The treatment of mandibular fractures (#s) had traditionally involved re-establishment of occlusion by Intermaxillary Fixation (IMF). In order to eliminate the morbidity associated with IMF, IMF has associated morbidity such as weight loss, interference with oral hygiene measures and patient discomfort. Increasingly over the three past decades, oral and maxillofacial surgeons have developed techniques of treating mandibular fractures using internal fixation. The routine use of miniplates in oral and maxillofacial surgery has gained popularity since Champy reported modification of the original technique of Michelet.

**Objective:** Evaluation of titanium miniplate osteosynthesis in treatment of mandibular fractures and comparison of the outcome, advantages, disadvantages and complications between intra oral and extra oral approach for the application of titanium miniplates.

**Methods:** This study was performed prospectively on 24 patients with 28 isolated mandibular fractures and treated by open reduction and titanium miniplate

osteosynthesis. Ten patients had intra oral approach and fourteen patients had extra oral approach.

**Result:** The overall complication rate was 25%. In the group, in which extra oral approach was used, the complication rate was 21.4% (3 patients): 2 patients with facial scarring and 1 patient with malocclusion. In the group, in which intra oral approach was used, the complication rate was 30% (3 patients): 1 patient with paraesthesia of the lip, 1 patient with postoperative infection and 1 patient with root injury.

**Conclusion:** Miniplate osteosynthesis gives acceptable result, and it can be recommended as a routine method for treatment of all mandibular #s. Intra oral approach is advantageous to, and gives comparable results with extra oral approach. Experience in the technique is an important factor in the outcome.

**Key words:** Trauma-Mandibular fracture-Miniplate osteosynthesis

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### **Introduction**

In an attempt to overcome the disadvantages of intermaxillary fixation (IMF) several authors described the use of bone plates without IMF but the complication rate was unacceptably high, notably, infection, external scar, occlusal derangement and the need for the plate removal. The initial plate either made of stainless steel or of vitallium, suffered from a major disadvantage by lacking malleability, which easily resulted in

fracture of the plate when attempts were made to bend them<sup>[1-3]</sup>.

The first compression osteosynthesis was performed by Luhr in 1967; he achieved axial compression of the fracture (#) segments by eccentric compression holes and bicortical screws performed exclusively via extra oral approach. Luhr in 1985 demonstrated a significantly reduced rate of infection with an intra oral approach<sup>[4]</sup>.

Michelet in 1973 described osteosynthesis of mandibular #s utilizing miniaturized non-compression plates and self-tapping monocortical screws applied intra orally and the sulcus just medial to external oblique line was used for angular #s, and a juxta-alveolar position in body #s<sup>[5]</sup>.

Champy in 1976 modified Michelet technique using miniaturized malleable non-

<sup>1</sup>Dept. Surgery-Division of Maxillofacial Surgery College of Medicine, Al-Nahrain University, <sup>2</sup>Al-Kadhihmyia Teaching Hospital Maxillofacial Unit  
Address correspondence to: Dr. Haithem A. Ziarah, phone No. 5429792

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