

Surgical Management of Non-Union Edentulous Mandibular Fracture: A Case Report

Mahaseni Aghdam H,

Department of Oral and Maxillofacial Surgery and Implant Research Center, Dental Faculty, Tehran Medical Sciences, Islamic Azad University, Tehran, Iran, Tel: +989122123906; E-mail: dr_hamid_mahaseni@yahoo.com

ABSTRACT

Management of the atrophic mandibular fracture is a common challenge among maxillofacial surgeons. This is related to anatomic and physiologic changes in the elderly patients. As a member of trauma team, a maxillofacial surgeon should have a good knowledge in management of maxillofacial trauma in this group of patients. The treatment options are not unique, but open reduction is more common than closed reduction in the last decade. The purpose of this study is to describe a complication of surgical treatment of an edentulous mandibular fracture and management of this situation.

Introduction:

The elderly population continues to grow and the incidence of trauma among this group has also increased. As a member of trauma team, a maxillofacial surgeon should have a good knowledge in management of maxillofacial trauma in this group. One of the most challenging fractures to manage is the bilateral body fracture in a severely atrophic mandible [1]. The treatment options are not unique, but open reduction is more common than closed reduction in the last decade. Some advantages of open reduction consist of direct visualization and excellent reduction and immobilization [2-4]. Fractures of the atrophic edentulous mandibular represent one of the most challenging injuries to manage successfully. Decreased vascular supply and osteogenesis capability coupled with decreased bone volume, can cause the healing of fractures in this region very difficult [1]. By the 1970s, Bradley demonstrated that the primary blood supply of the edentulous atrophic mandible is from periosteal region and periosteal stripping can compromise blood supply. This led to minimizing periosteal stripping and the use of closed reduction of fracture or the use of mini-plate fixation with minimal periosteal elevation. On the other hand some surgeons advocated of primary bone grafting in management of these fractures [1]. In recent decades techniques with more rigid internal fixation have gained popularity. These are based on minimal movement between segments and lower rate of nonunion and infection [5-12]. But it is still controversial because of blood supply compromised in the fractured site after open surgical operation [13,14]. In cases of established non-union, the treatment of choice is the rigid internal fixation with or without bone grafting.

And the presence of active osteomyelitis is not a contraindication to this treatment. In cases of large defect between segments application of a reconstruction plate is mandatory [15]. In a study reported that application of a reconstruction plate is superior to the mini-plate fixation in cases of atrophic mandibular fractures. And better rigid fixation can achieve by this method [16].

Discussion:

In elderly patients some deficits in visual acuity, musculoskeletal and nervous system function could lead to increased incidence of trauma in this population and one of the most complicated traumas is head and neck trauma which could lead to high mortality, especially in females [18]. One of the most commonly fractured facial bone in geriatric patients is the mandible, with the female to male ratio of 2:1 [19,20]. Treatment modalities of these fractures is a common challenge between surgeons because in this population we encountered with decreased quality, quantity and healing potential such as angiogenesis and calcification at the fracture site [20,21].

Conclusion: We with respect to this paper, with the use of a rigid internal fixation and good soft tissue management the result of surgical management of the non-union edentulous mandibular fracture was good with no complication. The use of rigid internal fixation without any movement between segments in treatment of edentulous mandibular fractures can lead to better results and decrease the incidence of complications such as non-union and infection at the fracture site.

Keywords: Atrophy; Edentulous jaw; Mandibular fracture; Surgical procedure.