

## Prosthodontics 2017- Infected Mandibular Fractures: Risk Factors and Management- Ehab Abdelfadil- Mansoura University

**Ehab Abdelfadil**

Mansoura University, Egypt

### Abstract

Postoperative infection is one of the most commonly encountered complications after treatment of jaw fractures. Mandibular fractures are reported to be associated with the highest rate of infections among other maxillofacial fractures. Different factors can increase the risk of infection, including, for example, the patient systemic condition, nature of injury, time of medical care, and type of treatment utilized. This article was aimed to review these risk factors and to highlight the management of the infected mandibular fractures.

Keywords: Mandible; Fracture; Infection

Abbreviations: FB: Foreign Body; NB: Necrotic Bone

### Introduction:

Mandibular fractures account for the majority of maxillofacial traumatic injuries . Infection of jaw fractures represents the most commonly encountered postoperative complication and mandibular fractures are reported to be associated with the highest rate of infections among other maxillofacial fractures . This may be attributed to its increased cortical structure and its location in a contaminated environment . Alpert et al. The incidence of postoperative infection encountered with mandibular fractures varies widely among studies and ranges from 0% to 25%.

### Risk Factors:

#### Trauma-related factors:

He explained this finding by the fact that such patients usually favor an early and adequate medical care as well as prophylactic antibiotics. In contrast, Zachariades et al.

#### Patient-related factors:

In pediatric patients, mandibular fractures are most common, though a variable incidence of maxillofacial trauma has been reported . However, a relatively low incidence rate of complications has been reported. This low incidence has been attributed to the high osteogenic potential of the pediatric mandible .Eskitascioglu et al. Stone et al., on the contrary, reported no association between age and the incidence of postoperative infection. However, aging is known to be associated with impaired or at least delayed wound healing and the situation may not be the same when dealing with infection in children.

#### Time between fracture and treatment:

Early treatment, within the first few hours after trauma, is said to be associated with fewer rates of postoperative infections. Other studies also reported that delayed treatment has no significance

on the incidence of postoperative complications .How delayed treatment would influence the incidence of infection is not clear.

#### Tooth in the line of fracture:

However, most surgeons agree to the concept of removing the tooth only if presented with loss of vitality, root fracture, loosening, or when interfering with fracture reduction or occlusion [34,47,53,54].

#### The Value of Antibiotics:

Some maxillofacial surgeons favor the prophylactic use of antibiotics. Moreno et al. reported the use of broad spectrum antibiotic as a prophylactic measure in almost all patients with mandibular fractures. and only 2.9% infection rate was encountered. Van den Bergh used postoperative prophylactic antibiotics for 1 week and reported only 2.6% post operative infection rate.

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The importance of postoperative antibiotic administration has also been questioned. Abubaker et al. [84] evaluated the value of postoperative prophylactic antibiotics in a randomized, double-blinded and placebo controlled clinical study. He found no benefit of postoperative prophylactic antibiotics in reducing the incidence of infection. The same results were reported by Miles [85] (Table 4). However, Mehra et al. [34] reported only 1.8% postoperative infection rate in a series of 163 mandibular angle fractures after using a prophylactic antibiotic protocol consisting of intravenous administration of penicillin G (or clindamycin in case of penicillin-allergy) in addition to postoperative oral antibiotics for 7 days and chlorhexidine mouth wash for 2 weeks. Furr et al. They found that 83% of patients who developed infections actually received antibiotics at some point in the treatment course

#### Management:

Besides bacteria, infection of mandibular fractures can originate from inadequate interfragment stability, foreign bodies, loose hardware, tooth in the line of fracture and necrotic bone fragment . Early intervention is perhaps the adequate approach to achieve this. Wound irrigation is an essential maneuver in all surgical procedures. Some authors advocated the use of pulsatile pressure saline/antibiotic irrigation in an attempt to decrease contamination prior to reduction. resistant to conventional treatment or those with failed internal fixation devices often necessitate the removal of the osteosynthesis material. If a defect has developed, autogenous bone grafts might be needed [69]. Recently, Benson et al. [39] and Alpert et al. In addition,

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immediate autogenous particulate marrow bone grafting was used. Incorporation of gentamycin powder into the bone graft or the use of tobramycin beads has been also suggested. Unsuccessful outcome using this approach was reported to be associated with medically compromised patients.

Discussion;

The management of infection is one of the most common and occasionally intriguing jobs in medical practice. Infection superimposed on jaw fractures may be somewhat more challenging. A number of factors have been implicated as causative to this infection. Therefore, a thoughtful assessment of these potential factors becomes imperative for better outcome.

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