

## Two Piece Gunning Splint In Edentulous Patient With Fractured Maxilla

### Abstract

Edentulous maxillary and mandibular fractures present a unique and challenging surgical problem, particularly because of lack of occlusive dental surfaces to capitalize upon maxillomandibular fixation (MMF). Also an exclusive surgical management by means of plate fixation may not be feasible especially because of underlying diseases a patient is suffering from. In such cases a close collaboration between an oral surgeon and a prosthodontist becomes mandatory. The oral surgeon, after assessing the exact nature and extent of fracture, should communicate with the prosthodontist regarding the type of splint & management of fracture. A completely edentulous male patient reported with fractured maxilla was managed by a combined prosthetic–oral surgical procedure.

### Key Words

Fracture, Maxilla/ Mandible, Two Piece Gunning Splint

### Introduction:

Management of edentulous jaw fracture is a challenging task for an oral surgeon. This becomes all the more difficult in cases where open reduction is contraindicated due to one or other reason. In such cases one of the treatment options is to fabricate a gunning splint which helps in closed reduction of fractured fragments.

Gunning splint was presented by Thomas Brain Gunning (1813-1889). It was designed to immobilize edentulous or partially edentulous jaws after reduction.

It holds together fractured segments of bones and immobilizes the jaws. In an edentulous patient no hard tissues will be available for stabilization and retention of splints.

The retention is mainly obtained by wiring to underlying bony tissues. A gunning splint can be a one piece or a two piece gunning splint.

A two piece gunning splint is used on an edentulous jaw to maintain centric or vertical relationship for immobilization and inter maxillary fixation.

### Case Report:

A 65 year old edentulous male patient with fractured maxilla was referred from department of oral surgery, Luxmi Bai Dental College & Hospital, Patiala, for the fabrication of a splint to immobilize

the fractured segment of maxillary bone. Medical history revealed myocardial infarction and patient had diabetes and was under medication for the past 15 years, hence open reduction was contraindicated.

After examination, preliminary impression of maxillary and mandibular arch was made with alginate impression material. Special trays were fabricated on diagnostic casts. Border molding was done and final impressions were made. Final casts were fabricated. Next day a jaw relation procedure was performed and vertical and centric relation were registered & transferred to an articulator.

In order to prevent any kind of movement between maxillary and mandibular splint a locking mechanism was introduced. Male projections (buttons) about 3 mm are made on occlusal surface of one wax rim for anchorage by self-cure to grooves (Females) on the other wax rim during fixation. Space in wax was made anteriorly at midline, wire hooks were embedded in the buccal flange and used



Pre Operative

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Two Piece Gunning Splint



Post Operative

for intermaxillary fixation. Holes were made in buccal flange for wiring the upper splint to extra cranial headgear and for circumferential wiring of lower splint in area of first molar. The wax rim was finished, polished & processed in acrylic. The splint was finished and was fixed in Oral Surgery department. Lower member was attached to mandible by circummandibular wiring and upper member fixed to extracranial headgear through wires. Upper and lower splints were attached by ligature wires for immobilization.

#### **Discussion:**

Gunning splints are indicated for reduction, fixation and immobilization of unilateral and bilateral fractures of edentulous fractures of maxilla and mandible<sup>[2],[4],[5]</sup> These splints provide an indirect control on the bone fragments, transmitted through mucoperiosteum. The ease of fabrication of gunning splints

make them acceptable to dentist as well as patient. However gunning splints are contraindicated in unfavourably displaced fractures lying outside the denture bearing areas, in grossly comminuted soft tissue and bone loss, and in severe posterior displacement of fractures of mandible. Also contraindicated in atrophied maxillae and mandible

#### **Summary and Conclusion:**

Gunning splints are valuable prosthesis in managing mandible and maxillary fractures. Acrylic gunning splints are rigid strong, easily adjusted, lightweight and are tolerated by oral mucosa. These splints are excellent way of managing closed reduction of fracture of maxillary and mandibular bones.

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