



Comparison between Intermaxillary Fixation with Screws and an Arch Bar for Mandibular Fracture a Review

Sreejith VP¹ Ushass Puthalath² Muhammed Ajnas³ Sruthi nandakuma³ Ajun Suri³

1 Professor and HOD, Department of Oral and Maxillofacial Surgery, Kannur Dental College, Anjarakandy, Kerala

2 Professor, Department of Oral and Maxillofacial Surgery, Kannur Dental College, Anjarakandy, Kerala

3 Post Graduate Student, Department of Oral and Maxillofacial Surgery, Kannur Dental College, Anjarakandy, Kerala.

Corresponding Author: Muhammed Ajnas

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ABSTRACT: STATEMENT OF PROBLEM:

The recent literature compares the intermaxillary fixation using screws and arch bar in mandibular fracture

PURPOSE: The purpose of this review was to appraise the available literature comparing the intermaxillary fixation using screws and arch bar in mandibular fracture

KEYWORDS: Intermaxillary fixation screws, intermaxillary fixation, arch bar, comparison, mandibular fracture

I. INTRODUCTION:

In facial trauma, reported incidence of 24.3 to 75.0% mandibular fracture makes it one of the most fractured anatomic site. Intermaxillary fixation is crucial preoperatively and postoperatively for successful management of mandibular fracture. It can also be used either as an intraoperative aid to keep the mandible in the reduced position while the plates are being fixed or to immobilize the mandible for some time to ensure healing of bone. Different techniques have been used to achieve pre-morbid dental occlusion, normal mouth opening, appropriate bone healing and lower the cost of treatment. In conservative treatment of mandibular condyle fracture using intermaxillary fixation (IMF) is preferred over open reduction and internal fixation (ORIF). In management of mandibular fracture, using arch bar for intermaxillary fixation has long been the standard technique. Longer procedure time, poor oral hygiene and gingival injuries are the disadvantages. In early 2000 intermaxillary fixation with miniscrews (IMFS) were introduced. It provides many benefits to surgeons and patients. The benefits are easy, quick, better oral hygiene, reduced buccal mucosa injury, can be used when

teeth have been heavily restored, reduced needle stick injury.

The aim of this review is to compare the intermaxillary fixation with arch bar and intermaxillary fixation screws through years of research on individuals.

II. MATERIALS AND METHODS

This is a narrative review of the pertinent literature on comparison between intermaxillary fixation with screws and an arch bar for mandibular fracture is based on scientific articles restricted to English language published between 2008 and 2019, indexed in Science Direct and PubMed databases. The focus of the searches was on publications that contained data related to original studies associated data related to intermaxillary fixation in mandibular fracture, advantages and disadvantages of arch bar and intermaxillary screws.

III. DISCUSSION

Various studies have been conducted over decades to compare intermaxillary fixation with arch bars and screws in mandibular fracture.

A study by D.G Coburn conducted in 2002 on complication of intermaxillary screws in management of fractured mandible. He found that complication including fracture of screws on insertion, iatrogenic damage to teeth causing loss and bony sequestrate around the area of screw placement in 4% of sample population. He decided to continue the use of screws as they offer many advantages over wires and arch bars

A study by Paul W. Poeschl in 2008 was carried out on maxillomandibular fixation using intraoral cortical bone screws and specially designed specially designed metal hooks in conservative treatment of mandibular fracture.



Specially designed hooks were fixed to the bone using 2mm screws of different lengths in a total of 44 patients. The screws located under the piriform aperture in the spina nasalis anterior region of maxilla and inferior border of the mandible in the midline. He concluded that intraoral cortical bone screws and specially designed metal hooks for intermaxillary fixation is useful and valid alternative to arch bar which carries rare, mild complication

In an experimental study conducted by Pranav D. Ingole in 2014 he concluded that IMFS is a safe, time saving, cost effective, straightforward, viable alternative technique for providing IMF during closed reduction or intraoperative open reduction internal fixation of mandibular fracture.

In 2015, B van den Berg conducted a clinical trial on conservative management of mandibular condyle fracture comparing intermaxillary fixation with arch bar or screws. The primary outcome measure was pain assessment, the secondary outcome measure was dental occlusion, surgical treatment time, oral hygiene and post-operative complication. He concluded that IMFS provides superior method of IMF. Considering the advantages are disadvantages IMFS is safer for patients and surgeons.

A research conducted by Tushar Manohar Rothe in 2018 on comparative evaluation of efficacy of conventional arch bar, intermaxillary fixation screws and modified arch bar for intermaxillary fixation. The author concluded that the use of IMF screws was easy and quick method followed by modified arch bar with comparatively better oral hygiene and less niddlestick injury.

In a research conducted by Jong-Woo Choi in 2019 On comparison between intermaxillary fixation with screws and arch bar for mandibular fracture. He concluded that IMFS can be used as an alternative method for mandibular fracture with minimal operative time and similar complication ratio as of IMF with arch bars.

IV.CONCLUSION:

IMF miniscrews could be a good alternative for mandibular fracture treatment. It has many advantages over conventional arch bar techniques reduced operative time, easy to perform, less needlestick injury, less postoperative pain, better periodontal health. Root injury, bone loss and sequestral formation are the rare or mild complication of IMFS. However, arch bar is recommended in dentoalveolar fractures and procedure which requires cross arch stabilization. Considering the advantages and disadvantages

IMFS provide superior method for IMF with careful thoughtful techniques

CONFLICT OF INTEREST:

No conflict of interest

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