Database: Epub Ahead of Print, In-Process & Other Non-Indexed Citations, Ovid MEDLINE(R) Daily and Ovid MEDLINE(R) <1946 to Present>

Search Strategy:

1 exp "maxillofacial injuries/ or exp "tooth injuries/ (18086)
2 (tooth and (fractur$ or injur$ or avuls$ or replant$)).ti. (963)
3 ((jaw or maxillofacial or maxilla$ or mandibular$) and (injur$ or fractur$)).ti. (5195)
4 1 or 2 or 3 (19567)
5 limit 4 to english language (13397)
6 limit 5 to ("review" or systematic reviews) (1029)
7 review.ti. and 5 (382)
8 6 or 7 (1176)
9 limit 8 to dentistry journals (737)
10 exp Orbital Fractures/ (2872)
11 (orbital adj2 fractur$).tw. (1926)
12 10 or 11 (3581)
13 maxillofacial.tw. (14937)
14 12 not 13 (3294)
15 9 not 14 (677)
16 limit 15 to yr="2014 -Current" (74)

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Authors Gayathri G; Elavenil P; Sasikala B; Pathumai M; Krishnakumar Raja VB.
Authors Full Name Gayathri, G; Elavenil, P; Sasikala, B; Pathumai, M; Krishnakumar Raja, V B.
Institution Gayathri,G. Department of Oral & Maxillofacial Surgery, SRM Dental College & Hospital, Ramapuram Campus, Ramapuram, Chennai, India.
Elavenil,P. Department of Oral & Maxillofacial Surgery, SRM Dental College & Hospital, Ramapuram Campus, Ramapuram, Chennai, India. Electronic address: elavenilomfs@gmail.com.
Sasikala,B. Department of Oral & Maxillofacial Surgery, SRM Dental College & Hospital, Ramapuram Campus, Ramapuram, Chennai, India.
Pathumai,M. Department of Oral & Maxillofacial Surgery, SRM Dental College & Hospital, Ramapuram Campus, Ramapuram, Chennai, India.
Krishnakumar Raja,V B. Department of Oral & Maxillofacial Surgery, SRM Dental College & Hospital, Ramapuram Campus, Ramapuram, Chennai, India.
Title 'Stylo-mandibular complex' fracture from a maxillofacial surgeon's perspective--review of the literature and proposal of a management algorithm.
Abstract The incidence of fractures of styloid process, either in isolation or association with mandibular fractures, is rare, and frequently overlooked. When present, they pose clinical dilemma in diagnosis and management. Proper management of styloid fractures is essential, not just to alleviate the patients' symptoms, but also to prevent potential complications like post-traumatic styloid syndrome and injury to adjacent vital structures. This article features a review of literature on 'styloid fracture concomitant with mandibular fracture' along with a case report. The article explores the biomechanics resulting in styloid fracture especially when co-existing with mandibular fractures. The article also enumerates the clinical features of this unusual clinical phenomenon and aims at rationalizing the need for its medical or surgical management. A simple protocol for the management of 'stylo-mandibular complex' fracture has been proposed.
Publication Type Journal Article.
Date Created 20160213
Year of Publication 2016
**Recent Reviews Related to Dentoalveolar Trauma**

**Authors Full Name**
Malaga, Elizabeth Gonzalez; Aguilera, Eva Maria Munoz; Eaton, Carolyn; Ameerally, Phillip.

**Institution**
- Malaga, Elizabeth Gonzalez. Community Dental Officer, Derbyshire Community Health Services, Leicester, United Kingdom.
- Aguilera, Eva Maria Munoz. Specialist Training in Periodontics, Eastman Dental Institute, UCL, London, United Kingdom.
- Eaton, Carolyn. Dental Core Trainee, OMFS Department, Luton and Dunstable University Hospital, Luton, United Kingdom.
- Ameerally, Phillip. Consultant in Oral and Maxillofacial Surgery, OMFS Department, Northampton General Hospital, Northampton, United Kingdom.

**Title**

**Source**

**Abstract**
Clinicians face numerous challenges when managing psychiatric patients who self-inflict injuries within the maxillofacial region. In addition to a complex clinical examination, there are both surgical and psychiatric factors to consider, such as the risk of damaging vital structures, the exacerbation of the patient's psychiatric status, and the long-term psychosocial and esthetic sequelae. We present 2 cases of adolescents who repeatedly self-inflicted wounds and/or inserted foreign bodies (FBs) into the face, scalp, and neck. The different treatment modalities were based on full evaluation of the patient's clinical, medical, and diagnostic test findings coupled with a psychiatric assessment. The decision for conservative management or surgical intervention was made according to the presence and location of the FBs, degree of hemorrhage, signs and symptoms of infection, and unpleasant scars that could lead to long-term psychological impairment. In most cases, the FBs were removed and the wounds were toileted and closed under local or general anesthesia. We advocate a holistic approach via a multidisciplinary team, which is deemed essential to provide the highest quality of care for patients to reduce the risk of further relapses. Lastly, a satisfactory esthetic outcome is always paramount to achieve long-term psychological and physical welfare. Copyright © 2016 The American Association of Oral and Maxillofacial Surgeons. Published by Elsevier Inc. All rights reserved.

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**Authors Full Name**
Tong, Darryl C; Breeze, John.

**Institution**
- Tong, Darryl C. Sir John Walsh Research Institute, University of Otago, Dunedin, New Zealand. Electronic address: darryl.tong@otago.ac.nz.
- Breeze, John. Queen Elizabeth Hospital Birmingham, Mindelsohn Way, Birmingham B15 2TH, UK. Electronic address: johno.breeze@me.com.

**Title**
Damage control surgery and combat-related maxillofacial and cervical injuries: a systematic review. [Review]

**Source**

**Abstract**
Damage control surgery involves rapid assessment, life-saving resuscitation, and abbreviated surgery for a patient with severe injuries. Traditionally the concept of damage control surgery has been restricted to penetrating abdominal injuries, but more recently it has been expanded to areas outside of the abdomen including the maxillofacial and neck regions. However, we know of little evidence that, when applied to injuries to the face and neck, it changes outcomes. We systematically reviewed published papers to identify those that discussed damage control in the context of combat-related trauma of the face and neck. We identified three papers that discussed the principles of managing combat-related maxillofacial injuries, all three of which were review articles that advocated the use of damage control principles in facial injuries either in isolation or as part of a multisystem approach. Anecdotal experience and opinion indicates that the concept of damage control is applicable when managing combat-related injuries of the face and neck, but no outcomes were confirmed. Further studies are required to validate the concept. Copyright © 2015 The British Association of Oral and Maxillofacial Surgeons. Published by Elsevier Ltd. All rights reserved.

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Journal Article. Review.

**Date Created**
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2016
The restoration of traumatized teeth. [Review]

The restoration of a traumatized tooth may require minimally invasive or more extensive treatment options. The majority of injuries occur in the younger population, so management should consider the long-term outcome, failure and future treatment needs over the course of, often, many decades. The aim should be to provide a tooth-restoration complex that closely mimics the functional and aesthetic qualities of an intact tooth for as long as possible. This narrative review will assess the relevant literature pertinent to restoration of traumatized teeth in order to provide guidance for the practising clinician. Copyright © 2016 Australian Dental Association.

Management of incompletely developed teeth requiring root canal treatment. [Review]

Endodontic management of the permanent immature tooth continues to be a challenge for both clinicians and researchers. Clinical concerns are primarily related to achieving adequate levels of disinfection as 'aggressive' instrumentation is contraindicated and hence there exists a much greater reliance on endodontic irrigants and medicaments. The open apex has also presented obturation difficulties, notably in controlling length. Long-term apexification procedures with calcium hydroxide have proven to be successful in retaining many of these immature infected teeth but due to their thin dentinal walls and perceived problems associated with long-term placement of calcium hydroxide, they have been found to be prone to cervical fracture and subsequent tooth loss. In recent years there has developed an increasing interest in the possibility of 'regenerating' pulp tissue in an infected immature tooth. It is apparent that although the philosophy and hope of 'regeneration' is commendable, recent histologic studies appear to suggest that the calcified material deposited on the canal wall is bone/cementum rather than dentine, hence the absence of pulp tissue with or without an odontoblast layer. Copyright © 2016 Australian Dental Association.
Abbott PV.

Authors Full Name
Abbott, P V.

Institution
Abbott, P V. School of Dentistry, The University of Western Australia, Western Australia, Australia.

Title
Prevention and management of external inflammatory resorption following trauma to teeth. [Review]

Source

Abstract
External inflammatory resorption is one of the potential consequences of trauma to the teeth. It occurs when there has been loss of cementum due to damage to the external surface of the tooth root during trauma, plus the root canal system has become infected with bacteria. It is characterized by the radiographic appearance of loss of tooth substance with a radiolucency in the adjacent periodontal ligament and bone. The loss of cementum allows the intracanal bacteria and/or their endotoxins to reach the periodontal ligament more readily and this can lead to the development of the inflammatory resorptive process. External inflammatory resorption can ultimately lead to loss of the tooth if it is not managed in a timely manner. There are some injuries that are very likely to develop this type of resorption and a preventive approach can be adopted by commencing root canal treatment immediately as part of the emergency management of such cases. In cases where the resorptive process is already established, root canal treatment can arrest the resorption and encourage hard tissue repair. The use of a corticosteroid-antibiotic intracanal medicament has been shown to be particularly useful in the prevention and management of external inflammatory resorption. Calcium hydroxide should not be used as an immediate medicament because of its inherent toxicity and irritant properties but it is valuable as a subsequent medicament to encourage hard tissue repair where required. This review outlines the external inflammatory resorptive process and the management strategies that can be employed to prevent it from occurring, and to treat it if already present. Copyright © 2016 Australian Dental Association.

Kahler B; Hu JY; Marriott-Smith CS; Heithersay GS.

Authors Full Name
Kahler, B; Hu, J Y; Marriott-Smith, C S; Heithersay, G S.

Institution
Kahler, B. School of Dentistry, The University of Queensland, Queensland, Australia.
Hu, J Y. Private Practice, Melbourne, Victoria, Australia.
Marriott-Smith, C S. School of Dentistry, The University of Adelaide, South Australia, Australia.
Heithersay, G S. School of Dentistry, The University of Adelaide, South Australia, Australia.

Title
Splinting of teeth following trauma: a review and a new splinting recommendation. [Review]

Source

Abstract
With advances in the understanding of healing processes of the periodontium, pulp and alveolar bone following various injuries, the role of splinting has become relatively well defined. This is generally reflected in the guidelines for trauma management published by the International Association of Dental Traumatology. While the widespread use of composite resin as an adhesive in various functional/flexible splinting systems has over many years allowed ease of application, removal of the material is not only time consuming but more seriously accompanied by minor or major iatrogenic damage to enamel. Dental materials science has continued to provide new materials and amongst them the development of an alternative simplified splinting regimen for traumatized teeth which offers ease of application and removal with minimal or no iatrogenic damage to enamel. Copyright © 2016 Australian Dental Association.
Trauma to the permanent teeth involves not only the teeth but also the pulp, the periodontal ligament, alveolar bone, gingiva and other associated structures. There are many variations in the types of injuries with varying severity and often a tooth may sustain more than one injury at the same time. In more severe trauma cases, there are many different cellular systems of mineralized hard and unmineralized soft tissues involved, each with varying potential for healing. Furthermore, the responses of the different tissues may be interrelated and dependent on each other. Hence, healing subsequent to dental trauma has long been known to be very complex. Because of this complexity, tissue responses and the consequences following dental trauma have been confusing and puzzling for many clinicians. In this review, the tissue responses are described under the tissue compartments typically involved following dental trauma: the pulp, periradicular and associated soft tissues. The factors involved in the mechanisms of trauma are analysed for their effects on the tissue responses. A thorough understanding of the possible tissue responses is imperative for clinicians to overcome the confusion and manage dental trauma adequately and conservatively in order to minimize the consequences following trauma. Copyright © 2016 Australian Dental Association.
PURPOSE: Traumatic injuries of the mandible resulting in intrusion of the condyle into the middle cranial fossa are rare and treatment is often based on anecdotal experience. The objective of this study was to develop an algorithm for the management of condylar intrusion injuries by identifying factors that influenced the treatment decision of closed versus open reduction of the condyle.

MATERIALS AND METHODS: This study was a systematic review of the literature on intracranial intrusion injuries of the mandibular condyle. A thorough search of the PubMed and Cochrane databases and individual maxillofacial and craniofacial journal databases was conducted using the Medical Subject Heading terms condylar impaction, condylar dislocation, condylar intrusion, and middle cranial fossa and condyle without date and language restriction. Quantitative data on the patient's age and gender, etiology of injury, and time from injury to diagnosis were analyzed using descriptive statistics. The authors studied how the predictor variables of age, etiology, time from injury to diagnosis, and associated neurologic injuries influenced the outcome variable of closed versus open reduction of the condyle.

RESULTS: Forty-eight of the 62 retrieved case reports, case series, and review articles were published in the English-language literature from 1963 to 2015. Data on 51 patients with these injuries showed that 38 (75%) were female and younger than 30 years. The most common etiology of injury was motor vehicular accidents, occurring in 25 of 51 patients (49%). The mean time from injury to diagnosis was 31.2 days (0 to 106.4 days). Forty of the 51 patients (78%) were diagnosed within the first 2 weeks of injury. A good proportion of patients underwent open reduction (63%) and 18 of the 51 patients (35%) underwent closed reduction.
CONCLUSIONS: Predictor variables that influenced the treatment decision of open versus closed reduction were age of the patient, etiology of injury, and time from injury to diagnosis. Based on the present results, younger patients (0 to 15 yr old), patients who sustain condylar intrusion injuries from bicycle accidents, and those diagnosed within the first 2 weeks of injury are more likely to benefit from closed reduction. The treatment algorithm emphasizes the importance of assessment of associated neurologic injuries and an interdisciplinary approach for the management of these injuries. Copyright © 2016 American Association of Oral and Maxillofacial Surgeons. Published by Elsevier Inc. All rights reserved.

MATERIALS AND METHODS: A systematic review of the Medline, Scopus, and Web of Science databases was performed for articles describing hard palate fracture repair techniques.

RESULTS: Eight articles were ultimately included in the review. Of the collective 310 fractures reported, postoperative malocclusion occurred in 21 of 235 cases (8.9%) and other complications occurred in 13 of 299 cases (4.3%). The most important variability in technique was the method of palatal vault stabilization. Three studies described wiring techniques, 3 described internal fixation techniques, and 2 described external fixation techniques. Studies describing internal fixation techniques reported higher rates of wound complications. Proponents of rigid internal fixation believe that this technique provides better fracture reduction. External fixation techniques appear to impart low rates of wound complications, but their overall effectiveness remains in question.

CONCLUSIONS: Hard palate fractures are associated with high rates of malocclusion and wound complications. The most established methods of palatal vault stabilization are closed reduction with wiring and internal plate fixation. Depending on the fracture type, patient comorbidities, and associated injuries, either technique might be preferable in a given circumstance. Copyright © 2016 American Association of Oral and Maxillofacial Surgeons. Published by Elsevier Inc. All rights reserved.
Christensen, Brian J; Zaid, Waleed.

Institution
Christensen, Brian J. Resident, Department of Oral and Maxillofacial Surgery, Louisiana State University Health Sciences Center, New Orleans, LA.
Zaid, Waleed. Assistant Professor, Department of Oral and Maxillofacial Surgery, Louisiana State University Health Sciences Center, New Orleans, LA. Electronic address: wzaid@lsuhsc.edu.

Title
Inaugural Survey on Practice Patterns of Orbital Floor Fractures for American Oral and Maxillofacial Surgeons. [Review]

Source

Abstract
PURPOSE: In recent years, several studies have reported on practitioners’ preferences for the treatment of orbital floor fractures, showing widely varying practice patterns. The purpose of the present study was to identify the practice patterns among oral and maxillofacial surgeons involved in the management of orbital floor fractures in the United States and compare them with the available published data.

MATERIALS AND METHODS: An anonymous survey was created and electronically mailed to surgeons. We also reviewed the published data on orbital floor fractures using a PubMed and MEDLINE search. The responses to the survey were analyzed using descriptive statistics.

RESULTS: The factors that had the greatest influence on the surgeon’s decision to operate were a defect size > 2 cm², enophthalmos, entrapment, and persistent diplopia. The most common surgical approach reported was a preseptal transconjunctival approach (32.0%), followed by the subciliary (27.9%) and postseptal transconjunctival (26.2%) approaches. The most commonly reported implant for orbital reconstruction was titanium (65.4%), followed by Medpor (43.7%) and composite Medpor and titanium (26.4%). The review of the published data showed a consensus among many of the operative indications mentioned, including a large defect size, enophthalmos, clinical entrapment, and persistent diplopia.

CONCLUSIONS: Oral and maxillofacial surgeons in the United States have a wide range of practice habits in the management of orbital floor fractures. Although the quality of the available evidence is poor, it supports a consistent approach to the management of orbital floor fractures in terms of the indications and surgical approach. The choice of reconstructive material and timing of repair remain more controversial. A clear need exists for improvement in the available data to help guide and set standards of care for the specialties managing orbital floor fractures.

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Samieirad, Sahand; Khajehahmadi, Saeedeh; Tohidi, Elahe; Barzegar, Mohsen.

Authors Full Name
Samieirad, Sahand; Khajehahmadi, Saeedeh; Tohidi, Elahe; Barzegar, Mohsen.

Institution
Samieirad, Sahand. Assistant Professor of Oral and Maxillofacial Surgery, Oral and Maxillofacial Diseases Research Center, Faculty of Dentistry, Mashhad University of Medical Sciences, Mashhad, Iran.
Khajehahmadi, Saeedeh. Assistant Professor of Oral and Maxillofacial Pathology, Dental Research Center, Faculty of Dentistry, Mashhad University of Medical Sciences, Mashhad, Iran.
Tohidi, Elahe. Assistant Professor of Oral and Maxillofacial Radiology, Oral and Maxillofacial Diseases Research Center, Faculty of Dentistry, Mashhad University of Medical Sciences, Mashhad, Iran.
Barzegar, Mohsen. Postgraduate Student of Oral and Maxillofacial Surgery, Faculty of Dentistry, Kerman University of Medical Sciences, Kerman, Iran. Electronic address: m.barzegar.omfs@gmail.com.

Title
Unusual Presentation of Guillain-Barre Syndrome After Mandibular Fracture Treatment: A Review of the Literature and a New Case. [Review]

Source
after maxillofacial surgery are presented. Copyright © 2016 American Association of Oral and Maxillofacial Surgeons. Published by Elsevier Inc. All rights reserved.

**Abstract**

The purpose of this study was to compare one miniplate with two in the management of isolated fractures of the mandibular angle as regards wound healing, failure of hardware, scarring, weakness of the facial nerve, and overall morbidity, by making a systematic review with a meta-analysis. I made a comprehensive electronic search with no date or language restrictions in October 2014. The inclusion criteria were studies in humans, including randomised or quasi-randomised controlled trials (RCT), controlled clinical trials (CCT), and retrospective studies that compared the morbidity after treatment of such fractures with one and two miniplates. Ten publications were included: three RCT, three CCT, and four retrospective studies. Three studies showed a low, and seven a moderate, risk of bias. There was a significant difference between one and two miniplates in the incidence of wound healing, failure of hardware, weakness of the facial nerve, and overall complications (p=0.04, p =0.05, p=0.002, and p=0.05, respectively). The result of the meta-analysis showed that one miniplate placed on the external oblique ridge provided a significant reduction in the incidence of wound infection and dehiscence, failure of hardware, and overall complications, compared with two miniplates, one placed on the external oblique ridge and one placed on the ventral surface of mandible to fix the fracture. Copyright © 2015 The British Association of Oral and Maxillofacial Surgeons. Published by Elsevier Ltd. All rights reserved.

**Title**

One miniplate compared with two in the fixation of isolated fractures of the mandibular angle. [Review][Erratum appears in Br J Oral Maxillofac Surg. 2016 Jan;54(1):118; PMID: 27110619]
INTRODUCTION: The treatment of fractures of the mandibular process remains controversial, although there is a trend towards open reduction and internal fixation. This study compared open and closed treatments and assessed the results with a meta-analysis.

MATERIALS AND METHODS: A literature search of PubMed found eight studies that met the search criteria and were included in the meta-analysis.

RESULTS: The studies increasingly suggest better results for open treatment, in terms of mouth opening, protrusion, laterotrusion, pain, and malocclusion. In the meta-analysis, the outcome was significantly better for laterotrusion and protrusion in patients treated by open reduction and internal fixation.

CONCLUSION: Due to the different study protocols and lack of information on classification, follow-up time, and inclusion criteria, comparison of the studies remains difficult and further prospective, randomized studies should examine these issues.

Abstract

OBJECTIVES: The aim of this systematic review was to determine the diagnostic accuracy of the mandibular cortical width measurements and porosity in detecting hip osteoporosis.

BACKGROUND: All of the included studies used measurements on panoramic radiographs.

MATERIALS AND METHODS: Studies were included if they compared the radiographic measurements (or index tests) with central dual energy X-ray absorptiometry (DXA) of the hip as the reference standard. A measure of diagnostic accuracy such as sensitivity and specificity or area under the receiver operating characteristic curve was also required for inclusion.

RESULTS: Seven studies were identified. Meta-analysis was not possible because of the heterogeneity of the studies. The studies all demonstrated moderate diagnostic accuracy.

CONCLUSION: If a patient with a thin or porous mandibular cortex is identified by a chance radiographic finding, additional clinical risk factors need to be considered and the patient referred for further investigation with DXA where necessary.

Abstract


Source


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MATERIALS AND METHODS: Studies were included if they compared the radiographic measurements (or index tests) with central dual energy X-ray absorptiometry (DXA) of the hip as the reference standard. A measure of diagnostic accuracy such as sensitivity and specificity or area under the receiver operating characteristic curve was also required for inclusion.

RESULTS: Seven studies were identified. Meta-analysis was not possible because of the heterogeneity of the studies. The studies all demonstrated moderate diagnostic accuracy.

CONCLUSION: If a patient with a thin or porous mandibular cortex is identified by a chance radiographic finding, additional clinical risk factors need to be considered and the patient referred for further investigation with DXA where necessary.

Abstract

Title: Is the Erich arch bar the best intermaxillary fixation method in maxillofacial fractures? A systematic review. [Review]
Other ID: Source: NLM. PMC4523263
Abstract: BACKGROUND: Intermaxillary fixation is used to achieve proper occlusion during and after oral and maxillofacial fracture surgery. The aim of this systematic review was to compare Erich arch bar fixation with other intermaxillary fixation methods in terms of the operating time, safety during installation, oral health maintenance and occlusal stability.
MATERIAL AND METHODS: An electronic online search was conducted of the Scirus, PubMed, Ovid, Cochrane Library and VHL databases. A clinical trial dating from the inception of the data bases until August 2013 was selected. Studies that compared Erich arch bars with other intermaxillary fixation methods in patients older than 18 years-old were included. The studies were assessed by two independent reviewers. The methodological quality of each article was analyzed.
RESULTS: Nine hundred and twenty-five manuscripts were found. Seven relevant articles were analyzed in this review. The risk of bias was considered moderate for four studies and high for three clinical trials.
CONCLUSIONS: There is not enough evidence to conclude that the Erich arch bar is the best intermaxillary fixation method in cases of oral and maxillofacial fractures.

Title: The Epidemiology of Mandibular Fractures in the United States, Part 1: A Review of 13,142 Cases from the US National Trauma Data Bank.
Abstract: PURPOSE: To date, no studies have analyzed the national demographics of mandibular fractures in the United States. This report is part 1 of a 2-part series characterizing the modern demographics, epidemiology, and outcomes of mandibular fractures in the United States. The purpose of this study was to characterize mandibular fractures in relation to age, gender, mechanism of injury, and anatomic location of fracture.
MATERIAL AND METHODS: A retrospective cohort study was conducted using the National Trauma Data Bank (NTDB). The sample was derived from the population of hospitalized patients enrolled in the NTDB from 2001 to 2005 using mandibular fracture (International Classification of Diseases, Ninth Revision codes 802.21 through 802.39) as an inclusion criterion. Patient- and injury-related variables, including age, gender, anatomic location of fracture, and mechanism of injury, were analyzed by Fisher exact and chi(2) testing.
RESULTS: A total of 13,142 patients with mandibular fractures from participating trauma centers were included in the study. Eighty percent of patients were male. Fracture distribution by age was roughly bell-shaped, with fractures occurring most frequently at 18 to 54 years of age. Mechanism of injury differed by gender, with men most often sustaining mandibular fracture from assault (49.1%), followed by motor vehicle accidents (MVAs; 25.4%) and falls (12.8%). Women most commonly sustained mandibular fracture from MVAs (53.7%), followed by assault (14.5%) and falls (23.7%). Falls were a significantly more common mechanism in patients who were at least 65 years old (P < .001).
CONCLUSION: This study sought to characterize the largest, modern, population-based sample of mandibular fractures in the United States. Overall, men had a 4-fold higher incidence, but this distribution varied by age. Similarly, mechanism of injury varied...
across gender and age range. A better understanding of the influence of age and gender on mechanism of injury and anatomic site is of great clinical importance in the assessment, diagnosis, and treatment of traumatic mandibular fractures. Copyright © 2015. Published by Elsevier Inc.

**Title**
Mandibular trauma: a two-centre study. [Review]

**Source**

**Abstract**
The aims of this study were to assess and compare epidemiological data on mandibular fractures from two European centres and to perform a review of the literature. Between 2001 and 2010, a total of 752 patients with a total of 1167 mandibular fractures were admitted to a hospital in Turin, and 245 patients with a total of 434 mandibular fractures were admitted to a hospital in Amsterdam. The mean age in Turin was 34.8 years and in Amsterdam was 32 years. The age group 20-29 years showed the highest incidence of mandibular fractures in both centres. The fractures were mainly the result of assaults, in agreement with several articles in the recent literature, followed by falls. The continuous long-term and multicentre collection of data on the epidemiology of maxillofacial trauma is important because it provides the information necessary for the development of preventative measures aimed at reducing the incidence of facial injuries. Copyright © 2015 International Association of Oral and Maxillofacial Surgeons. Published by Elsevier Ltd. All rights reserved.
relevant full-text articles, of which 5 studies met our inclusion criteria. The odds ratio and 95% confidence intervals from each study were abstracted. The statistical analysis was performed with review manager (The Nordic Cochrane Centre). A summary of 5 studies affirmed that 43 patients among 532 orbital fractures (8.1%) had decreased visual acuity. Twelve patients among 159 blowout fractures (7.5%) had decreased visual acuity. Thirty-one patients among 373 orbital fractures other than pure blowout fractures (8.3%) had decreased visual acuity. In orbital fractures other than pure blowout fractures, the frequency of decreased visual acuity was higher than pure blowout fractures (n = 532, odds ratio, 2.23, 95% confidence interval = 1.06-4.70). Surgeons should acknowledge this with patients before surgery.

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Authors
Rallis G; Stathopoulos P; Igoumenakis D; Krasadakis C; Mourouzis C; Mezitis M.
Authors Full Name
Rallis, George; Stathopoulos, Panagiotis; Igoumenakis, Dimosthenis; Krasadakis, Christos; Mourouzis, Constantinos; Mezitis, Michalis.
Institution
Stathopoulos, Panagiotis. Oral and Maxillofacial Surgeon, Department of Oral and Maxillofacial Surgery, Northampton General Hospital, UK. Electronic address: Pan_stath@yahoo.gr.
Igoumenakis, Dimosthenis. Specialist in Oral and Maxillofacial Surgery, K.A.T General Hospital of Attica, Athens, Greece.
Krasadakis, Christos. Trainee, Oral and Maxillofacial Surgery, K.A.T General Hospital of Attica, Athens, Greece.
Title
Treating maxillofacial trauma for over half a century: how can we interpret the changing patterns in etiology and management?. [Review]
Source
Local Messages
THIS JOURNAL IS AVAILABLE IN THE BDA LIBRARY, BDA MEMBERS CAN ALSO ACCESS THIS JOURNAL ONLINE FROM 2011 TO DATE. Go to www.bda.org/ejournals
Abstract
OBJECTIVE: The aim of this study was to reveal the changes in the etiology and treatment of maxillofacial fractures in Greece over the period of the last 53 years.

STUDY DESIGN: A patient-oriented retrospective review of clinical and epidemiologic data was performed to include all patients with maxillofacial fractures treated in the Oral and Maxillofacial Surgery Department of KAT General Hospital of Athens. We reviewed the causes of these injuries, their sites, and treatments (outcome variables) over the last 28 years and compared the results with those of a similar study from the same Department from 1960 to 1984 (predictor variable).

RESULTS: The zygomatic complex was the most frequent fracture site in the recent years, whereas the condyle and symphysis were the most common ones in the early period. We observed a remarkable increase of injuries from interpersonal violence (P < .0001) and a divergence from conservative treatment (P < .001) with time.

CONCLUSIONS: Universal agreement exists on the rapidly rising prevalence of facial fractures in the developed countries as a result of physical violence, and the present study confirmed this conclusion. Throughout the last 50 years, there has been a constant tendency of surgeons to adopt the concept of open reduction and internal fixation. Copyright © 2015 Elsevier Inc. All rights reserved.
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Authors
Bins A; Oomens MA; Boffano P; Forouzanfar T.
Authors Full Name
Bins, Arjan; Oomens, Marjolijn A E; Boffano, Paolo; Forouzanfar, Tymour.
Institution
BACKGROUND: The aim of this study was to evaluate the predictive value of panoramic radiography on inferior alveolar nerve (IAN) injury after extraction of the mandibular third molar.

METHODS: Relevant studies up to 1 June 2014 that discussed the association of panoramic radiography signs and post-mandibular third molar extraction IAN injury were systematically retrieved from the databases of PubMed, Embase, Springerlink, Web of Science and Cochrane library. The effect size of pooled sensitivity, specificity, positive likelihood ratios (PLR), negative likelihood ratios (NLR) and diagnostic odds ratio (DOR) with their 95% confidence intervals (CI) were statistically analysed with Meta-disc 1.4 software.

RESULTS: Twenty-two articles (17 case series, 4 RCTs, and 1 cohort study) were included. None of the RCTs scored high methodologic results in the quality assessment. The results suggest IMFSs have similar malocclusion rates as arch bars, fewer wire-stick injuries, improved oral hygiene, and shorter operative time. Root damage is less likely to occur with self-drilling screws and seldom requires treatment.

CONCLUSIONS: Although the methodologic quality of the included studies is poor, self-drilling IMFSs are recommended for temporary per-operative IMF of noncomminuted mandibular fractures. More high-quality studies are required to allow an evidence-based change of protocol.
RESULTS: Nine articles were included in this meta-analysis. The pooled estimates of sensitivity and specificity were 0.56 (95% CI: 0.50-0.61) and 0.86 (95% CI: 0.84-0.87), respectively. The overall PLR was 3.46 (95% CI: 2.02-5.92) and overall NLR was 0.58 (95% CI: 0.45-0.73). The pooled estimate of DOR was 6.49 (95% CI: 2.92-14.44). The area under the summary receiver operating characteristic curve was 0.7143 +/- 0.0604.

CONCLUSIONS: The meta-analysis indicated that interpretation of panoramic radiography based on darkening of the root had a high specificity in predicting IAN injury after mandibular third molar extraction. However, the ability of this panoramic radiography marker to detect true positive IAN injury was not satisfactory.


does soft tissue injury affect intracapsular condylar fracture healing? [Review]

PATIENTS AND METHODS: The present study represents a retrospective review of MRI examinations performed on patients treated with closed reduction of an ICF from 2010 to 2013. The MRI scans used for comparison were taken at 1 week and at least 3 months after the injury. These studies were used to identify the common patterns of hard and soft tissue derangements. The predictor variable was the type of soft tissue injuries, categorized as anteromedial displacement of both the disc and the fractured bony fragment, anteromedial displacement of the bony fragment with the disc remaining over the residual ramus, tear of the retrodiscal tissue or capsule, and joint effusion. The outcome variables were the MRI comparisons of the disc position, healing status of the retrodiscal tissue and capsule, and resolution of joint effusions.

RESULTS: Twelve patients, all with ICFs, were included in the present study. Immediately after injury, all 17 fractures (100%) showed anteromedial displacement of both the disc and the fractured condylar fragment, and 10 fractures (58.8%) showed anteromedial displacement of the condylar fragment with the disc remaining over the residual condyle. Also, 11 (64.7%) showed evidence of perforation of the retrodiscal tissue, and 7 (41.2%) showed tears in the capsule. Finally, all 17 (100%) exhibited joint effusions. At 3 months after injury, all 17 fractures (100%) continued to exhibit displacement of both the disc and the condylar segments. Also, 15 fractures (88.2%) showed elongation of the disc and thickening of the retrodiscal tissue, 2 fractures (11.8%) had developed osteoid hyperplasia and meniscal perforation, and 6 fractures (35.3%) showed resolution of previous joint effusions. Finally, 17 fractures (100%) showed reactive bone formation at the condylar head.

CONCLUSIONS: ICFs treated with closed reduction consistently result in a specific pattern of temporomandibular joint pathologic features. These pathologic features are characterized by anteromedial displacement of the articular disc, elongation and thickening of the retrodiscal tissue, and reactive bone formation at the condylar head. The presence of a portion of the disc between the residual condyle and the fossa prevented the development of osteoarthritis and ankylosis. Perforation of the bilaminar tissue and contact between the residual condyle and the fossa promoted osteoarthritic changes and ankylosis.

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RECENT REVIEWS RELATED TO DENTOALVEOLAR TRAUMA

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Authors
Owtad P; Shastry S; Papademetriou M; Park JH.
Authors Full Name
Owtad, P; Shastry, S; Papademetriou, M; Park, J H.
Institution
Owtad, P. From Arizona School of Dentistry & Oral Health, A.T. Still University, Mesa, AZ.
Shastry, S. From Arizona School of Dentistry & Oral Health, A.T. Still University, Mesa, AZ.
Papademetriou, M. From Arizona School of Dentistry & Oral Health, A.T. Still University, Mesa, AZ.
Park, J H. From Arizona School of Dentistry & Oral Health, A.T. Still University, Mesa, AZ.
Title
Management Guidelines for Traumatically Injured Teeth during Orthodontic Treatment. [Review]
Source
Local Messages
THIS JOURNAL IS AVAILABLE IN THE BDA LIBRARY, TO REQUEST THIS ARTICLE FROM THE LIBRARY GO TO:
Abstract
This article presents a summary of incident management guidelines for traumatically injured teeth during orthodontic treatment. In addition, treatment of a 17-year-old patient with traumatic extrusion and palatal displacement of the permanent maxillary incisors while undergoing active orthodontic treatment is reported.
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Authors
Kumar S; Kumar PS; John J; Patel R.
Authors Full Name
Kumar, Satheesh; Kumar, Preeti Satheesh; John, Jins; Patel, Ruchi.
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Local Messages
THIS JOURNAL IS AVAILABLE IN THE BDA LIBRARY, TO REQUEST THIS ARTICLE FROM THE LIBRARY GO TO:
Abstract
With the growing number of air passengers, flight attendants, leisure pilots, as well as military and airline pilots, dentists may encounter physiological and pathological phenomena precipitated by high altitude. With the introduction of the self-contained breathing apparatus (SCUBA), many of these manifestations caused by changes in atmospheric pressure were reported in association with diving as well. Limited literature exists on this subject. Hence, this article aims to review literature concerning the classification, etiology and manifestations of barodontalgia, as well as important clinical considerations for its management.
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Authors
Czerwinski M.
Authors Full Name
Czerwinski, Marcin.
C-arm assisted zygoma fracture repair: a critical analysis of the first 20 cases.

PURPOSE: Currently used open reduction and internal fixation techniques of zygoma fracture repair are not optimal. Surgical exposure of those sites needed to allow for accurate reduction and for rigid fixation has a high possibility of negative consequences. The objective of the present study was to present a single-incision, single-fixation site zygoma fracture repair technique using a single zygoma c-arm view to quantitatively determine its accuracy, complication rate, and practical aspects in a clinical series.

MATERIALS AND METHODS: In a prospective study, consecutive patients with isolated, unilateral, displaced zygoma fractures not requiring orbital floor exploration treated using a c-arm-assisted repair technique at the author's institution from 2009 to 2011 were included. Objective outcomes assessed included accuracy of zygoma realignment (on postoperative computed tomogram), ocular globe projection symmetry (using a Naugle exophthalmometer), complication rate, and operative duration. Statistical analysis was performed using the Student t test.

RESULTS: Twenty patients were included. Differences in zygoma projection, width, and height between the uninjured and repaired sides of the face were clinically noteworthy (>3 mm) in the first patient only. Average differences of these parameters for all 20 patients were clinically and statistically insignificant. Differences in ocular globe projection between the uninjured and repaired sides of the face for each patient were no greater than 2 mm. The average difference in globe projection for all 20 patients was also clinically and statistically insignificant. No major complications occurred, and the average operative duration was 76 minutes.

CONCLUSIONS: The present study shows that the c-arm-assisted zygoma fracture repair technique is accurate, has a low complication rate, can be performed quickly, and has a relatively low level of difficulty. Copyright © 2015 American Association of Oral and Maxillofacial Surgeons. Published by Elsevier Inc. All rights reserved.
heterogeneity was detected; otherwise, a fixed-effects model with a 95% confidence interval was performed. Weighted mean differences or standard mean differences were used to construct forest plots of continuous data.

RESULTS: Twenty-three publications were included: 5 randomized controlled trials, 16 controlled clinical trials, and 2 retrospective studies. Five studies showed a low risk of bias, whereas 18 showed a moderate risk of bias. There were statistically significant differences between ORIF and CT regarding maximal interincisal opening, laterotrusion, protrusive movement, malocclusion, pain, and chin deviation on mouth opening (P = .001, P = .001, P = .001, P = .001, P = .001, and P = .05, respectively).

CONCLUSIONS: The result of the meta-analysis confirmed that ORIF provides superior functional clinical outcomes (subjective and objective) compared with CT in the management of adult MCFs. Copyright © 2015 American Association of Oral and Maxillofacial Surgeons. Published by Elsevier Inc. All rights reserved.
Maxillofacial firearm-related injuries vary in extent and severity because of the characteristics and behaviour of the projectile(s), and the complexity of the anatomical structures involved, whereas the degree of tissue disruption is also affected by the distance of the shot. In low-energy injuries there is limited damage to the underlying skeleton, which usually dominates the clinical picture, dictating a more straightforward therapeutic approach. High-energy injuries are associated with extensive hard and soft tissue disruption, and are characterized by a surrounding zone of damaged tissue that is prone to progressive necrosis as a result of compromised blood supply and wound sepsis. Current treatment protocols for these injuries emphasize the importance of serial debridement for effective wound control while favouring early definitive reconstruction. Copyright © 2014 International Association of Oral and Maxillofacial Surgeons. Published by Elsevier Ltd. All rights reserved.
MATERIAL AND METHODS: All patients referred to the Department of Oral and Maxillofacial Surgery of the University Medical Center of the Johannes Gutenberg-University Mainz for inpatient treatment due to facial fractures between January 2001 and December 2007 were analyzed regarding the type of fracture, its localization, and potential concomitant dental injuries. In addition a systematic review was performed to compare the findings of this study with existing data.

RESULTS: Altogether 1219 facial trauma patients underwent inpatient treatment. 184 (15.87%) out of those had 451 injured teeth, and 4.9% were edentulous. The most frequent causes were assaults (25.1%), followed by falls (19.6%) and bike accidents (10.1%). Avulsion, especially of the upper incisors, occurred in most cases (27.9%). Assaults caused 1.29 dental fractures per patient, while traffic-related accidents led to three to four times higher injury-rates.

CONCLUSIONS: With almost every sixth patient having at least one kind of dental injury, this study shows that a thorough anamnesis and examination of the dental status are absolutely necessary, especially in patients who suffered from high-speed impacts or collisions with low-resilience surfaces.
The management of traumatic tooth loss with dental implants: Part 1. [Review]

Abstract

Traumatic dental injuries are relatively common causes of emergency presentation to general dental practitioners. There are well established guidelines for the management of traumatised teeth, which practitioners should be familiar with and able to deliver. Some teeth, however, are either lost at the time of injury or are found to have a hopeless long-term prognosis despite appropriate treatment. The first article in this two-part series covers the important aspects of maintaining teeth where possible, to preserve the supporting hard and soft tissues. It then describes the replacement of a single tooth lost due to trauma and the relative challenges faced. The second article covers more extensive trauma, involving multiple teeth and where significant supporting tissues are lost. It describes the replacement of teeth, including the hard and soft tissues with implant supported restorations, whilst highlighting the need for a multidisciplinary team in severe cases.

Management of pediatric mandibular fracture: a case series. [Review]

Abstract

A pediatric mandibular fracture can cause a child severe pain and the parent or caregiver extreme worry. While the pattern of fractures and associated injuries in children is similar to adults, the incidence is low. Due to a number of factors, including the anatomical complexity of the developing mandible in a child, management of such fractures differs from that of adults and can greatly challenge the pediatric dentist. Various treatment modalities of managing mandibular fracture are available, such as closed/open cap splint with circummandibular wiring, arch-bar fixation, and cementation of the cap splint. This article reviews 19 cases in the management of pediatric facial fracture using varied treatment methods.
The most frequently used measures, but methodological differences prevent the comparison of results.

Physical activity estimated from trauma occurrence: two detected that physical activity acts as a protective factor and two that physical activity increases the trauma and overweight and six do not show any association. Regarding physical activity level, five studies had a case for reporting systematic reviews were followed.

RESULTS: A total of 33 articles were included in the review. Twenty-three articles (814 implants) were about bone dehiscence treatment, ten articles presented the treatment of fenestrations, and ten (429 implants) adopted vertical bone augmentation. The percentage of bone filling was variable among different procedures and defect classification. The use of resorbable membrane was associated with better outcomes than the use of non-resorbable ones.

CONCLUSIONS: Guided bone regeneration for the management of bone defects in the presence of a VRF of the extracted tooth is a viable treatment option. The assessment of bone defect geometry prior to a tooth extraction could be clinically relevant for evaluating the feasibility and the success of immediate implant placement as well as the need of GBR. Copyright © 2013 John Wiley & Sons A/S. Published by Blackwell Publishing Ltd.
CONCLUSION: The results suggest that no truly causal relationship exists between dental trauma and physical activity and nutritional status. Due to the relatively low level of evidence currently present, studies with more robust design, for example, prospective cohort should address this question, especially in view of the epidemic of obesity.

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Authors
Tsesis I; Taschieri S; Rosen E; Corbella S; Del Fabbro M.

Authors Full Name
Tsesis, Igor; Taschieri, Silvio; Rosen, Eyal; Corbella, Stefano; Del Fabbro, Massimo.

Institution
Del Fabbro, Massimo. Department of Biomedical, Surgical and Dental Sciences, Universita degli Studi di Milano - IRCCS Istituto Ortopedico Galeazzi, Dental Clinic, Milan, Italy.

Title
Treatment of paraesthesia following root canal treatment by intentional tooth replantation: a review of the literature and a case report. [Review]

Source

Abstract
BACKGROUND: Some endodontic procedures may cause damage to the inferior alveolar nerve, leading to paraesthesia. When such complication is due to extrusion of obturation material beyond the apex, it can be managed by intentional replantation (IR). IR consists of the removal of a tooth and its re-insertion into the socket after performing a proper root end manipulation. It is a relatively conservative procedure aimed at preserving the tooth and, with correct case selection, can provide a predictable outcome.

AIMS: The aim of the present paper is to report a case of paraesthesia following endodontic treatment of second mandibular molar successfully treated by intentional replantation.

RESULTS AND CONCLUSION: In our opinion this treatment modality may be considered when the extrusion of root canal filling material causes irritation to the periapical tissues and endodontic retreatment is unfeasible.

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Authors
Long H; Zhou Y; Ye N; Liao L; Jian F; Wang Y; Lai W.

Authors Full Name
Long, Hu; Zhou, Yang; Ye, Niansong; Liao, Lina; Jian, Fan; Wang, Yan; Lai, Wenli.

Institution
Long, Hu. Department of Orthodontics, State Key Laboratory of Oral Diseases, West China Hospital of Stomatology, Sichuan University, Chengdu 610041, Sichuan, China.
Zhou, Yang. Department of Orthodontics, State Key Laboratory of Oral Diseases, West China Hospital of Stomatology, Sichuan University, Chengdu 610041, Sichuan, China.
Ye, Niansong. Department of Orthodontics, State Key Laboratory of Oral Diseases, West China Hospital of Stomatology, Sichuan University, Chengdu 610041, Sichuan, China.
Liao, Lina. Department of Orthodontics, State Key Laboratory of Oral Diseases, West China Hospital of Stomatology, Sichuan University, Chengdu 610041, Sichuan, China.
Jian, Fan. Department of Orthodontics, State Key Laboratory of Oral Diseases, West China Hospital of Stomatology, Sichuan University, Chengdu 610041, Sichuan, China.
Wang, Yan. Department of Orthodontics, State Key Laboratory of Oral Diseases, West China Hospital of Stomatology, Sichuan University, Chengdu 610041, Sichuan, China.
Lai, Wenli. Department of Orthodontics, State Key Laboratory of Oral Diseases, West China Hospital of Stomatology, Sichuan University, Chengdu 610041, Sichuan, China. Electronic address: wenlilai@hotmail.com.

Title
Diagnostic accuracy of CBCT for tooth fractures: a meta-analysis. [Review]

Comments
Comment in: Evid Based Dent. 2015 Mar;16(1):23-4; PMID: 25909938
OBJECTIVES: The objective of this meta-analysis was to determine the diagnostic accuracy of cone-beam computed tomography (CBCT) for tooth fractures in vivo.

METHODS: PubMed, Embase, Web of Science, ProQuest Dissertations & Theses, CNKI and SIGLE were searched from January 1990 to April 2013 for eligible studies. Quality Assessment of Diagnostic Accuracy Studies-2 (QUADAS-2) was employed to assess the quality of the included studies. Meta-analyses were performed in MetaDisc 1.4, Stata 12.1 and StatsDirect 2.7.9.

RESULTS: Finally, 12 studies were included in this meta-analysis. The pooled sensitivity, specificity, positive likelihood ratio, negative likelihood ratio and summary receiver operating characteristic were 0.92 (95% CI=0.89-0.94), 0.85 (95% CI=0.75-0.92), 5.68 (95% CI=3.42-9.45), 0.13 (95% CI=0.09-0.18) and 0.94 (95% CI=0.90-0.98), respectively. The pooled prevalence of tooth fractures in patients with clinically-suspected but periapical-radiography-undetected tooth fractures was 91% (95% CI=83%-97%). Positive and negative predictive values were 0.98 and 0.43 (subgroup analysis: 0.98 and 0.28 for endodontically-treated teeth; 0.99 and 0.77 for non-endodontically-treated teeth).

CONCLUSION: We suggest that CBCT has a high diagnostic accuracy for tooth fractures and could be used in clinical settings. We can be very confident with positive test results but should be very cautious with negative test results, especially for endodontically treated teeth. Copyright © 2013 Elsevier Ltd. All rights reserved.

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Authors
van Hout WM; Van Cann EM; Muradin MS; Frank MH; Koole R.

Authors Full Name
van Hout, Wouter M M T; Van Cann, Ellen M; Muradin, Manvick S M; Frank, Michael H; Koole, Ronald.

Institution
van Hout, Wouter M M T; Department of Oral and Maxillofacial Surgery (Head: R. Koole, M.D., D.M.D., Ph.D), University Medical Centre Utrecht, Heidelberglaan 100, 3584 CX Utrecht, PO Box 85500, The Netherlands. Electronic address: w.m.vanhout@umcutrecht.nl.

van Cann, Ellen M; Department of Oral and Maxillofacial Surgery (Head: R. Koole, M.D., D.M.D., Ph.D), University Medical Centre Utrecht, Heidelberglaan 100, 3584 CX Utrecht, PO Box 85500, The Netherlands.

Muradin, Manvick S M; Department of Oral and Maxillofacial Surgery (Head: R. Koole, M.D., D.M.D., Ph.D), University Medical Centre Utrecht, Heidelberglaan 100, 3584 CX Utrecht, PO Box 85500, The Netherlands.

Frank, Michael H; Department of Oral and Maxillofacial Surgery (Head: R. Koole, M.D., D.M.D., Ph.D), University Medical Centre Utrecht, Heidelberglaan 100, 3584 CX Utrecht, PO Box 85500, The Netherlands.

Koole, Ronald; Department of Oral and Maxillofacial Surgery (Head: R. Koole, M.D., D.M.D., Ph.D), University Medical Centre Utrecht, Heidelberglaan 100, 3584 CX Utrecht, PO Box 85500, The Netherlands.

Title
Intraoperative imaging for the repair of zygomaticomaxillary complex fractures: a comprehensive review of the literature. [Review]

Source

Local Messages
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Abstract
INTRODUCTION: Intraoperative imaging seems to be the next step to improve surgical outcome in the treatment of zygomaticomaxillary complex (ZMC) fractures. Many publications have appeared on intraoperative imaging for trauma surgery, but in most hospitals intraoperative imaging is not routinely performed for ZMC fracture repair. The goal of this review was to assess the value of intraoperative imaging in ZMC fracture repair.

MATERIAL AND METHODS: The literature was reviewed with focus on the effects of intraoperative imaging on facial symmetry, fracture reduction and the frequency of additional reduction after intraoperative imaging in ZMC fractures.

RESULTS: Six publications were found on the frequency of additional reduction after intraoperative imaging in ZMC fracture repair. Revision of the reduction of the zygoma was performed in 18% (95% CI 10.5%-29.0%), revision of the orbital floor was performed in 9% (95% CI 3.6%-17.2%). No publications were found on the effects of intraoperative imaging on facial symmetry or on the accuracy of fracture reduction.

CONCLUSIONS: Information obtained from intraoperative imaging often has consequences on the surgical management of ZMC fractures. However, the effect on restoration of facial symmetry and fracture reduction is yet to be established. Copyright © 2014 European Association for Cranio-Maxillo-Facial Surgery. Published by Elsevier Ltd. All rights reserved.

Publication Type
Traumatic dental injuries (TDIs) can result in the premature loss of primary anterior teeth due to an immediate avulsion, extraction later after the injury because of poor prognosis or late complications, or early exfoliation. There are a number of potential considerations or sequelae as a result of this premature loss that have been cited in the dental literature, which include esthetics, quality of life, eating, speech development, arch integrity (space loss), development and eruption of the permanent successors, and development of oral habits. This article provides a comprehensive review of the dental literature on the possible consequences of premature loss of maxillary primary incisors following TDI. Copyright © 2013 John Wiley & Sons A/S. Published by John Wiley & Sons Ltd.
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RECENT REVIEWS RELATED TO DENTOALVEOLAR TRAUMA

Status
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Authors
Sonmez AB; Castelnuovo J.
Authors Full Name
Sonmez, Ayse B; Castelnuovo, Jacopo.
Institution
Sonmez,Ayse B. Department of Pediatric Dentistry, School of Dentistry, University of Rome - La Sapienza, Rome, Italy; Private Practice, Rome, Italy.
Title
Applications of basic fibroblastic growth factor (FGF-2, bFGF) in dentistry. [Review]
Source
Local Messages
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Abstract
Recent developments in research have been based on the maintenance and regeneration of natural organs and tissues; among such developments is the use of growth factors (GFs). The use of basic fibroblastic growth factors (bFGF) may be indicated in different disciplines of dentistry such as periodontics and dental traumatology. These cells' ability to induce proliferation and differentiation of cells may make GFs a useful source for the development of natural structures. This mini-review will discuss how bFGF can be beneficial to dentistry in relation to 1) re-implantation/autotransplantation of avulsed teeth and 2) periodontal regeneration. Copyright © 2013 John Wiley & Sons A/S. Published by John Wiley & Sons Ltd.
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Authors
Ranchod S; Smit DA; Morkel JA.
Authors Full Name
Ranchod, S; Smit, D A; Morkel, J A.
Title
Substance abuse and maxillofacial injuries. [Review]
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Authors
Neff A; Chossegros C; Blanc JL; Champsaur P; Cheynet F; Devauchelle B; Eckelt U; Ferri J; Gabrielli MF; Guyot L; Koppel DA; Meyer C; Muller B; Peltomaki T; Spallacchia F; Varoquaux A; Wilk A; Pitak-Arnnop P; International Bone Research Association.
Authors Full Name
Neff, Andreas; Chossegros, Cyrille; Blanc, Jean-Louis; Champsaur, Pierre; Cheynet, Francois; Devauchelle, Bernard; Eckelt, Uwe; Ferri, Joel; Gabrielli, Mario Francisco Real; Guyot, Laurent; Koppel, David Andrew; Meyer, Christophe; Muller, Bert; Peltomaki, Timo; Spallacchia, Fabrizio; Varoquaux, Arthur; Wilk, Astrid; Pitak-Arnnop, Poramate; International Bone Research Association.
Institution
Neff,Andreas. Department of Oral and Maxillofacial Surgery (Head and Chair: Prof. Andreas Neff), UKGM GmbH, University Hospital of Marburg, Faculty of Medicine, Philipps University, Marburg, Germany. Electronic address: mkg@med.uni-marburg.de.
Chossegros,Cyrille. Department of Oral and Maxillofacial Surgery (Head and Chair: Prof. Cyrilre Chossegros), AP-HM, "La Timone" University Medical Centre, Aix-Marseille Univ, Marseille, France.
Blanc,Jean-Louis. Department of Oral and Maxillofacial Surgery (Head and Chair: Prof. Cyrilre Chossegros), AP-HM, "La Timone" University Medical Centre, Aix-Marseille Univ, Marseille, France.
The consensus derived from 14 experts and 41 participant surgeons, using 12 case scenarios and 27 statements. The experts and participants had similar decision on the treatment of condylar base, neck and head fractures, as well as similar opinion on complications of condylar fracture osteosynthesis. They had a parallel agreement on using open reduction with internal fixation (ORIF) as treatment of choice for condylar base and neck fractures in adults. Endoscopic approaches should be considered for selected cases, such as condylar base fractures with lateral displacement. There was also a growing tendency to perform ORIF in condylar head fractures. The experts also agreed to treat children (≥12 years old) in the same way as adults and to consider open reduction in severely displaced and dislocated fractures even in younger children. Nevertheless, non-surgical treatment should be the first choice for children <6 years of age. The decision to perform surgery in children was based on factors influencing facial growth, appropriate age for ORIF, and disagreement to use resorbable materials in children.

CONCLUSIONS: The experts and participating surgeons had comparable opinion on management of condylar fractures and complications of ORIF. Compared to the first Condylar Fracture Symposium 2007 in Strasbourg, ORIF may now be considered as the gold standard for both condylar base and neck fractures with displacement and dislocation. Although ORIF in condylar head fractures in adults and condylar fractures in children with mixed dentition is highly recommended, but this recommendation requires further investigations.

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Title
Position paper from the IBRA Symposium on Surgery of the Head--the 2nd International Symposium for Condylar Fracture Osteosynthesis, Marseille, France 2012.

Source

Local Messages
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Abstract
BACKGROUND: This is a position paper from the 2nd International Bone Research Association (IBRA) Symposium for Condylar Fracture Osteosynthesis 2012 was held at Marseille, succeeding the first congress in Strasbourg, France, in 2007. The goal of this IBRA symposium and this paper was to evaluate current trends and potential changes of treatment strategies for mandibular condylar fractures, which remain controversial over the past decades.

METHODS: Using a cross-sectional study design, we enrolled the consensus based on the panel of experts and participants in the IBRA Symposium 2012. The outcomes of interest were the panel and electronic votes on management of condylar base, neck and head fractures, and panel votes on endoscopic and paediatric condylar fractures. Appropriate descriptive and univariate statistics were used.

RESULTS: The consensus derived from 14 experts and 41 participant surgeons, using 12 case scenarios and 27 statements. The experts and participants had similar decision on the treatment of condylar base, neck and head fractures, as well as similar opinion on complications of condylar fracture osteosynthesis. They had a parallel agreement on using open reduction with internal fixation (ORIF) as treatment of choice for condylar base and neck fractures in adults. Endoscopic approaches should be considered for selected cases, such as condylar base fractures with lateral displacement. There was also a growing tendency to perform ORIF in condylar head fractures. The experts also agreed to treat children (≥12 years old) in the same way as adults and to consider open reduction in severely displaced and dislocated fractures even in younger children. Nevertheless, non-surgical treatment should be the first choice for children <6 years of age. The decision to perform surgery in children was based on factors influencing facial growth, appropriate age for ORIF, and disagreement to use resorbable materials in children.

CONCLUSIONS: The experts and participating surgeons had comparable opinion on management of condylar fractures and complications of ORIF. Compared to the first Condylar Fracture Symposium 2007 in Strasbourg, ORIF may now be considered as the gold standard for both condylar base and neck fractures with displacement and dislocation. Although ORIF in condylar head fractures in adults and condylar fractures in children with mixed dentition is highly recommended, but this recommendation requires further investigations.

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Authors
Boffano P; Kommers SC; Roccia F; Gallesio C; Forouzanfar T.

Authors Full Name
Boffano, Paolo; Kommers, Sofie C; Roccia, Fabio; Gallesio, Cesare; Forouzanfar, Tymour.

Institution
Boffano, Paolo. Department of Oral and Maxillofacial Surgery/Pathology (Head: Professor Tymour Forouzanfar), VU University Medical Center and Academic Centre for Dentistry Amsterdam (ACTA), P.O. Box 7057, 1007 MB Amsterdam, The Netherlands. Electronic address: paolo.boffano@gmail.com.

Kommers, Sofie C. Department of Oral and Maxillofacial Surgery/Pathology (Head: Professor Tymour Forouzanfar), VU University Medical Center and Academic Centre for Dentistry Amsterdam (ACTA), P.O. Box 7057, 1007 MB Amsterdam, The Netherlands.

Roccia, Fabio. Division of Maxillofacial Surgery, Head and Neck Department, San Giovanni Battista Hospital, University of Turin, Turin, Italy.

Gallesio, Cesare. Division of Maxillofacial Surgery, Head and Neck Department, San Giovanni Battista Hospital, University of Turin, Turin, Italy.

Forouzanfar, Tymour. Department of Oral and Maxillofacial Surgery/Pathology (Head: Professor Tymour Forouzanfar), VU University Medical Center and Academic Centre for Dentistry Amsterdam (ACTA), P.O. Box 7057, 1007 MB Amsterdam, The Netherlands.

Title
Fractures of the mandibular coronoid process: a two centres study.

Source

Abstract
The aim of this study was to assess the characteristics of patients with coronoid fractures treated in two European centres over 10 years and to briefly review the literature. This study is based on 2 systematic computer-assisted databases that have continuously recorded patients hospitalized with maxillofacial fractures and surgically treated in two European centres between 2001 and 2010. During the 10 years, 1818 patients and 523 patients with maxillofacial fractures were admitted to the two centres respectively: 21 patients (16 males, 5 females) were admitted with 21 coronoid fractures and 28 associated maxillofacial fractures. A mean age of 42.1 years was observed. The fractures were mainly the result of motor vehicle accidents, followed by assaults and falls. The most frequently observed associated maxillofacial fracture was a zygomatic fracture (13 fractures). In both centres, mandibular coronoid fractures are treated unless a severe dislocation of the fractured coronoid is observed or a functional mandibular impairment is encountered. Conservative treatment can be used, together with the open reduction and internal fixation of associated fractures. The crucial point is to prevent ankylosis, which may be prevented by correct and early postoperative physiotherapy and mandibular function. Copyright © 2014 European Association for Cranio-Maxillo-Facial Surgery. Published by Elsevier Ltd. All rights reserved.

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Authors
Coulter JM; Wilson OL; Marks MK.

Authors Full Name
Coulter, John M; Wilson, O Lee; Marks, Murray K.

Title
Management of traumatic tooth injuries in the dental office. [Review]

Source

Abstract
Dental trauma is sudden, unscheduled, and the dentist and staff must be adequately equipped to expeditiously and properly treat the patient to assure the best possible outcome. This paper reviews current dental trauma guidelines to provide the correct treatment protocol to ensure the best prognosis. The case report illustrates the technique of avulsion care, RCT care, and functional splinting in a successful manner.

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Case Reports. Journal Article. Review.

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Authors
Seymour DW; Patel M; Carter L; Chan M.
Surgical management of anterior mandibular fractures: a systematic review and meta-analysis. [Review]

In part 2 of this series, we look at the clinician's role in replacing multiple missing teeth and the associated soft tissues and bone, following severe forms of trauma. These patients usually wish to have fixed prostheses to help restore their appearance and function. In order to fulfill the patient's request, the multidisciplinary team can be faced with significant challenges, often requiring extensive reconstructive surgery and complex implant oral rehabilitation. The aim of this paper is to highlight to the general dental practitioner some of the challenges faced in rehabilitating severe trauma patients with implant retained prosthesis. By understanding the challenges it is hoped that the general dental practitioner will be able to make an assessment of the clinical situation and seek appropriate specialist advice to ensure optimal results for their patients. In the longer term, the management of these patients requires a shared care approach between the general dental practitioner and relevant specialists.
Cone beam computed tomography for the diagnosis of vertical root fractures: a systematic review of the literature and meta-analysis. [Review]

Source

Objective: The aim of this review was to compare the efficiency of cone beam computed tomography (CBCT) and conventional intraoral radiography for the detection of vertical root fractures (VRFs).

Study Design: Data from comparative and noncomparative studies investigating CBCT, conventional radiography, or both for the diagnosis of VRFs were searched. The main outcome variables were sensitivity, specificity, and accuracy of the techniques.

Data were separated into 4 groups: in vivo, ex vivo/untreated teeth, ex vivo/treated teeth, and ex vivo with post. The weighted mean of each parameter was estimated.

Results: Twelve articles were considered for the analysis. There was a large heterogeneity of the characteristics of the studies and a wide variability in outcome variables. No significant differences were found between radiographic techniques.

Conclusions: No superiority of CBCT compared with conventional radiography was found for VRF detection. Adequate choice of voxel size seems to be important when diagnosing VRFs. Copyright © 2014 Elsevier Inc. All rights reserved.
What method for management of unilateral mandibular angle fractures has the lowest rate of postoperative complications? A systematic review and meta-analysis. [Review]

Source

RESULTS: A total of 20 publications were included: 9 RCTs, 3 CCTs, and 8 retrospective studies. Eight studies had a low risk of bias, 11 studies a moderate risk of bias, and 1 a high risk of bias. A statistically significant difference was found between a single superior border miniplate and the use of 2 miniplates. The cumulative odds ratio (OR) was 0.63, indicating that the use of 1 miniplate in MAF fixation decreased the risk of postoperative complications by 37% compared with using 2 miniplates. Comparing a miniplate placed on the external oblique ridge to one placed on the lateral surface of the mandible resulted in a cumulative OR of 2.10, indicating that the use of the transbuccal miniplate decreased the risk of postoperative complications by 110% compared with a miniplate placed on the external oblique ridge. Comparing geometric and standard miniplates, the OR was 0.29, indicating that the use of a geometric miniplate decreased the risk of postoperative complications by 71% compared with using conventional miniplates.

CONCLUSIONS: The results of the meta-analysis have shown that the use of 1 miniplate is superior to using 2 in reducing the incidence of postoperative complications in the management of MAFs. In addition, our results showed that the transbuccally placed lateral miniplate was better at reducing the incidence of postoperative complications than one placed on the external oblique ridge using a transoral approach. Finally, geometric miniplates performed better than conventional miniplates in reducing postoperative complications. Copyright © 2014 American Association of Oral and Maxillofacial Surgeons. Published by Elsevier Inc. All rights reserved.

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Authors
Boffano P; Kommers SC; Karagozoglu KH; Forouzanfar T.

Authors Full Name
Boffano, Paolo; Kommers, Sofie C; Karagozoglu, K Hakki; Forouzanfar, Tymour.

Institution
Boffano, Paolo. Department of Oral and Maxillofacial Surgery/Pathology, VU University Medical Center and Academic Centre for Dentistry Amsterdam (ACTA), P.O. Box 7057, 1007 MB Amsterdam, The Netherlands. Electronic address: paolo.boffano@gmail.com.

Kommers, Sofie C. Department of Oral and Maxillofacial Surgery/Pathology, VU University Medical Center and Academic Centre for Dentistry Amsterdam (ACTA), P.O. Box 7057, 1007 MB Amsterdam, The Netherlands.

Karagozoglu, K Hakki. Department of Oral and Maxillofacial Surgery/Pathology, VU University Medical Center and Academic Centre for Dentistry Amsterdam (ACTA), P.O. Box 7057, 1007 MB Amsterdam, The Netherlands.

Forouzanfar, Tymour. Department of Oral and Maxillofacial Surgery/Pathology, VU University Medical Center and Academic Centre for Dentistry Amsterdam (ACTA), P.O. Box 7057, 1007 MB Amsterdam, The Netherlands.

Title
Aetiology of maxillofacial fractures: a review of published studies during the last 30 years. [Review]

Source

Abstract
The epidemiology of facial trauma may vary widely across countries (and even within the same country), and is dependent on several cultural and socioeconomic factors. We know of few reviews of published reports that have considered the sex distribution and aetiology of maxillofacial trauma throughout the world. The aim of this review was to discuss these aspects as they have been presented in papers published during the last 30 years. We made a systematic review of papers about the epidemiology of maxillofacial trauma that were published between January 1980 and December 2013. A total of 20 publications were included: 9 RCTs, 3 CCTs, and 8 retrospective studies. Eight studies had a low risk of bias, 11 studies a moderate risk of bias, and 1 a high risk of bias. A statistically significant difference was found between a single superior border miniplate and the use of 2 miniplates. The cumulative odds ratio (OR) was 0.63, indicating that the use of 1 miniplate in MAF fixation decreased the risk of postoperative complications by 37% compared with using 2 miniplates. Comparing a miniplate placed on the external oblique ridge to one placed on the lateral surface of the mandible resulted in a cumulative OR of 2.10, indicating that the use of the transbuccal miniplate decreased the risk of postoperative complications by 110% compared with a miniplate placed on the external oblique ridge. Comparing geometric and standard miniplates, the OR was 0.29, indicating that the use of a geometric miniplate decreased the risk of postoperative complications by 71% compared with using conventional miniplates.

CONCLUSIONS: The results of the meta-analysis have shown that the use of 1 miniplate is superior to using 2 in reducing the incidence of postoperative complications in the management of MAFs. In addition, our results showed that the transbuccally placed lateral miniplate was better at reducing the incidence of postoperative complications than one placed on the external oblique ridge using a transoral approach. Finally, geometric miniplates performed better than conventional miniplates in reducing postoperative complications. Copyright © 2014 American Association of Oral and Maxillofacial Surgeons. Published by Elsevier Inc. All rights reserved.
ratio usually being more than 2:1. In American, African, and Asian studies road traffic crashes were the predominant cause. In European studies the aetiology varied, with assaults and road traffic crashes being the most important factors. In Oceania assaults were the most important. A comparison of the incidence of maxillofacial trauma of different countries together with a knowledge of different laws (seat belts for drivers, helmets for motocyclists, speed limits, and protection worn during sports and at work) is crucial to allow for improvement in several countries. To our knowledge this paper is the first attempt to study and compare the aetiologies of maxillofacial trauma. Copyright © 2014 The British Association of Oral and Maxillofacial Surgeons. Published by Elsevier Ltd. All rights reserved.

**CONCLUSIONS:** Surgical treatment has significant advantages in improving the maximal mouth opening as well as the occlusional relationship and has no significant statistical difference in the occurrence of joint pain after treatment, facial symmetry, and mandibular activity status in the 2 groups. Surgical treatment is suggested for patients older than 16 years with low position of condylar fracture, severe displacement, dislocation, and malocclusion. Joint pain, mandibular activity, facial symmetry after treatment, and jaw development impact should not be used as the influencing factors for treatment methods selection.
A meta-analysis comparing the 2.0-mm locking plate system with the 2.0-mm nonlocking plate system in treatment of mandible fractures. [Review]

PURPOSE: The purpose of this meta-analysis was to evaluate the efficacy of the 2.0-mm locking miniplate/screw system in comparison with the 2.0-mm nonlocking miniplate/screw system in treatment of mandible fractures.

METHODS: Articles published until March 2013 were searched in the PubMed and EMBASE electronic databases. Eligible studies were restricted to comparative controlled trials.

RESULTS: Four studies with 220 patients and 420 fracture sites were enrolled into the analysis. The results showed that there were no significant differences in overall complications (odds ratio [OR], 0.57; 95% confidence interval [CI], 0.24-1.36; P = 0.21), postoperative infection (OR, 0.43; 95% CI, 0.13-1.41, P = 0.17), and postoperative pain (P > 0.05) when comparing 2.0-mm locking miniplates with 2.0-mm nonlocking miniplates in treating mandible fractures. However, the use of 2.0-mm locking miniplates had a lower postoperative maxillomandibular fixation (MMF) rate than the use of 2.0-mm nonlocking miniplates (OR, 0.18; 95% CI, 0.08-0.41; P < 0.0001).

CONCLUSIONS: Mandible fractures treated with 2.0-mm locking miniplates and nonlocking 2.0-mm miniplates present similar short-term complication rates, and the low postoperative maxillomandibular fixation rate of using 2.0-mm locking miniplates also indicates that the 2.0-mm locking miniplate has a promising application in treatment of mandibular fractures.
PubMed Search

RECENT REVIEWS RELATED TO DENTOALVEOLAR TRAUMA

Status
MEDLINE
 Authors
van Leeuwen AC; van der Meij EH; de Visscher JG.
 Authors Full Name
van Leeuwen, Anne Cornelis; van der Meij, Erik H; de Visscher, Jan G.
 Institution
van Leeuwen, Anne Cornelis. Resident/trainee, Oral and Maxillofacial Surgery, Department of Oral and Maxillofacial Surgery, Medical Centre Leeuwarden, Leeuwarden, The Netherlands. Electronic address: a.van.leeuwen01@umcg.nl.
 van der Meij, Erik H. Oral and Maxillofacial Surgeon, Department of Oral and Maxillofacial Surgery, Medical Centre Leeuwarden, Leeuwarden, The Netherlands.
 de Visscher, Jan G. Oral and Maxillofacial Surgeon, Department of Oral and Maxillofacial Surgery, Medical Centre Leeuwarden, Leeuwarden, The Netherlands.
 Title
Fracture of the genial tubercles of the mandible: case report and review of the literature. [Review]
 Source
 Local Messages
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 Abstract
Fracture of the genial tubercles is a rare occurrence and can occur as a solitary fracture or an associated fracture of the mandible. A solitary fracture seems to be associated with severe atrophy of the mandible. A report of a case of fractured genial tubercles in an 80-year-old edentulous female patient is described and a review of the literature is presented. Copyright © 2014 American Association of Oral and Maxillofacial Surgeons. Published by Elsevier Inc. All rights reserved.
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 Authors
Yan YB; Liang SX; Shen J; Zhang JC; Zhang Y.
 Authors Full Name
Yan, Ying-Bin; Liang, Su-Xia; Shen, Jun; Zhang, Jian-Cheng; Zhang, Yi.
 Institution
Yan,Ying-Bin. Department of Oral and Maxillofacial Surgery, Tianjin Stomatological Hospital, 75 Dagu Road, Heping District, Tianjin 300041, PR China. yingbinyan@gmail.com.
 Title
Current concepts in the pathogenesis of traumatic temporomandibular joint ankylosis. [Review]
 Source
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Source: NLM. PMC4158390
 Abstract
Traumatic temporomandibular joint (TMJ) ankylosis can be classified into fibrous, fibro-osseous and bony ankylosis. It is still a huge challenge for oral and maxillofacial surgeons due to the technical difficulty and high incidence of recurrence. The poor outcome of disease may be partially attributed to the limited understanding of its pathogenesis. The purpose of this article was to comprehensively review the literature and summarise results from both human and animal studies related to the genesis of TMJ ankylosis.
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 Authors
Srivastava A; Gupta N; Marleau A; Afrashtehfar KI.
 Authors Full Name
Srivastava, Akanksha; Gupta, Nidhi; Marleau, Annie; Afrashtehfar, Kelvin I.
 Institution
Afrashtehfar,Kelvin I. McGill University, Montreal, Quebec.
 Title

RECENT REVIEWS RELATED TO DENTAL ALVEOLAR TRAUMA

How do I manage a patient with intrusion of a permanent incisor? [Review]
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Arangio P; Vellone V; Torre U; Calafati V; Capriotti M; Cascone P.
Authors Full Name
Arangio, Paolo; Vellone, Valentino; Torre, Umberto; Calafati, Vincenzo; Capriotti, Marco; Cascone, Piero.
Institution
Arangio, Paolo. Maxillo-Facial Surgery Dept (Chair: G. Iannetti, MD, PhD), "Sapienza" Universita di Roma, Via del Policlinico, Roma, Italy.
Vellone, Valentino. Maxillo-Facial Surgery Dept (Chair: G. Iannetti, MD, PhD), "Sapienza" Universita di Roma, Via del Policlinico, Roma, Italy. Electronic address: valentino.vellone@gmail.com.
Torre, Umberto. Maxillo-Facial Surgery Dept (Chair: G. Iannetti, MD, PhD), "Sapienza" Universita di Roma, Via del Policlinico, Roma, Italy.
Calafati, Vincenzo. Maxillo-Facial Surgery Dept (Chair: G. Iannetti, MD, PhD), "Sapienza" Universita di Roma, Via del Policlinico, Roma, Italy.
Capriotti, Marco. Maxillo-Facial Surgery Dept (Chair: G. Iannetti, MD, PhD), "Sapienza" Universita di Roma, Via del Policlinico, Roma, Italy.
Cascone, Piero. Maxillo-Facial Surgery Dept (Chair: G. Iannetti, MD, PhD), "Sapienza" Universita di Roma, Via del Policlinico, Roma, Italy.
Title
Maxillofacial fractures in the province of Latina, Lazio, Italy: review of 400 injuries and 83 cases.
Source
Abstract
A retrospective study was performed to assess maxillofacial fractures in patients treated at the public "S.M. Goretti Hospital" hospital from 2011 to 31/8/2012. Data were prospectively recorded including age and sex, cause and mechanisms of injury, soft tissue injuries, dental alveolar trauma, facial bone fractures and type of treatment. The pre-surgical and post-surgical hospitalization days were also analysed. Causes were grouped into five categories: road traffic collision, sports accidents, occupational accidents, assaults and domestic accidents. The analyses involved descriptive statistics. Records from 83 patient sustaining 95 maxillofacial fractures were evaluated. The zygoma was the most fractured anatomical site in both males and females, accounting for 32% of injuries, followed by isolated fracture of the orbital floor (blow-out and blow-in) with 11%. The age group between 18 and 39 years showed the highest rate of incidence of maxillofacial fractures. Men were more involved than women in all cases with a male:female ratio of 5.4:1. Accidents were the most frequent cause of maxillofacial fractures in the age group between 18 and 39 years and interpersonal violence was the most frequent cause of maxillofacial fractures in the age group between 40 and 59 years. Facial fractures occurred primarily among men under 30 years of age, and the most common sites of fractures in the face were the mandible and the zygomatic complex. Road traffic collisions were the main aetiologic factor associated with maxillofacial trauma.
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Chrcanovic BR.
Authors Full Name
Chrcanovic, Bruno Ramos.
Institution
Chrcanovic, Bruno Ramos. Department of Prosthodontics, Faculty of Odontology, Malmo University, Carl Gustafs vag 34, SE-205 06, Malmo, Sweden, bruno.chrcanovic@mah.se.
Title
Maxillofacial fractures in the province of Latina, Lazio, Italy: review of 400 injuries and 83 cases.
**Fixation of mandibular angle fractures: clinical studies. [Review]**

*Source*

**Abstract**
PURPOSE: The purpose of this study was to review the literature regarding the evolution of current thoughts on fixation of mandibular angle fractures (MAFs).

METHODS: An electronic search in PubMed was undertaken in August 2012. The titles and abstracts from these results were read to identify studies within the selection criteria. Eligibility criteria included studies from the last 30 years (from 1983 onwards) reporting clinical studies of MAFs.

RESULTS: The search strategy initially identified 767 studies. The references from 1983 onwards totaled 727 articles. Fifty-four studies were identified without repetition within the selection criteria. Two articles showing significance in the development of treatment techniques were included. Additional hand-searching yielded 13 additional papers. Thus, a total of 69 studies were included.

CONCLUSIONS: Prospective randomized controlled studies of MAFs repair techniques are scarce. The available data at best predict that complications are associated with all kinds of fixation techniques. The similar results of complications in studies using different methods of fixation indicate that biomechanics are only one factor to be considered when treating MAFs. A second fracture in the mandible (which was observed in the majority of the studies’ population) can confound the outcome data because the fixation requirements of a double fracture are often different from those for an isolated fracture. It can be necessary additional effort intended for increase of stability when using biodegradable plate system to fixate MAFs. The use of 1.3 mm malleable miniplates was associated with an unacceptable incidence of plate fracture, suggesting that this is not the most adequate system to treat MAFs. The use of the 3D grid plates has shown good clinical results. The efficiency of locking miniplate system is yet to be proven because there are few clinical studies with its use to fixate MAFs, although they have shown good results. When considering the use of semirigid or rigid fixation systems, the use of two miniplates outweigh the advantages of the use of one reconstruction plate, although the use of miniplates is not recommended for displaced comminuted MAFs. It can be necessary additional effort intended for increase of stability when using biodegradable plate system to fixate MAFs. The use of 1.3 mm malleable miniplates was associated with an unacceptable incidence of plate fracture, suggesting that this is not the most adequate system to treat MAFs. The use of the 3D grid plates has shown good clinical results. The efficiency of locking miniplate system is yet to be proven because there are few clinical studies with its use to fixate MAFs, although they have shown good results. MAFs can be treated in a highly effective way and with a relatively low rate of complications with monocortical miniplate fixation. The large number of studies on the treatment of MAF reflects the fact that a consensus has not been reached for a single, ideal treatment method.

**Publications**

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**Traumatic dental injuries: etiology, prevalence and possible outcomes. [Review]**

*Source*
Stomatologija. 16(1):7-14, 2014.

**Abstract**
OBJECTIVE: The aim was to overview the etiology, prevalence and possible outcomes of dental trauma.

MATERIAL AND METHODS: An electronic search of Medline (PubMed), Cochrane, SSCI (Social Citation Index), SCI (Science Citation Index) databases from 1995 to the present, using the following search words: tooth injuries, tooth trauma, traumatized teeth, dental trauma, dentoalveolar trauma, oral trauma, epidemiology, etiology, prevalence, prevention, pulp necrosis, inflammatory resorption, ankylosis, cervical resorption, was performed.

RESULTS: During last decade traumatic dental injuries were recognized as public dental health problem worldwide. Prevalence of traumatic dental injuries varies between countries. According to the existing data they are more prevalent in permanent than in primary dentition. All treatment procedures in case of dental trauma are directed to minimize undesired consequences despite that treatment of traumatic dental injuries in the young patient is often complicated and can continue during the rest of his/her life. The changing lifestyle and requirements of modern society lead to an emergence of new patterns of dental trauma. A regular update of knowledge in dental traumatology is required.

**Publications**
- Journal Article. Review.

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RECENT REVIEWS RELATED TO DENTOALVEOLAR TRAUMA

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Authors
Xu JJ; Teng L; Jin XL; Lu JJ; Zhang C.
Authors Full Name
Xu, Jia-Jie; Teng, Li; Jin, Xiao-Lei; Lu, Jian-Jian; Zhang, Chao.
Institution
Xu, Jia-Jie. From the Plastic Surgery Hospital, Chinese Academy of Medical Sciences, Beijing, China.
Title
Iatrogenic mandibular fracture associated with third molar removal after mandibular angle osteotomy. [Review]
Source
Abstract
The extraction of mandibular third molars is a common dental procedure. The complications include hemorrhage, pain, dental fracture, the displacement of teeth or fragments, iatrogenic damage or luxation of the second molar, neurologic injuries, soft tissue damage, subcutaneous emphysema, trismus, swelling, infection, and iatrogenic mandibular fracture. Fracture of the angle of the mandible associated with third molar removal is a rare but severe complication. This article describes a case of mandibular angle fracture associated with third molar extraction after mandibular angle osteotomy, including a brief review of the literature. The removal of the mandibular angle and the outer cortex of the mandible, especially the external oblique ridge, may contribute to the bone fracture. We conclude that the extraction of the lower third molar must be before the removal of the mandibular angle, and a soft diet for at least 4 weeks postoperatively is essential to prevent late mandible fracture.
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Authors
Al-Moraissi EA; El-Sharkawy TM; El-Ghareeb TI; Chrcanovic BR.
Authors Full Name
Al-Moraissi, E A; El-Sharkawy, T M; El-Ghareeb, T I; Chrcanovic, B R.
Institution
Al-Moraissi, E A. Department of Oral and Maxillofacial Surgery, Faculty of Oral and Dental Medicine, Cairo University, Egypt; Department of Oral and Maxillofacial Surgery, Faculty of Dentistry, Thamar University, Yemen. Electronic address: dr_essamalmoraissi@yahoo.com.
El-Sharkawy, T M. Department of Oral and Maxillofacial Surgery, Faculty of Oral and Dental Medicine, Cairo University, Egypt. El-Ghareeb, T I. Department of Oral and Maxillofacial Surgery, Faculty of Oral and Dental Medicine, Cairo University, Egypt. Chrcanovic, B R. Department of Prosthodontics, Faculty of Odontology, Malmo University, Sweden.
Title
Three-dimensional versus standard miniplate fixation in the management of mandibular angle fractures: a systematic review and meta-analysis. [Review]
Source
Abstract
The aim of the present study was to test whether there is a significant difference in the clinical outcomes between standard and three-dimensional (3D) miniplate fixation in the management of mandibular angle fractures (MAFs). An electronic search without date and language restrictions was performed in October 2013. Inclusion criteria were studies in humans including randomized controlled trials, controlled clinical trials, and retrospective studies, with the aim of comparing the two techniques. Six studies were included. The meta-analyses revealed statistically significant differences for the incidence of hardware failure and postoperative trismus. There were no significant differences in the incidence of postoperative infection, malocclusion, wound dehiscence, non-union/malunion, or paresthesia. The cumulative odds ratio was 0.42, meaning that the use of 3D miniplates in the fixation of MAFs decreases the risk of the event (postoperative complication) by 58%. The results of this meta-analysis showed lower postoperative complication rates with the use of 3D miniplate fixation in comparison with the use of standard miniplate fixation in the management of MAFs. Copyright © 2014 International Association of Oral and Maxillofacial Surgeons. Published by Elsevier Ltd.
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Avulsion of the immature permanent tooth: case report and review. [Review]


Abstract: Traumatic dental injuries are common among children in the mixed dentition. A case is described outlining treatment of avulsion of immature maxillary and mandibular incisors in an 8-year-old child. Resources to aid the dentist to easily locate the most recent evidence-based treatment recommendations are described.

Management of a vital, irreversibly inflamed tooth with unstoppable bleeding. [Review]


Secondary reconstruction of panfacial fractures. [Review]


INTRODUCTION: Although the primary management of patients with panfacial fractures has been well discussed in the medical and dental literature, secondary management of those patients who were not treated or were incompletely treated has not been as well addressed.

PURPOSE: The purposes of this paper are to review the basic concepts of panfacial fractures and to address the secondary reconstruction of patients whose primary management was less than ideal.

DISCUSSION: In this paper, we present three cases of secondary reconstruction of the maxillofacial skeleton following complicated panfacial fractures. We also discuss the challenges that exist in treatment planning and executing treatment in these complex cases.
Teeth in the line of mandibular fractures. [Review]

METHODS: An electronic search in PubMed was undertaken in June 2012. The titles and abstracts from these results were read to identify studies within the selection criteria-studies reporting clinical series of MFs in which the management of teeth in the fracture line was analyzed.

RESULTS: The search strategy initially yielded 731 references. Twenty-seven studies were identified without repetition within the selection criteria. Additional hand searching yielded 12 additional papers.

CONCLUSIONS: It is suggested that rigid fixation systems and the use of antimicrobial agents have reduced the incidence of infection in cases of teeth in the line of MFs. Tooth buds in the line of MFs should not be removed or replaced in the (alleged) proper position despite the degree of displacement, since studies showed that even tooth buds in the early stage of calcification and those involved in widely displaced fracture sites continued development and erupted. Its removal should be considered in cases of infection, which is a predictive factor of abnormality and/or impaction. Intact teeth in the fracture line should be followed up clinically and radiographically for at least 1 year to ensure that any unnecessary endodontic treatment is avoided. Teeth in the line of fracture that prevents reduction of fractures, teeth with fractured roots, a partially impacted wisdom tooth with pericoronitis, and a tooth with extensive periapical lesion should be removed. Teeth in the line of MFs should also be removed when located in sites where there is extensive periodontal damage, with broken alveolar walls, resulting in the formation of a deep pocket (making optimal healing doubtful).

Teeth in the line of fracture that prevents reduction of fractures, teeth with fractured roots, a partially impacted wisdom tooth with pericoronitis, and a tooth with extensive periapical lesion should be removed. Teeth in the line of MFs should also be removed when located in sites where there is extensive periodontal damage, with broken alveolar walls, resulting in the formation of a deep pocket (making optimal healing doubtful).

Replantation of avulsed primary teeth: a systematic review. [Review]

BACKGROUND: There is little evidence regarding the risks and benefits of replantation of avulsed primary teeth.
AIM: The aim of this study was to perform a systematic review of the literature on the replantation of avulsed primary teeth, analysing the risks and benefits to help guide dentists regarding the best clinical decision-making in such cases.

DESIGN: The Medline/Pubmed, LILACS, and SciELO databases were searched for articles published in English, Portuguese, German or Spanish on the replantation of avulsed primary teeth in dental journals dating from the inception of the databases through to May 2013.

RESULTS: Among the 891 papers identified in the search, nineteen fulfilled the inclusion criteria. All 19 studies were case reports involving a total of 41 replanted primary teeth. No negative consequences to either the primary tooth or permanent successor were observed in 15 cases. Among the other 26 cases, there were negative consequences to only the replanted primary tooth in 16 cases, only the permanent successor in three cases and both the replanted primary tooth and permanent successor in seven cases.

CONCLUSION: There is a lack of high-quality studies that can help guide clinicians regarding the best approach in cases of primary tooth avulsion. Copyright © 2013 BSPD, IAPD and John Wiley & Sons A/S. Published by John Wiley & Sons Ltd.

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Authors
Aldrigui JM; Jabbar NS; Bonecker M; Braga MM; Wanderley MT.
Authors Full Name
Aldrigui, Janaina Merli; Jabbar, Nadia Salem; Bonecker, Marcelo; Braga, Mariana Minatel; Wanderley, Marcia Turolla.
Institution
Aldrigui, Janaina Merli. Department of Orthodontics and Pediatric Dentistry, Faculdade de Odontologia, Universidade de Sao Paulo, Sao Paulo, Brazil.
Title
Trends and associated factors in prevalence of dental trauma in Latin America and Caribbean: a systematic review and meta-analysis. [Review]
Source
Local Messages
THIS JOURNAL IS AVAILABLE IN THE BDA LIBRARY, TO REQUEST THIS ARTICLE FROM THE LIBRARY GO TO:
Abstract
OBJECTIVES: This study aimed to perform a systematic review on the prevalence of, and trends in, dental trauma in permanent teeth in 'Latin America and Caribbean' region and possible factors associated with this injury.

METHODS: Literature search was carried out, in PubMed database up to 07 July 2011, for articles written in Portuguese, Spanish, or English reporting on dental trauma prevalence in the Latin American and Caribbean countries. Meta-analyses were undertaken by using random effects modeling to satisfy the purposes of this review. Pooled estimates were calculated with a confidence interval of 95% (95% CI) both for prevalence and odds ratios (OR).

RESULTS: This online searching strategy collected and listed 2436 articles on this topic. After evaluating their titles and abstracts, only 24 were finally selected for complete review and data collection. All studies had been performed during adolescence, mostly in 12-year-old adolescents. The pooled prevalence of dental trauma in permanent teeth was 18.6%. Positive summary association of dental trauma with boys (pooled OR = 1.72; 95% CI: 1.57-1.89), inadequate lip coverage (pooled OR = 2.26; 95% CI: 1.45-3.52), and increased overjet (>5 mm) (pooled OR = 1.98; 95% CI: 1.61-2.44) were observed across all meta-analysis models. Differences in estimation could be observed when different criteria were used for evaluating dental trauma. On the other hand, prevalence of dental trauma did not tend to show sudden changes over time, despite criteria used. Prevalence of dental trauma after 2000s tended to decrease over time.

CONCLUSIONS: Approximately 15-20% of the adolescents in Latin American and Caribbean countries have shown some type of dental trauma in permanent teeth, and it seems there is a trend of decreasing prevalence of dental trauma in the studied areas of this region. Boys, adolescents presenting inadequate lip coverage, or an increased overjet greater than 5 mm are more likely to have traumatic dental injuries. Copyright © 2013 John Wiley & Sons A/S. Published by John Wiley & Sons Ltd.
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Status
The treatment of subcondylar mandible fractures is a topic of debate and can be variable even though these fractures are commonly seen. Historically, the treatment algorithm was between open reduction and closed treatment. Now, recent technical advances regarding the use of the endoscope in the field of craniofacial surgery provide additional treatment options. This article aimed to evaluate 3 current management strategies: closed reduction with maxillomandibular fixation, open reduction with internal fixation, and endoscopic-assisted reduction with internal fixation. We present our rationale for surgical decision making and attempt to develop an algorithmic approach to subcondylar fractures. Ankylosis of the temporomandibular joint is a feared complication in these fractures that can lead to the decision to apply maxillomandibular fixation for potentially too short a period. It is the condylar head fractures within the joint’s capsule that contain the hemarthrosis that are often responsible for ankylosis. Subcondylar fractures are, by definition, below the attachment of the joint capsule and in general are devoid of ankylosis. Therefore, maxillomandibular fixation is recommended to be applied for a period of 4 to 6 weeks in most cases. Open reduction with internal fixation can increase the risk for facial nerve damage during the operative approach. However, open reduction is often necessary in fracture patterns with a high degree of displacement. In these cases, facial nerve monitoring can successfully mitigate risks to allow safe exposure for open reduction with internal fixation of subcondylar fractures. Endoscopic-assisted reduction with internal fixation combines the benefits of both techniques while minimizing their associated risks. Nevertheless, reduction can be difficult especially when there is significant medial displacement of the proximal fracture fragment. In our experience, the endoscopic option is optimal for mildly displaced fractures and for the patient with multiple injuries who cannot tolerate closed reduction.

METHODS: PubMed, Embase, and Google Scholar were searched through 15th of June 2012. Search was limited to English and Arabic languages. Reference list of relevant studies were hand-searched. Grey literature was searched using Open Grey. Two review authors independently extracted data, while only one assessed trial quality using 8-point methodological index for non-randomized studies (MINORS) scale. A sensitivity analysis was performed to exclude studies with suspected patients’ duplicates.

RESULTS: Eleven case reports and eight case series involving 226 patients with 243 teeth were identified. No randomized controlled trials were found. The mean quality score for all case series was 9 suggesting a fair quality, while that of all case reports was 5 suggesting poor quality. Non-progressive root resorption is the most common finding following surgical extrusion with an event rate of 30% (95% CI 24.6-36.7%). This is followed by low event rates of tooth loss (5%), slight mobility (4.6%), marginal

OBJECTIVE: To assess adverse events of surgical tooth extrusion in the treatment for crown-root and cervical root fractures in permanent teeth.

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bone loss (3.7%), and progressive root resorption (3.3%). No ankylosis occurred to any extruded tooth, while severe tooth mobility showed negligible overall event rate of 0.4%.

CONCLUSION: The available evidence suggests that surgical tooth extrusion is a valid technique in management of crown-root and cervical root fracture of permanent teeth. Minimal adverse events and good prognosis are expected. Further, surgical extrusion can be considered as a treatment option in teeth suffering sub-gingival decay. Copyright © 2013 John Wiley & Sons A/S.

Abstract
BACKGROUND/AIM: Facial trauma is among the most common types of injury. The aim of the present study was to assess the prevalence and pattern of oral-maxillofacial trauma stemming from interpersonal physical violence (IPV) and determine whether IPV is a factor associated with oral-maxillofacial trauma.

MATERIALS AND METHODS: A retrospective analysis was conducted of 790 complete patient charts for data on the type of IPV for the gender, area of residence (urban or rural), age and type of trauma. Statistical analysis involved the chi-squared test (P < 0.05), univariate/multivariate Poisson, and logistic regression (P < 0.20). Type of oral-maxillofacial trauma was the dependent variable. Socio-demographic status and type of IPV were the independent variables.

RESULTS: One hundred forty (17.7%) individuals had oral-maxillofacial injuries stemming from IPV [80 (10.1%) due to urban violence (UV) and 42 (5.3%) due to domestic violence (DV)]. DV was more prevalent among females (69%), and UV was more prevalent among males (67.5%). The most common types of trauma were facial contusion and laceration, dental concussion, and mandibular fracture. Age and UV were explanatory factors for mandibular fracture. Females from rural areas and who suffered DV were more likely to exhibit facial contusion and dental concussion.

CONCLUSIONS: Interpersonal physical violence was identified as a factor associated with oral-maxillofacial trauma, specifically mandibular fracture, facial contusion, and dental concussion.
Title
Treatment outcomes with the use of maxillomandibular fixation screws in the management of mandible fractures.

Source

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Abstract
PURPOSE: The purpose of this prospective randomized study was to assess whether uncomplicated mandible fractures could be treated successfully in an open or closed fashion using maxillomandibular fixation (MMF) screws.

MATERIALS AND METHODS: This was a prospective institutional review board-approved study involving 20 adult patients who presented to the university emergency department or oral and maxillofacial surgical clinic with uncomplicated mandible fractures. Patients who met the exclusion criteria consented to enter the study in the open reduction internal fixation (ORIF) or the closed (MMF) study group. Six to 8 MMF screws were used to obtain intermaxillary fixation (IMF) in the 2 groups. Screw failure was documented. All screws were removed at 5 to 6 weeks postoperatively. Insertional torque (IT) was measured at time of screw placement to assess primary stability. Clinical and photographic documentation was performed to assess fracture healing, occlusion, and gingival health. Ten-centimeter visual analog scales were used to assess patient-centered outcomes. Cone-beam computed tomography was performed to assess the long-term effects on the periodontium and roots. A cost comparison was performed to determine whether the use of screws was cost effective compared with arch bars.

RESULTS: Fifteen men and 5 women (mean age, 25.2 yr) entered the study. All patients displayed adequate fracture healing based on clinical examination. All patients had acceptable occlusion at 5 to 6 weeks postoperatively. Total screw failure was 27 of 106 screws (25.5%). Forty percent of screws placed in the MMF group failed compared with only 6% in the ORIF group. Gingival health scores were favorable. Factors that had a significant effect on screw failure included a lower IT (P = .002), use in closed (MMF) treatment (P < .001), and use in the posterior jaw (P = .012). Minimal pain was associated with the MMF screws and pre-existing occlusion was re-established based on patients' subjective responses. The MMF group reported a statistically significant lower quality of life (P < .001) compared with the ORIF group. There was only 1 screw site that had a facial cortical bone defect noted at 6-month follow-up CBCT examination. There were no discernible long-term root defects. Cost analysis showed that the use of MMF screws saved around $600 per patient in operating room usage cost alone compared with the estimated use of arch bars.

CONCLUSIONS: Uncomplicated mandible fractures were successfully treated using MMF screws in open and closed treatments. However, the utility in closed treatment was decreased because of significant screw failure and patient noncompliance. The screws were well tolerated by the patients. There was minimal long-term damage to the periodontium and dental roots. The cost of screws was more than offset by time savings.

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