BDA LIBRARY MEDLINE SEARCH

RECENT REVIEWS RELATED TO DENTOALVEOLAR TRAUMA

Database: Ovid MEDLINE(R) and Epub Ahead of Print, In-Process & Other Non-Indexed Citations, Daily and Versions(R) <1946 to October 23, 2018>

Search Strategy:
--------------------------------------------------------------------------------
1  exp *maxillofacial injuries/ or exp *tooth injuries/ (19174)
2  (tooth and (fractur$ or injur$ or avuls$ or replant$)).ti. (1027)
3  ((jaw or maxillofacial or maxilla$ or mandibular$) and (injur$ or fractur$)).ti. (5525)
4  1 or 2 or 3 (20795)
5  limit 4 to english language (14638)
6  limit 5 to ("review" or systematic reviews) (1195)
7  review.ti. and 5 (456)
8  6 or 7 (1353)
9  limit 8 to dentistry journals (852)
10 8 and 10 (374)
11 9 or 11 (926)
12  exp Orbital Fractures/ (3116)
13  (orbital adj2 fracture$).tw. (2189)
14  13 or 14 (3918)
15  maxillofacial.tw. (16818)
16  15 not 16 (3597)
17  12 not 17 (863)
18  exp animals/ not humans/ (4507543)
19  18 not 19 (852)
20  limit 20 to yr="2017 -Current" (64)
21 limit 20 to yr="2017 -Current" (64)

***************************

<1>
Unique Identifier
29171914
Title
Risk of inferior alveolar nerve injury with coronectomy vs surgical extraction of mandibular third molars: A comparison of two techniques and review of the literature. [Review]
Source
VI 1
Status
MEDLINE
Authors
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Local Messages
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Abstract
The removal of mandibular third molar teeth is one of the most common oral surgical procedures. In a significant number of patients, it carries a degree of associated morbidity, including damage to the inferior alveolar nerve (IAN). For this reason, practitioners desire the most up-to-date guidance on the most appropriate technique, informed by the best available evidence that will produce the lowest incidence of iatrogenic complications. The aim of this study was to perform a systematic review comparing the effect of coronectomy vs complete surgical extraction of mandibular third molar teeth on the risk of IAN injury and other complications in adults. Studies were identified through Embase (1980-2016) and Ovid MEDLINE (1946-2016) database searches. Search terms included coronectomy, partial root removal, deliberate vital root retention, odontectomy, surgical removal, surgical extraction, complete tooth extraction and extract. Limits of the study included humans, English language and randomised controlled trials (RCTs). Only RCTs comparing IAN damage associated with surgical extraction of mandibular third molars vs coronectomy were included. From our database searches, we identified two unique RCTs matching the inclusion criteria. Both evaluated patients who had specific radiographic signs of intimate relationships with the IAN. Upon detailed analysis, the studies were noted to exhibit a high risk of bias in many categories, thereby rendering their results inconclusive. Although evidence from two RCTs suggests that coronectomy can reduce the risk of IAN injury compared to surgical removal of high-risk mandibular third molars, the quality of evidence is insufficient to provide definitive conclusions regarding the preferred technique.

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Publication Type
Comparative Study. Journal Article. Review.
Year of Publication
2018

<2>
Three-dimensional strut plate for the treatment of mandibular fractures: a systematic review. [Review]

Source

Abstract
The treatment of mandibular fractures by open reduction and internal fixation is very variable. Thus, there are many controversies about the best fixation system in terms of stability, functional recovery, and postoperative complications. This systematic review sought scientific evidence regarding the best indication for the use of three-dimensional (3D) plates in the treatment of mandibular fractures. A systematic search of the PubMed/MEDLINE, Elsevier/Scopus, and Cochrane Library databases was conducted to include articles published up until November 2016. Following the application of the inclusion criteria, 25 scientific articles were selected for detailed analysis. These studies included a total of 1036 patients (mean age 29 years), with a higher prevalence of males. The anatomical location most involved was the mandibular angle. The success rate of 3D plates was high at this location compared to other methods of fixation. In conclusion, the use of 3D plates for the treatment of mandibular fractures is recommended, since they result in little or no displacement between bone fragments.

Impact of contracted endodontic cavities on fracture resistance of endodontically treated teeth: a systematic review of in vitro studies. [Review]

Source

Abstract
The treatment of mandibular fractures by open reduction and internal fixation is very variable. Thus, there are many controversies about the best fixation system in terms of stability, functional recovery, and postoperative complications. This systematic review sought scientific evidence regarding the best indication for the use of three-dimensional (3D) plates in the treatment of mandibular fractures. A systematic search of the PubMed/MEDLINE, Elsevier/Scopus, and Cochrane Library databases was conducted to include articles published up until November 2016. Following the application of the inclusion criteria, 25 scientific articles were selected for detailed analysis. These studies included a total of 1036 patients (mean age 29 years), with a higher prevalence of males. The anatomical location most involved was the mandibular angle. The success rate of 3D plates was high at this location compared to other methods of fixation. In conclusion, the use of 3D plates for the treatment of mandibular fractures is recommended, since they result in little or no displacement between bone fragments.
OBJECTIVE: This systematic review was performed to answer the following question: do contracted endodontic cavities (CECs) increase resistance to fracture in extracted human teeth compared to traditional endodontic cavities (TECs)?

METHODS: A literature search without restrictions was carried out in PubMed, Science Direct, Scopus, Web of Science, and Open Grey databases. Articles were selected by two independent reviewers. In addition, a reference and hand search was also fulfilled. All included in vitro studies evaluated the influence of CECs on strength to fracture in extracted human teeth and compared to TECs. The quality of the selected studies was evaluated and they were classified as having a low, moderate or high risk of bias.

RESULTS: A total of 810 articles were obtained in the electronic search. After the application of the eligibility criteria, reference and hand search, and duplicate removal, six studies were included in this systematic review. All included studies evaluated the influence of CECs on strength to fracture in extracted human teeth and compared to TECs. Characteristics investigated in the selected articles included the sample size and tooth type, access cavity design, filling and restoration procedures, load at fracture test characteristics, and results. The studies demonstrated large variability among the fracture resistance values and standard deviations and low power. Three of the reviewed studies presented low risk of bias and the other three showed medium risk of bias.

CONCLUSION: Overall, this systematic review of in vitro studies showed that there is no evidence that supports the use of CECs over TECs for the increase of fracture resistance in human teeth.

CLINICAL RELEVANCE: Recently, CECs have gained attention in endodontics due to maximum tooth structure preservation including the pericervical dentin, which could improve the strength to fracture of endodontically treated teeth. However, the influence of access cavity design on fracture resistance remains limited and controversial.
contained data on aesthetic and patient-reported outcomes, respectively. In general, they reported favourable aesthetic results and high patient satisfaction.

CONCLUSION: The current available evidence suggests a high survival rate after autotransplantation of teeth to the anterior maxilla. However, the level of evidence is low. Limited data on aesthetic and patient-reported outcomes warrant additional research in this field.

BACKGROUND/AIMS: There are numerous treatment options following traumatic dental injury (TDI). Systematic reviews of different treatments are challenging owing to the diversity of outcomes reported between clinical studies. This issue could be addressed through the development and implementation of a agreed and standardized collection of outcomes known as a core outcome set (COS). The aim of this study was to develop a COS for TDI in children and adults. The secondary aim was to establish what, how, when and by whom these outcomes should be measured.

MATERIALS AND METHOD: The project was registered with Core Outcomes Measures in Effectiveness Trials (COMET). A web-based survey was developed to capture the opinions of dentists globally as to which outcomes should be recorded. A list of outcomes was entered into a Delphi Survey and scored by an Expert Working Group (EWG). The scoring was repeated, followed by conference calls to discuss, refine and finalize the COS. The EWG split into small groups of subject-specific experts to determine how, when and by whom these outcomes should be measured.
RESULTS: The questionnaire was completed by 1476 dentists. The EWG identified 13 core outcomes to be recorded for all TDI's. An additional 10 injury-specific outcomes were identified. A table has been produced for each outcome detailing what, when, and how each outcome should be recorded.

CONCLUSIONS: A robust consensus process was used to develop an international COS for TDI in children and adults. This includes both generic and injury-specific outcomes across all identified domains.

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Publication Type
Journal Article.
Year of Publication
2018

Title
Trauma to the Pediatric Temporomandibular Joint. [Review]
Source

Authors
Bae SS; Aronovich S.

Abstract
Management of pediatric condylar fractures presents a unique challenge because the developing mandible provides limited available bone for fixation and primary teeth preclude the use of typical closed reduction techniques. The available literature is reviewed with regard to closed and open treatment approaches.

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Publication Type
Journal Article. Review.
Year of Publication
2018

Title
Imaging of Odontogenic Infections. [Review]
Source

Authors
Mardini S; Gohel A.

Abstract
Odontogenic infections represent a common clinical problem in patients of all ages. The presence of teeth enables the direct spread of inflammatory products from dental caries, trauma, and/or periodontal disease into the maxilla and mandible. The radiographic changes seen depend on the type and duration of the inflammatory process and host body response. Imaging plays a central role in identifying the source of infection and the extent of the disease spread and in detecting any complications. Many different imaging modalities can be used. The radiographic features associated with acute and chronic inflammatory processes are discussed.
Prior to the invention of cone beam CT, use of 2-D plain film imaging for trauma involving the mandible was common practice, with CT imaging opted for in cases of more complex situations, especially in the maxilla and related structures. Cone beam CT has emerged as a reasonable and reliable alternative considering radiation dosage, image quality, and comfort for the patient. This article presents an overview of the patterns of dental and maxillofacial fractures using conventional and advanced imaging techniques illustrated with multiple clinical examples selected from the author's oral and maxillofacial radiology practice database.

Avulsion is defined as the complete displacement of the tooth out of its socket with disruption of the fibers of periodontal ligament, remaining some of them adhered to the cementum and the rest to the alveolar bone. This condition is more frequent in young permanent teeth, because the root development is still incomplete. Splints are used to immobilize traumatized teeth that suffered damage in their structures of support, preventing their constant movement. The literature has shown that after replantation, it is necessary to use splints in order to immobilize the teeth during the initial period, which is essential for the repair of periodontal ligament; the use of semi-rigid splint is more indicated than the rigid one, and long periods of splinting showed that substitutive resorption or ankylosis is an expected complication. Thus, the aim of this review is to describe the different types of splints; their time of permanency, and its influence on the process of healing and reparation on the occurrence of substitutive resorption or ankylosis. It is very important to keep gathering knowledge about this content, since it has been proved that the approaches and the protocols keep changing over time.
BDA LIBRARY MEDLINE SEARCH

RECENT REVIEWS RELATED TO DENTOALVEOLAR TRAUMA

Unique Identifier
29140093
Title
Early Diagnosis and Treatment of Asymptomatic Vertical Enamel and Dentin Cracks. [Review]
Source
VI 1
Status
MEDLINE
Authors
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Local Messages
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Abstract
Asymptomatic vertical enamel and dentin cracks can lead to multiple pathologic consequences ranging from caries to pulpal involvement, periodontal involvement, complete tooth fracture, and tooth loss if intervention is postponed. Early diagnosis, using magnification, tactile examination, transillumination, and dyes, and early restorative and occlusal treatments can be incorporated into daily practice to prevent further crack propagation before asymptomatic cracks become symptomatic and cause further damage to the dentition and surrounding tissues. This article reviews the rationales and presents a systematic approach for early diagnosis and treatment of asymptomatic vertical enamel and dentin cracks based on current evidence.
Publication Type
Journal Article. Review.
Year of Publication
2017

<11>
Unique Identifier
29061358
Title
A Systematic Review of the Survival of Teeth Intentionally Replanted with a Modern Technique and Cost-effectiveness Compared with Single-tooth Implants. [Review]
Source
VI 1
Status
MEDLINE
Authors
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Authors Full Name
Mainkar, Anshul.
Institution
Local Messages
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Abstract
INTRODUCTION: The aim of this study was to investigate the survival rate of teeth intentionally replanted with a modern technique and to compare their cost-effectiveness with that of single-tooth implants.
MATERIALS AND METHODS: Four databases were systematically searched for articles that met inclusion criteria published between January 1966 and February 2017. Overall survival rate of intentional replantation was determined through a meta-analysis using a random-effects model. Cost of different procedures was determined from the 2016 American Dental Association Dental Fees Survey. Cost-effectiveness analysis was performed for different treatment modalities.
RESULTS: Six studies met the inclusion criteria. Meta-analysis resulted in a survival rate of 89.1% (95% confidence interval, 83.8%-94.4%). Compared with a single-tooth implant, intentional replantation was more cost-effective even when custom post/core and crown are also needed.
CONCLUSION: The meta-analysis revealed a high survival rate for intentional replantation. Although the survival rate of implants is higher, intentional replantation is a more cost-effective treatment modality. Intentional replantation should be a treatment option discussed with patients, especially because an implant can still be placed if intentional replantation is unsuccessful.
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Publication Type
Comparative Study. Journal Article. Review.
Year of Publication
2017

<12>
Unique Identifier
Title
Oral and Dental Aspects of Child Abuse and Neglect. [Review]
Source
VI 1
Status
MEDLINE
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Local Messages
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Abstract
In all 50 states, health care providers (including dentists) are mandated to report suspected cases of abuse and neglect to social service or law enforcement agencies. The purpose of this report is to review the oral and dental aspects of physical and sexual abuse and neglect in children and the role of pediatric care providers and dental providers in evaluating such conditions. This report addresses the evaluation of bite marks as well as perioral and intraoral injuries, infections, and diseases that may raise suspicion for child abuse or neglect. Oral health issues can also be associated with bullying and are commonly seen in human trafficking victims. Some medical providers may receive less education pertaining to oral health and dental injury and disease and may not detect the mouth and gum findings that are related to abuse or neglect as readily as they detect those involving other areas of the body. Therefore, pediatric care providers and dental providers are encouraged to collaborate to increase the prevention, detection, and treatment of these conditions in children.
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Journal Article. Review.
Year of Publication
2017
Unique Identifier
29122066
Title
Source
VI 1
Status
MEDLINE
Authors
Lloyd JD; Nakamura WS; Maeda Y; Takeda T; Leesungbok R; Lazarchik D; Dorney T; Nakajima K; Yasui T; Iwata Y; Suzuki H; Tsukimura N; Churei H; Kwon KR; Choy MMH; Rock J.B.
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RECENT REVIEWS RELATED TO DENTOALVEOLAR TRAUMA

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Abstract

There appears to be much confusion or misinformation worldwide regarding mouthguards and their use in sports. In an effort to clarify where the international dental community stands on mouthguards and mouthguard research, the workshop looked at some important questions. The goal was to one day formulate consensus statements related to these questions, which will be based on current scientific evidence-based research, to motivate the international community of the importance of dentally fitted laminated mouthguards and the wearing of them by athletes of all sports. There are only five sports in the United States that require the use of mouthguards. If, through workshops such as this, the importance of wearing dentally fitted laminated mouthguards can be demonstrated, then more sports may require their athletes to wear them.

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Title

Source

Abstract

Traumatic injuries to the primary dentition present special problems and the management is often different as compared with the permanent dentition. The International Association of Dental Traumatology (IADT) has developed a consensus statement after a review of the dental literature and group discussions. Experienced researchers and clinicians from various specialties were included in the task group. In cases where the data did not appear conclusive, recommendations were based on the consensus opinion or majority decision of the task group. Finally, the IADT board members were giving their opinion and approval. The primary goal of these guidelines is to delineate an approach for the immediate or urgent care for management of primary teeth injuries. The IADT cannot and does not guarantee favorable outcomes from strict adherence to the guidelines, but believe that their application can maximize the chances of a positive outcome.

Publication Type

Year of Publication
2017

Unique Identifier
29179383

Source

Authors
Andersson L; Andreasen JO; Day P; Heithersay G; Trope M; DiAngelis AJ; Kenny DJ; Sigurdsson A; Bourguignon C; Flores MT; Hicks ML; Lenzi AR; Malmgren B; Moule AJ; Tsukiboshi M.

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Abstract
Avulsion of permanent teeth is one of the most serious dental injuries, and a prompt and correct emergency management is very important for the prognosis. The International Association of Dental Traumatology (IADT) has developed a consensus statement after a review of the dental literature and group discussions. Experienced researchers and clinicians from various specialties were included in the task group. The guidelines represent the current best evidence and practice based on literature research and professionals’ opinion. In cases where the data did not appear conclusive, recommendations were based on the consensus opinion or majority decision of the task group. Finally, the IADT board members were giving their opinion and approval. The primary goal of these guidelines is to delineate an approach for the immediate or urgent care of avulsed permanent teeth.

Publicaton Type

Year of Publication
2017

29179382


Source

Authors
Diangelis AJ; Andreasen JO; Ebeleseder KA; Kenny DJ; Trope M; Sigurdsson A; Andersson L; Bourguignon C; Flores MT; Hicks ML; Lenzi AR; Malmgren B; Moule AJ; Pohl Y; Tsukiboshi M.

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**Abstract**

Traumatic dental injuries (TDIs) of permanent teeth occur frequently in children and young adults. Crown fractures and luxations are the most commonly occurring of all dental injuries. Proper diagnosis, treatment planning, and follow-up are important for improving a favorable outcome. Guidelines should assist dentists and patients in decision-making and for providing the best care effectively and efficiently. The International Association of Dental Traumatology (IADT) has developed a consensus statement after a review of the dental literature and group discussions. Experienced researchers and clinicians from various specialties were included in the group. In cases where the data did not appear conclusive, recommendations were based on the consensus opinion of the IADT board members. The guidelines represent the best current evidence based on literature search and professional opinion. The primary goal of these guidelines is to delineate an approach for the immediate or urgent care of TDIs. In this first article, the IADT Guidelines for management of fractures and luxations of permanent teeth will be presented.
OBJECTIVE: To present a case of spontaneous fracture of the genial tubercles of the mandible and a review of the literature.

BACKGROUND: Resorption of the mandible is well documented in edentulous patients. During this process, the genial tubercles, origin for both genioglossus and geniohyoid muscles, become more prominent and prone to trauma especially from poorly fitted lower full dentures and lead to fracture and separation of the genial tubercles from the mandible.

MATERIALS AND METHODS: An 85 year old patient with the above presentation was monitored and documented to present this case report. A literature search was carried out to identify any previous reports of this type of fracture, and their diagnosis and treatment modalities.

RESULTS: This case is extremely rare with only 17 cases reported in the literature.

CONCLUSION: Although rare, fractured genial tubercles should be considered in the differential diagnosis for a painful swelling in the floor of the mouth in the edentulous patient.
followed by falls (31%; 95% CI, 25-37), violence (11%; 95% CI, 4-19), sports (4%; 95% CI, 3-5), and others (5%; 95% CI, 2-8). Heterogeneity among studies was high, even stratifying by world region. The adapted version of the Newcastle-Ottawa scale for observational studies showed an intermediate score for most of the included studies.

CONCLUSIONS: Results suggest that road traffic accidents represent the main cause of maxillofacial trauma among children and adolescents. However, results should be interpreted with caution due to the high heterogeneity.
3D imaging techniques and their role in diagnosis and treatment planning. The benefits of achieving a more accurate diagnosis are paramount to perfecting clinical judgments and outcomes.

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Publication Type: Journal Article. Review.
Year of Publication: 2017

Open treatment of unilateral mandibular condyle fractures in adults: a systematic review. [Review]

Authors: Rozeboom A; Dubois L; Bos R; Spijker R; de Lange J.
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Bos, R. Department of Oral and Maxillofacial Surgery, Academic Medical Centre of Groningen, University of Groningen, The Netherlands.
Spijker, R. Department of Oral and Maxillofacial Surgery, Academic Medical Centre of Amsterdam, University of Amsterdam, The Netherlands.
de Lange, J. Department of Oral and Maxillofacial Surgery, Academic Medical Centre of Amsterdam, University of Amsterdam, The Netherlands.

Abstract: Since the introduction of rigid internal fixation devices, more and more surgeons favour an open approach to treating condylar fractures of the mandible in adult patients. Different indications for open treatment have been published. Open treatment is associated with surgical complications because of the technique employed. The aim of this systematic review was to provide an overview of the studies published exclusively on open treatment, and to summarize the existing open treatment modalities and their clinical outcomes. A total of seventy studies were selected for detailed analysis. Most studies reported good results with regard to the outcome measures of open treatment. Surgical complications including hematoma, wound infection, weakness of the facial nerve, sialocele, salivary fistula, sensory disturbance of the great auricular nerve, unsatisfactory scarring, and fixation failure were reported in the studies. This review suggests that because of the high level of methodological variance in the relevant studies published to date, among other factors, there are currently no evidence-based conclusions or guidelines that can be formulated with regard to the most appropriate open treatment. Establishment of such standards could potentially improve treatment outcomes.

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Publication Type: Journal Article. Review.
Year of Publication: 2017

Contemporary management of maxillofacial ballistic trauma. [Review]

Authors: Breeze J; Tong D; Gibbons A.
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Ballistic maxillofacial trauma in the UK is fortunately relatively rare, and generally involves low velocity handguns and shotguns. Civilian terrorist events have, however, shown that all maxillofacial surgeons need to understand how to treat injuries from improvised explosive devices. Maxillofacial surgeons in the UK have also been responsible for the management of soldiers evacuated from Iraq and Afghanistan, and in this review we describe the newer types of treatment that have evolved from these conflicts, particularly that of damage-control maxillofacial surgery.

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BACKGROUND: Intermaxillary fixation (IMF) techniques are commonly used in mandibular fracture treatment to reduce bone fragments and re-establish normal occlusion. However, non-IMF reduction techniques such as repositioning forceps may be preferable due to their quick yet adequate reduction. The purpose of this paper is to assess which non-IMF reduction techniques and reduction forceps are available for fracture reduction in the mandible.

METHODS: A systematic search was performed in the databases of Pubmed and EMBASE. The search was updated until February 2016 and no initial date and language preference was set.

RESULTS: 14 articles were selected for this review, among them ten articles related to reduction forceps and four articles describing other techniques. Thus, modification and design of reduction forceps and other reduction techniques are qualitatively described.

CONCLUSION: Few designs of repositioning forceps have been proposed in the literature. Quick and adequate reduction of fractures seems possible with non-IMF techniques resulting in anatomic repositioning and shorter operation time, especially in cases with good interfragmentary stability. Further development and clinical testing of reduction forceps is necessary to establish their future role in maxillofacial fracture treatment.

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The management of atrophic mandibular fractures has been a challenge for maxillofacial surgeons for decades. During the past 70 years, various techniques for treating edentulous mandibular fractures have been advocated. These techniques have been praised, criticized, abandoned, improved, and used in combination with other methods. Although some of the principles of management outlined before the end of World War II are still valid in today's technological era, other concepts did not survive the test of time. The aim of this paper is to examine the evolution of treatment modalities for the management of atrophic mandibular fractures that have been employed over the years. Debates and discussions generated by this topic are included. Current techniques and treatment philosophies with thoughts for future therapies are provided.

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Publication Type
Historical Article. Journal Article. Review.

Year of Publication
2017

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Title
The management of cracked tooth syndrome in dental practice. [Review]

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Local Messages
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Abstract
Cracked tooth syndrome is a commonly encountered condition in dental practice which frequently causes diagnostic and management challenges. This paper provides an overview of the diagnosis of this condition and goes on to discuss current short- and long-term management strategies applicable to dental practitioners. This paper also covers the diagnosis and management of this common condition and aims to inform clinicians of the current thinking, as well as to provide an overview of the techniques commonly used in managing cracked tooth syndrome.

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Title
Treatment of mandibular condyle fractures. A 20-year review.

Source

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RECENT REVIEWS RELATED TO DENTOALVEOLAR TRAUMA

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Local Messages
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Abstract
BACKGROUND/AIM: The condylar fracture is among the most frequent facial fractures. Despite all the published studies, its treatment remains controversial. The aim of this retrospective study was to evaluate the epidemiology and complications of mandibular condyle fractures managed by surgical and conservative treatments, over a period of twenty years.

MATERIAL AND METHODS: The files of 262 patients with 318 condyle fractures were included in this study. One hundred and seven patients had conservative management, and 155 had surgical management for the condylar fractures. The outcomes were assessed by reviewing the patient's clinical records.

RESULTS: The prevalence was higher in males and most patients were Caucasians in the third decade of life. The mean age was 30.17 years old. The main causes were motorcycle accidents followed by bike accidents, and the mean follow-up time was 226.5 days. The number of complications found in the two modalities of treatment was low and similar.

CONCLUSION: Both treatments achieved their goals. There was no statistical difference in the complication rate between the two groups.

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Title
Traumatic dental injury research: on children or with children?. [Review]
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VI 1
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MEDLINE
Authors
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Local Messages
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Abstract
BACKGROUND AND AIM: It is widely acknowledged that children should participate in healthcare decisions, service development and even setting research agendas. Dental traumatology is a major component of paediatric dentistry practice and research. However, little is known about young patients' contribution to new knowledge in this field. The aim of the study was to establish the extent to which children are involved in contemporary dental trauma research and to evaluate the quality of the related literature.

MATERIAL AND METHODS: A systematic review of the dental trauma literature was conducted from 2006 to 2014. The electronic databases, MEDLINE and Scopus, were used to identify relevant studies. The selected papers were independently examined by five calibrated reviewers. Studies were categorized by the degree of children's involvement and appraised using a validated quality assessment tool.

RESULTS: The initial search yielded 4374 papers. After application of the inclusion and exclusion criteria, only 96 studies remained. Research on children accounted for 87.5% of papers, and a proxy was involved in 4.2%. Children were engaged to some degree in only 8.3% of studies, and there were no studies where children were active research participants. In the quality assessment exercise, papers scored, on average, 57% (range = 14-86%).
CONCLUSION: There is scope to encourage more active participation of children in dental trauma research in the future. Furthermore, there are some areas where the quality of research could be improved overall.
RECENT REVIEWS RELATED TO DENTOALVEOLAR TRAUMA

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28153183
Title
Matching Surgical Approach to Condylar Fracture Type. [Review]
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28153182
Title
Secondary Treatment of Malocclusion/Malunion Secondary to Condylar Fractures. [Review]
Source
VI 1
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Publication Type
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28153181
Title
The Biology of Open Versus Closed Treatment of Condylar Fractures. [Review]
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BDA LIBRARY MEDLINE SEARCH

RECENT REVIEWS RELATED TO DENTOALVEOLAR TRAUMA

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28153180
Title
The Role of Intra-articular Surgery in the Management of Mandibular Condylar Head Fractures. [Review]
Source
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28153179
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Virtual Surgical Planning and Intraoperative Imaging in Management of Ballistic Facial and Mandibular Condylar Injuries. [Review]
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Authors
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Anatomy and Biomechanics of Condylar Fractures. [Review]
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28153177
Title
Classification of Mandibular Condylar Fractures. [Review]
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Publication Type
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Title
Locking Plate System Versus Standard Plate Fixation in the Management of Mandibular Fractures: Meta-Analysis of Randomized Controlled Trials.
Source
VI 1
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Authors
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Institution
Abstract
PURPOSE: The aim of this meta-analysis was to evaluate the efficacy of the 2.0-mm locking miniplate system in comparison with the standard miniplate system in treatment of mandible fractures.
METHODS: A systematic review was conducted according to PRISMA guidelines, examining Medline-Ovid, Embase, and PubMed databases, eligible studies were restricted to comparative controlled trials. Inclusion criteria were based on humans randomized controlled trials, controlled clinical trials, with the aim of comparing 2 fixation techniques, namely locking miniplate and standard miniplate (nonlocking miniplate) techniques. In addition, the incidence of complications was evaluated.
RESULTS: Nine studies with 380 patients and 551 fracture sites were enrolled into the analysis. The results showed that there were no significant differences in overall complications (odds ratio [OR], 0.64; 95% confidence interval [CI], 0.34-1.22; P = 0.2),
postoperative infection (OR, 0.53; 95% CI, 0.23-1.23, P = 0.15), and occlusion discrepancy (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 rate than the use of 2.0-mm nonlocking miniplates (OR, 0.43; 95% CI, 0.22-0.83; P < 0.0001).

CONCLUSIONS: Mandible fractures treated with 2.0-mm locking miniplates and standard 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.
The aim of this systematic review was to investigate the influence of the presence and position of mandibular third molars in mandibular condyle fractures. An electronic search was conducted in PubMed, Scopus, Web of Science, Cochrane Library, and VHL, through January 2016. The eligibility criteria included observational studies. The search strategy resulted in 704 articles. Following the selection process, 13 studies were included in the systematic review and 11 in the meta-analysis. In terms of the risk of bias analysis, six studies presented <=6 stars in the Newcastle-Ottawa scale assessment. The presence of a mandibular third molar decreased the probability of condylar fracture (cross-sectional and case-control studies: odds ratio (OR) 0.26, 95% confidence interval (CI) 0.17-0.40, I²=87.8%; case-control studies: OR 0.30, 95% CI 0.16-0.58, I²=91.6%). The third molar positions most favourable to condylar fracture according to the Pell and Gregory classification are class A (OR 1.32, 95% CI 1.09-1.61, I²=0%) and class I (OR 1.37, 95% CI 1.05-1.77, I²=32.8%). Class B (OR 0.69, 95% CI 0.49-0.97, I²=56.0%) and class II (OR 0.71, 95% CI 0.57-0.87, I²=0%) act as protective factors for condylar fracture. The results suggest that the presence of a mandibular third molar decreases the chance of condylar fracture and that the positions of the third molar most favourable for condylar fracture are classes A and I, with classes B and II acting as protective factors.

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A review of mouthguards: effectiveness, types, characteristics and indications for use. [Review]

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Title
However, the efficacy of intracanal usage of BPs is still debatable. Surface treatment with etidronate had no significant effect on root resorption, and intracanal etidronate accelerated resorption. A systematic review searched using keywords 'bisphosphonate', 'replantation', and 'tooth'. Quality assessment of each study was carried out. Inclusion of in vivo and in vitro studies involving at least ten teeth on the use of CBCT for diagnosing complete root fractures on non-endodontically treated teeth. Data extraction and synthesis were performed using QUADAS-2 (quality assessment of studies of diagnostic accuracy-2). A random effects model was used to calculate pooled sensitivity, specificity and likelihood ratio (positive and negative). In addition, the correlation between voxel size and diagnostic accuracy was calculated. Results: Twelve studies were included in the review. Seven used i-CAT with 372 teeth and four used 3D Accuitomo with 237 teeth (one study used both). For i-CAT pooled sensitivity was 0.83 (0.78 to 0.86), while specificity was 0.91 (0.87 to 0.93). For 3D Accuitomo sensitivity was 0.95 (0.90 to 0.96) and the specificity 0.96 (0.92 to 0.99). Correlation between voxel size and diagnostic accuracy was analysed among five subgroups for i-CAT and two subgroups on the 3D Accuitomo group. No statistically significant difference was observed based on voxel size. Conclusions: According to the authors CBCT provides clinically relevant accuracy and reliability to detect root fractures in untreated teeth independently of the voxel size.
The attention-deficit/hyperactivity disorder model for traumatic dental injuries: a critical review and update of the last 10 years.

Rozeboom AVJ; Dubois L; Bos RRM; Spijker R; de Lange J.

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Rozeboom, A V J. Department of Oral and Maxillofacial Surgery, Academic Medical Centre of Amsterdam, University of Amsterdam, Amsterdam, The Netherlands.
Of all mandibular fractures, 25-35% are condylar. Many studies have focused on whether to treat such fractures via open or closed modalities. A uniform protocol for closed treatment is lacking, but such a protocol could ensure good clinical practice. The aims of this systematic review were to provide an overview of the published studies exclusively pertaining to closed treatment and to summarize the existing modalities for closed treatment and their clinical outcomes. Sixteen studies were selected for detailed analysis. The treatments given were highly variable, ranging from doing nothing to applying maxillomandibular fixation with stainless steel wires. The results of the different studies and the treatment modalities used were difficult to interpret; however no clear differences in the outcome measures were seen between the treatment modalities applied. Complications encountered after closed treatment included malocclusion, limited mouth opening, reduced range of motion, and persistent pain. Due to the heterogeneity between groups, high loss-to-follow-up, poor descriptions of the treatments given, and variability in outcome measurement methods, no clear associations between adverse outcomes and the treatments applied could be determined. This review suggests that due to the high level of methodological variability in the relevant studies published to date, there are currently no uniform standards for the closed treatment of condylar fractures that can be expected to yield good clinical results. The establishment of such standards could potentially improve treatment outcomes.

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Abstract
Of all mandibular fractures, 25-35% are condylar. Many studies have focused on whether to treat such fractures via open or closed modalities. A uniform protocol for closed treatment is lacking, but such a protocol could ensure good clinical practice. The aims of this systematic review were to provide an overview of the published studies exclusively pertaining to closed treatment and to summarize the existing modalities for closed treatment and their clinical outcomes. Sixteen studies were selected for detailed analysis. The treatments given were highly variable, ranging from doing nothing to applying maxillomandibular fixation with stainless steel wires. The results of the different studies and the treatment modalities used were difficult to interpret; however no clear differences in the outcome measures were seen between the treatment modalities applied. Complications encountered after closed treatment included malocclusion, limited mouth opening, reduced range of motion, and persistent pain. Due to the heterogeneity between groups, high loss-to-follow-up, poor descriptions of the treatments given, and variability in outcome measurement methods, no clear associations between adverse outcomes and the treatments applied could be determined. This review suggests that due to the high level of methodological variability in the relevant studies published to date, there are currently no uniform standards for the closed treatment of condylar fractures that can be expected to yield good clinical results. The establishment of such standards could potentially improve treatment outcomes.
RECENT REVIEWS RELATED TO DENTOALVEOLAR TRAUMA

**Late mandibular fracture occurring in the postoperative period after third molar removal: systematic review and analysis of 124 cases.**


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**Abstract:**
Factors associated with the diagnosis, aetiology, and treatment of mandibular fractures occurring during the postoperative period following the removal of a lower third molar are discussed. The following databases were searched using specific key words: PubMed/MEDLINE, LILACS, Embase, and Scopus. The search yielded 124 cases. Sex, age, side, tooth position and angulation, bone impaction, relationship between the tooth and the inferior alveolar nerve, local pathological conditions, aetiology of the fracture, symptomatology, and time between surgery and fracture, as well as any displacement of the fracture and the treatment of the fracture, were evaluated. Data were tabulated and the chi<sup>2</sup> statistical test was applied (P<0.05). Male patients aged >35 years, with teeth in positions II/III and B/C, complete bony impaction, and local bone-like alterations, were found to have a higher frequency of fracture and pericoronitis (P<0.05). Late fractures generally occurred between the second and fourth postoperative weeks (P<0.05). They were generally not displaced and the typical treatment was the non-surgical approach (P<0.05). It is concluded that the risk of mandibular fracture after extraction is associated with excessive ostectomy and/or local alterations. At-risk patients should be thoroughly briefed on the importance of a proper postoperative diet.

**Treatments for intrusive luxation in permanent teeth: a systematic review and meta-analysis.**


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BACKGROUND/AIM: The association between trauma and caries is still controversial in the literature. The aim of this study was to evaluate the possible association between caries and dental trauma through a systematic review with meta-analysis.

DESIGN: A systematic literature search was performed in PubMed, Lilacs, BBO, Scopus, Web of Science, Cochrane Library, and Open Grey databases. The MeSH terms used were 'Tooth injuries', 'Tooth fractures', 'Tooth avulsion', 'Tooth movement'; 'Dental caries'; 'DMF index'; and 'Tooth demineralization'. MeSH synonyms, related terms, and free terms were included. The inclusion criteria comprised clinical investigations of subjects with and without caries that had suffered dental trauma. Quality assessment and bias control were carried out. Meta-analysis was performed using the comprehensive meta-analysis software (version 3.2). Heterogeneity was assessed using the $I^2$ index, and the odds ratio was also calculated ($P < 0.05$).

RESULTS: From 1290 abstracts, seven met the inclusion criteria. All studies had high methodological quality and five were included in the meta-analysis. The results demonstrated a positive association ($P < 0.001$) between dental trauma and dental caries in permanent teeth [OR: 1.490, 95%, CI: 1.209-1.835]. However, for children with primary teeth, the results showed a negative association ($P = 0.006$) between dental trauma and caries [OR: 0.706, 95%, CI: 0.550-0.906].

CONCLUSIONS: The results demonstrated positive and negative association between the presence of caries and dental trauma in permanent and primary teeth, respectively.
Temporomandibular joint dislocation refers to the dislodgement of mandibular condyle from the glenoid fossa. Anterior and anteromedial dislocations of the mandibular condyle are frequently reported in the literature, but superolateral dislocation is a rare presentation. This report outlines a case of superolateral dislocation of an intact mandibular condyle that occurred in conjunction with an ipsilateral mandibular parasymphysis fracture. A review of the clinical features of superolateral dislocation of the mandibular condyle and the possible techniques of its reduction ranging from the most conservative means to extensive surgical interventions is presented.

Ankylotic root resorption is a serious complication following traumatic dental injuries. The aetiology of root resorption includes acute injury to the cementum and periodontal ligament, and subsequent biological processes that propagate the harm. The aim of the present paper is to present a structured treatment protocol for teeth that have experienced trauma and are at risk of developing ankylotic root resorption, followed by a decoronation protocol for situations in which ankylotic root resorption developed. This protocol provides a structured road map from the primary dental trauma, through the initial development of ankylosis detected radiographically, to the clinical manifestation that results in significant infra-occlusion. The current protocol integrates the best available evidence from the literature and from published guidelines. Ample contradictory data, which mainly consists of case reports related to the treatment of ankylotic root resorption, is available in the current literature. No accepted protocol or uniform guidelines for treatment in these cases exist, and many clinicians prefer avoiding replantation of an avulsed tooth that seems to have an uncertain longterm prognosis, or performing decoronation when infra-occlusion developed. As a result, young patients lose the benefits associated with replantation and decoronation procedures. The option of re-implantation of the avulsed teeth should be considered irrespective of the negative long-term prognosis. Following anklylosis development, the goal of submerging the tooth root (decoronation) is to maintain the horizontal dimension of the alveolar ridge and also to gain vertical dimension, allowing implant placement in the future.
Intrusion of permanent teeth is not extensively covered in the literature compared to other injuries. Treatment guidelines have been published and clinical data is accumulating to support the current recommendations, which are illustrated in the three cases here. This review evaluates the current information about management of traumatically intruded permanent teeth. As more data accumulates, uncertainties with respect to both treatment recommendations and long-term outcomes can be expected to be elucidated.

Denosumab, a bone-modifying agent, reduces the risk of skeletal-related events in patients with bone metastases from solid tumors and is generally well tolerated. However, hypocalcemia, osteonecrosis of the jaw (ONJ) and atypical fracture are potential and important toxicities of denosumab therapy that require attention. In pivotal phase III trials in patients with bone metastases from solid tumors, the incidence of hypocalcemia was 9.6% in denosumab-treated patients, with most events being asymptomatic, grade 2 and resolving by week 4. Established hypocalcaemia requires additional short-term calcium and vitamin D supplementation and, if severe, administration of intravenous calcium. ONJ was reported in 1.8% of patients receiving denosumab over 3 years in these trials. Involvement of an experienced oral-maxillary surgeon is important if ONJ is suspected. Atypical fractures were rare in a large study of denosumab using the dose and scheduling approved for the treatment of osteoporosis. To prevent toxicities, patients should maintain calcium and vitamin D supplementation, good oral hygiene and regular dental reviews throughout treatment. This article presents case studies from our clinical practice and discusses the pathophysiology of these toxicities along with guidance on prevention, diagnosis and management.
Title
Radiographic diagnosis of root fractures: a systematic review, meta-analyses and sources of heterogeneity. [Review]

Source

Status
MEDLINE

Authors
Salineiro FCS; Kobayashi-Velasco S; Braga MM; Cavalcanti MGP.

Abstract
OBJECTIVES: Many studies to evaluate the accuracy of root fracture diagnosis have been conducted. However, there is a scarcity of studies to assess the quality and the sources of heterogeneity in the literature. For this reason, the aim of this study was to conduct systematic reviews and meta-analyses to summarize the available evidence on detection of root fractures by cone beam CT (CBCT) and periapical radiograph (PR) images and the interference of artefact by investigating possible sources of heterogeneity.

METHODS: Studies reporting root fracture detection, from January 2010 to February 2016, were selected. All selected studies were subjected to selection criteria and then, comparative and qualitative analyses by using the quality assessment of diagnostic accuracy studies (QUADAS-2) tool were performed. Pooled sensitivity, specificity and diagnostic odds ratios were calculated. Also, receiver operator characteristics (ROC) curves were built to summarize the results. SROC curve analyses were performed to investigate the heterogeneity among studies.

RESULTS: Initially, 799 articles were selected. After screening titles and abstracts, 743 articles were excluded. After reading the remaining 56 full-texts, 47 relevant articles were included in this study. Diagnostic odds ratio values revealed a wide range of results across the studies and determined a higher heterogeneity for PR compared with CBCT. The analyses of the SROC curves compared CBCT imaging versus PR in the diagnosis of root fracture, favouring CBCT modality.

CONCLUSIONS: CBCT was the imaging exam that rendered a higher diagnostic accuracy for root fractures.
Complications associated with the treatment of fractures of the dentate portion of the mandible in paediatric patients: a systematic review. [Review]


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Abstract

This study aimed to answer the following question: What is the best treatment option for fractures of the dentate portion of the mandible in paediatric patients when considering the occurrence of postoperative complications? A systematic literature review was done using the PubMed, Scopus, and Cochrane Library databases, and 1186 articles on the topic were found. Twelve of these articles were included in the final review after the full texts had been read. A sample of 178 paediatric patients was obtained. In the six cases in which treatment was surgery with titanium plate fixation, there were no postoperative complications, whereas in the 141 cases in which treatment was surgery with biodegradable plates, there were 12 postoperative complications, and in the 31 cases in which treatment was non-surgical, there were three postoperative complications. A connection between the best treatment and the number of postoperative complications in fractures of the dentate portion of the mandible in paediatric patients could not be established; however, the occurrence of postoperative complications was low for both surgical and non-surgical treatments.

Predictive Value of Panoramic Radiography for Injury of Inferior Alveolar Nerve After Mandibular Third Molar Surgery. [Review]


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PURPOSE: The management of atrophic mandibular fractures poses a challenge because of anatomic variations and medical comorbidities associated with elderly patients. The purpose of this article is to review and update the literature regarding the management of atrophic mandibular fractures using load-bearing reconstruction plates placed without bone grafts.

MATERIALS AND METHODS: We performed a review of the English-language literature looking for atrophic mandibular fractures with or without continuity defects and reconstruction without bone grafts. Included are 2 new patients from our institution who presented with fractures of their atrophic mandibles and had continuity defects and infections. Both patients underwent reconstruction with a combination of a reconstruction plate, recombinant human bone morphogenetic protein 2, and tricalcium phosphate. This study was approved as an "exempt study" by the Institutional Review Board at the University of Kentucky. This investigation observed the Declaration of Helsinki on medical protocol and ethics.
RESULTS: Currently, the standard of care to manage atrophic mandibular fractures with or without a continuity defect is a combination of a reconstruction plate plus autogenous bone graft. However, there is a need for an alternative option for patients with substantial comorbidities. Bone morphogenetic proteins, with or without additional substances, appear to be a choice. In our experience, successful healing occurred in patients with a combination of a reconstruction plate, recombinant human bone morphogenetic protein 2, and tricalcium phosphate.

CONCLUSIONS: Whereas primary reconstruction of atrophic mandibular fractures with reconstruction plates supplemented with autogenous bone graft is the standard of care, in selected cases in which multiple comorbidities may influence local and/or systemic outcomes, bone morphogenetic proteins and tricalcium phosphate can be used as a predictable alternative to autogenous grafts.

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PurPOSE: Third molars (M3s) have been hypothesized to be associated with the risk of mandibular angle fracture and mandibular condylar fracture. The authors systematically estimated the relative risk (RR) of M3 status for the development of mandibular angle fracture and mandibular condylar fracture through a meta-analysis of cohort studies.

MATERIALS AND METHODS: In this systematic review, the PubMed, EMBASE, and Cochrane Library databases were searched from inception to October 2016. The predictor of risk was the presence or absence of M3s. The primary outcome was the RR of mandibular angle or condylar fracture. A fixed- or a random-effects model was applied to evaluate the pooled risk estimates. Sensitivity analysis also was performed to identify the potential sources of heterogeneity. Publication bias was assessed by the Begg and Egger tests.

RESULTS: Overall, 13 retrospective cohort studies were included. Of these, 13 reported the association between M3s and mandibular angle fracture, and 5 reported the association with mandibular condylar fracture. The authors systematically estimated the relative risk (RR) of M3 status for the development of mandibular angle fracture and mandibular condylar fracture through a meta-analysis of cohort studies.

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RESULTS: Overall, 13 retrospective cohort studies were included. Of these, 13 reported the association between M3s and mandibular angle fracture, and 5 reported the association with mandibular condylar fracture. Patients with M3s had an increased risk of mandibular angle fractures (RR = 2.63; 95% confidence interval [CI], 2.15-3.21) but a decreased risk of mandibular condylar fractures (RR = 0.47; 95% CI, 0.25-0.86). Substantial heterogeneity in the risk estimates was found. No evidence of publication bias was found.

CONCLUSION: The present meta-analysis provides further evidence associating the presence of M3s with an increased risk of mandibular angle fractures and a simultaneously decreased risk of mandibular condylar fracture. Because of potentially more serious complications associated with condylar fracture, clinicians should carefully consider the decision to remove M3s to decrease the risk of mandibular angle fracture.

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RECENT REVIEWS RELATED TO DENTOALVEOLAR TRAUMA


Abstract
Oral and facial injuries are very common in sport, and can be very expensive to treat. Many of these injuries are preventable with proper pre-competition assessment and suitable well-designed protection. Prompt sideline identification and management of orofacial injuries and appropriate follow-up are crucial to successful outcomes. There have been significant recent advances in both trauma management and mouth guard design and fabrication techniques. Athletes have a unique set of challenges-including collisions, finances, travel and training, dehydration, sport beverages, and high carbohydrate diets-that may compromise their oral health.

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Open Reduction With K-Wire Stabilization of Fracture Dislocations of the Mandibular Condyle: A Retrospective Review.

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PURPOSE: The aim of this study was to determine the feasibility of direct transcortical stabilization of fracture dislocations of the mandibular condyle (FDMCs) using narrow-diameter non-threaded Kirschner wire (K-wire).

MATERIALS AND METHODS: This retrospective review reports on the treatment outcomes for 12 patients (15 fractures) with FDMCs treated with open reduction using transcortical 0.027-inch K-wire stabilization. Postoperative parameters of relevance included infection, facial nerve function, hardware removal, mandibular range of motion, and radiographic determination of fracture union.

RESULTS: Three patients had bilateral FDMCs and 9 had unilateral FDMCs (age range at time of injury, 14 to 72 yr; mean age, 32 yr). Postoperative follow-up ranged from 6 weeks to 2 years. Four patients required removal of K-wire hardware for different reasons. K-wires were removed because of infection in 1 patient. Another patient required removal because of migration of the pin into the joint space. One pin was removed electively and another was removed for nonspecific postoperative symptoms that resolved after pin removal. Persistent facial nerve deficit was observed in 1 patient.

CONCLUSION: Open reduction with transcortical K-wire stabilization can achieve satisfactory outcomes for the treatment of FDMC. Further investigation is needed in determining the efficacy of this fixation technique in the management of FDMC.

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Impact of traumatic dental injuries on oral health-related quality of life of preschool children: A systematic review and meta-analysis. [Review]


Methods: An electronic search of six databases was performed in PubMed (MEDLINE), ISI Web of Science, Scopus, Science Direct, EMBASE and Google Scholar, with no language or publication date restrictions. The eligibility criteria were TDI as the exposure variable, OHRQoL as the outcome and a population of children up to six years of age. RevMan software was used for data analysis. Results are expressed as odds ratios with 95% confidence intervals for the total score of the Early Childhood Oral Health Impact Scale (ECOHIS) as well as the scores of the Child Impact Section (CIS) and Family Impact Section (FIS). The random effect model was chosen and heterogeneity was evaluated using the I² test.

Results: 2,013 articles were initially retrieved; 1,993 articles were excluded based on title and abstracts; 10 articles excluded after full-text analysis. Ten studies comprising a population of 7,461 preschool children were included in the systematic review and nine studies were included in the meta-analysis. TDI caused a negative impact on OHRQoL based on the overall ECOHIS (OR: 1.24; 95% CI: 1.08-1.43) and CIS (OR: 1.23; 95% CI: 1.07-1.41), but not the FIS (OR: 1.09; 95% CI: 0.90-1.32).

Conclusions: TDI negatively impacted on OHRQoL of preschool children. The present findings indicate the need for TDI prevention and treatment programs in early childhood.

Purpose: The purpose of our study was to investigate whether the occurrence of preoperative diplopia determines the incidence of postoperative diplopia after orbital floor fracture.
MATERIALS AND METHODS: We undertook a retrospective cohort study with a review of the records of 126 consecutive patients who had undergone repair of an orbital floor fracture under the maxillofacial surgery service at John Hunter Hospital (Newcastle, NSW, Australia). The primary predictor variables were a number of demographic, etiologic, and operative factors that might influence the occurrence of diplopia. The secondary outcome variable was diplopia. A descriptive statistical analysis was used to assess each of these variables and their potential relationship to the occurrence of diplopia.

RESULTS: Of the 126 patients included in our study, 84 (66.6%) were treated for diplopia and 42 (33.3%) for dystopia. We found that orbital exploration and repair, when undertaken to manage diplopia, can resolve (75%), improve (7.14%), stabilize (7.14%), or worsen (10.71%) diplopia. In contrast, orbital surgery to manage or prevent dystopia can, in our experience, induce diplopia in 9.52% of patients. At the 95% confidence interval, age was the only variable shown to be significantly associated with diplopia (P = .039). We found that the presence of preoperative diplopia is causally statistically associated with postoperative diplopia at the 90% confidence interval (P = .063).

CONCLUSIONS: Diplopia is a common occurrence that results from orbital floor fracture. It can resolve, persist (improve, remain stable, or worsen), or be induced after repair of such an injury. In addition to the known myogenic cause (entrapment) of diplopia, both trauma and surgical manipulation have been shown to have the capacity to compromise ocular motor nerve function and possibly result in the development of neurogenic causes of diplopia. It has also been noted that several intraorbital adherence syndromes can potentially contribute to the development of diplopia. This is an area that requires further research.