

# Restorative Dentistry

Evidence Update

December 2017 (Bimonthly)



Respecting everyone  
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Recognising success  
Working together  
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# Training Sessions 2017/18

*All sessions are one hour*

## December (12.00-13.00)

7 <sup>th</sup> (Thu)	Statistics
14 <sup>th</sup> (Thu)	Literature Searching
20 <sup>th</sup> (Wed)	Critical Appraisal

## January (13.00-14.00)

4 <sup>th</sup> (Thu)	Statistics
8 <sup>th</sup> (Mon)	Literature Searching
18 <sup>th</sup> (Thu)	Critical Appraisal
24 <sup>th</sup> (Wed)	Statistics





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# The Latest Evidence for Restorative Dentistry

**NICE** National Institute for Health and Care Excellence

[Alendronic Acid/Colecalciferol 70 mg/2800 IU tablets - Summary of Product Characteristics \(SPC\) - \(eMC\)](#)

Source: [electronic Medicines Compendium - eMC](#) - 20 November 2017

**This is just the first eMC Summary of Product Characteristics from your search. [See all](#)**

**BNF** [Oral bacterial infections | Treatment summary](#)

Source: [British National Formulary - BNF](#) - 27 November 2017

[Signal: Pilocarpine improves dry mouth caused by radiotherapy](#)

Source: [NIHR Dissemination Centre](#) - 07 November 2017

[Effect of implant loading protocols on failure and marginal bone loss with unsplinted two-implant-supported mandibular overdentures: systematic review and meta-analysis](#)

Source: [PubMed](#) - 13 November 2017 - Publisher: International Journal Of Oral And Maxillofacial Surgery [Read Summary](#)

[Is Bone Graft or Guided Bone Regeneration Needed When Placing Immediate Dental Implants? A Systematic Review](#)

Source: [PubMed](#) - 01 November 2017 - Publisher: Implant Dentistry



[Interventions for preventing oral mucositis in patients with cancer receiving treatment: cytokines and growth factors](#)

Online Publication Date: November 2017

[Pharmacological interventions for pain relief during orthodontic treatment](#)

Online Publication Date: November 2017

[Periodontal therapy for the management of cardiovascular disease in patients with chronic periodontitis](#)

Online Publication Date: November 2017

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[Gingivitis and periodontitis in adults: Classification and dental treatment](#)

Literature review current through: Nov 2017. | This topic last updated: Dec 05, 2017.

[Medication-related osteonecrosis of the jaw in patients with cancer](#)

Literature review current through: Nov 2017. | This topic last updated: Feb 03, 2017.

[Treatment of dry mouth and other non-ocular sicca symptoms in Sjögren's syndrome](#)

Literature review current through: Nov 2017. | This topic last updated: Dec 04, 2017.

[Mandibular and palatal reconstruction in patients with head and neck cancer](#)

Literature review current through: Nov 2017. | This topic last updated: Apr 06, 2017.

[Head and neck sarcomas](#)

Literature review current through: Nov 2017. | This topic last updated: Jan 27, 2017.



The Dental Elf

[Statins as an adjunct to scaling and root planing](#) Dec 11 2017

[Mucositis in adult cancer patients reduced with keratinocyte growth factor](#) Dec 4 2017

[Treating periodontitis to prevent heart disease – evidence unclear](#) Nov 10 2017

[Shortened dental arch: does prosthetic treatment have a positive impact?](#) Nov 15 2017



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# Recent Database Articles on Restorative Dentistry

Below is a selection of articles on restorative dentistry recently added to the healthcare databases, grouped in the following categories:

- Peri-implantitis
- Bisphosphonate-related osteonecrosis of the jaw
- Dental-related cleft lip and palate
- Periodontal disease and antibiotics
- Dental-related head and neck oncology
- Dental implants

If you would like any of the following articles in full text, or if you would like a more focused search on your own topic, then get in touch: [library@uhbristol.nhs.uk](mailto:library@uhbristol.nhs.uk)

## Peri-implantitis

### **Implant-Abutment Connections: A Review of Biologic Consequences and Peri-implantitis Implications.**

**Author(s):** Sasada, Yuya; Cochran, David L

**Source:** The International journal of oral & maxillofacial implants; ; vol. 32 (no. 6); p. 1296-1307

**Publication Type(s):** Journal Article

**Abstract:** Clinicians very often have seen marginal bone loss around dental implants at the crest level early on after implant placement and uncovering. Early clinical publications had suggested that this bone loss occurred during the first year of loading. Thus, numerous attempts have been made to minimize or eliminate such bone loss. However, the timing and reason for this bone loss are not always apparent. The objective of this study was to review the evidence regarding marginal bone loss around dental implants from the standpoint of biologic consequences to help understand marginal bone changes around dental implants. One hypothesis for the bone loss around these implants was related to the presence of bacteria in the interfaces between the implant and abutment connections. The literature was reviewed regarding the three major types of implant-abutment crestal connections, including butt-joint, platform-switched, and no interface (tissue-level or one-body). This review article revealed that 1.5 to 2.0 mm of bone loss occurred around bone-level, butt-joint connections when the interface was created because the microgap was wide enough for penetration and colonization of bacteria, and that this bone loss was not observed around implants with no interface because they did not have a contaminated interface at the bone crest. Many studies have shown an advantage in the amount of marginal bone resorption for implants with a platform-switched connection, and there appears to be a significantly different biologic reaction. Recent publications indicate that such contaminated implant-abutment connections might have an effect on peri-implantitis and failure over time.

**A new multiple anti-infective non-surgical therapy in the treatment of peri-implantitis: a case series.**

**Author(s):** Mensi, Magda; Scotti, Eleonora; Calza, Stefano; Pilloni, Andrea; Grusovin, Maria G;

**Source:** Minerva stomatologica; Dec 2017; vol. 66 (no. 6); p. 255-266

**Publication Type(s):** Journal Article

**PubMedID:** 2897577

**Abstract:**BACKGROUND Peri-implantitis is a frequent disease that may lead to implant loss. The aim of this case series was to evaluate the clinical results of a new non-surgical treatment protocol. METHODS Fifteen patients with dental implants affected by peri-implantitis were treated with a multiple anti-infective non-surgical treatment (MAINST) which included two steps: 1) supra-gingival decontamination of the lesion and sub-gingival treatment with a controlled-release topical doxycycline; 2) after one week, a session of supra and sub gingival air polishing with Erythritol powder and ultrasonic debridement (where calculus was present) of the whole oral cavity was performed along with a second application of topical doxycycline around the infected implant. Primary outcome measures were: implant failure; complications and adverse events; recurrence of peri-implantitis; secondary outcome measure were presence of Plaque (PI), Bleeding on Probing (BOP), Probing Pocket Depth (PPD), Recession (REC), Relative Attachment level (RAL). RESULTS Neither implant failure nor complications nor adverse events were reported. Statistically (P5 mm at the affected implant(s), whereas only 3.7% at 3-month follow-up a PPD>5 mm, and none at 6 and 12 months. CONCLUSIONS Within the limits of this study, the MAINST protocol showed improvement of clinical parameters for the treatment of peri-implantitis, which were maintained for up to 12 months.

**Insufficient evidence about the benefits of using systemic azithromycin as an adjunct to open-flap debridement in patients with peri-implantitis.**

**Author(s):** Brignardello-Petersen, Romina

**Source:** Journal of the American Dental Association (1939); Dec 2017; vol. 148 (no. 12); p. e200

**Publication Type(s):** Journal Article

**Implant decontamination with phosphoric acid during surgical peri-implantitis treatment: a RCT.**

**Author(s):** Hentenaar, Diederik F M; De Waal, Yvonne C M; Strooker, Hans; Meijer, Henny J A

**Source:** International journal of implant dentistry; Dec 2017; vol. 3 (no. 1); p. 33

**Publication Type(s):** Journal Article

Available at [International Journal of Implant Dentistry](#) - from Europe PubMed Central - Open Access

**Abstract:**BACKGROUND Peri-implantitis is known as an infectious disease that affects the peri-implant soft and hard tissue. Today, scientific literature provides very little evidence for an effective intervention protocol for treatment of peri-implantitis. The aim of the present randomized controlled trial is to evaluate the microbiological and clinical effectiveness of phosphoric acid as a decontaminating agent of the implant surface during surgical peri-implantitis treatment. METHODS Peri-implantitis lesions were treated with resective surgical treatment aimed at peri-implant granulation tissue removal, bone recontouring, and pocket elimination. Fifty-three implant surfaces in 28 patients were mechanically cleaned and treated with either 35% phosphoric etching gel (test group) or sterile saline (control group). Microbiological samples were obtained during surgery; clinical parameters were recorded at baseline and at 3 months after treatment. Data were analyzed using multi-variable linear regression analysis and multilevel statistics. RESULTS Significant immediate reductions in total anaerobic bacterial counts on the implant surface were found in both groups. Immediate reduction was greater when phosphoric acid was used. The difference in log-transformed mean anaerobic counts between both procedures was not statistical significant ( $p = 0.108$ ), but there were significantly less culture-positive implants after the



decontamination procedure in the phosphoric acid group ( $p = 0.042$ ). At 3 months post-surgery, 75% of the implants in the control group and 63.3% of the implants in the test group showed disease resolution. However, no significant differences in clinical and microbiological outcomes between both groups were found. **CONCLUSION** The application of 35% phosphoric acid after mechanical debridement is superior to mechanical debridement combined with sterile saline rinsing for decontamination of the implant surface during surgical peri-implantitis treatment. However, phosphoric acid as implant surface decontaminant does not seem to enhance clinical outcomes on a 3-month follow-up. **TRIAL REGISTRATION** Netherlands National Trial Register, NTR5185 ([www.trialregister.nl](http://www.trialregister.nl)).

**Mucositis, peri-implantitis, and survival and success rates of oxide-coated implants in patients treated for periodontitis 3- to 6-year results of a case-series study.**

**Author(s):** Mengel, Reiner; Heim, Theresa; Thöne-Mühling, Miriam

**Source:** International journal of implant dentistry; Nov 2017; vol. 3 (no. 1); p. 48

**Publication Type(s):** Journal Article

Available at [International Journal of Implant Dentistry](#) - from Europe PubMed Central - Open Access

**Abstract:** **AIM** The aim of this case-series study is to evaluate the prevalence of mucositis, peri-implantitis, and survival and success rates of oxide-coated implants in subjects treated for periodontitis. **MATERIALS AND METHOD** Twenty-four subjects treated for generalized chronic periodontitis (GCP) and five treated for generalized aggressive periodontitis (GAP) were orally rehabilitated with a total of 130 dental implants. Subjects were examined 2 to 4 weeks prior to extraction of non-retainable teeth and at insertion of superstructure. Additional examinations were performed during a 3-month recall schedule over a 3- to 6-year follow-up period. Radiographs were taken after insertion of the superstructure and 1, 3, and 5 years later. **RESULT** The results showed implant survival rates of 97.1% in GCP subjects versus 96.2% in GAP subjects. The implant success rate was 77.9% in GCP subjects and 38.5% in GAP subjects. In GCP subjects, mucositis was present in 7.7% and peri-implantitis in 12.5% of the implants. In GAP subjects, 28.0% of the implants showed mucositis and 32.0% peri-implantitis. Implant failure, mucositis, and peri-implantitis were more evident in GAP subjects. Peri-implantitis was more prevalent for implants in the maxilla and implants >10 mm. After 5 years, the mean peri-implant bone loss in GAP subjects was 2.89 mm and in GCP subjects 1.38 mm. **CONCLUSION** Periodontally diseased subjects treated in a supportive periodontal therapy can be successfully rehabilitated with oxide-coated dental implants for a follow-up period of 3- to 6-years. Implants in the maxilla and GAP subjects were more susceptible to mucositis and peri-implantitis, with lower implant survival and success rates.

**Long-term follow up of implant therapy: Occurrence of cases with peri-implant mucositis or peri-implantitis in a 21-26-year follow-up study.**

**Author(s):**

**Source:** British dental journal; Nov 2017; vol. 223 (no. 10); p. 780

**Publication Type(s):** Journal Article

**Abstract:** Regular supportive care should be emphasised for all patients but individuals who present with multiple implants and/or peri-implant mucositis should receive special clinical attention.

**Peri-implantitis - the patient perspective: Patient-centred perspectives and understanding of peri-implantitis.**

**Author(s):**

**Source:** British dental journal; Nov 2017; vol. 223 (no. 10); p. 780

**Publication Type(s):** Journal Article

**Abstract:**Patients have a poor understanding of peri-implantitis so it is important to educate them to help prevent this condition, which negatively impacts on quality of life.

**A novel cold atmospheric pressure air plasma jet for peri-implantitis treatment: An in vitro study.**

**Author(s):** Yang, Yu; Guo, Jinsong; Zhou, Xuan; Liu, Zhiqiang; Wang, Chenbao; Wang, Kaile;

**Source:** Dental materials journal; Nov 2017

**Publication Type(s):** Journal Article

**Abstract:**Peri-implantitis is difficult to treat in clinical settings; this is not only because it is a site-specific infectious disease but also because it impedes osseointegration. In this study, a novel cold atmospheric pressure air plasma jet (CAPAJ) was applied to study the treatment of peri-implantitis in vitro. CAPAJ treated the samples for 2, 4 and 6 min, respectively. To evaluate the titanium surface characteristics, the surface elemental composition (X-ray photoelectron spectroscopy [XPS]), roughness and hydrophilicity were evaluated in each group. Concurrently, the sterilization and osseointegration effect of CAPAJ were also examined. Results revealed that after CAPAJ modification, roughness and hydrophilicity of titanium surfaces were significantly increased. Moreover, XPS results demonstrated that the C1s peak was reduced and N1s and O1s peaks were obviously improved. More importantly, CAPAJ showed favorable sterilization and bone formation effects. CAPAJ seemed a simpler and more efficient strategy for the peri-implantitis treatment.

**Assessment of interleukin-1 $\beta$ , interleukin-6, and tumor necrosis factor-A levels in the peri-implant sulcular fluid among waterpipe (narghile) smokers and never-smokers with peri-implantitis.**

**Author(s):** Abduljabbar, Tariq; Akram, Zohaib; Vohra, Fahim; Warnakulasuriya, Saman; Javed, Fawad

**Source:** Clinical implant dentistry and related research; Nov 2017

**Publication Type(s):** Journal Article

**Abstract:**BACKGROUNDIt is hypothesized that levels of interleukin (IL)-1 $\beta$ , IL-6 and tumor necrosis factor (TNF)- $\alpha$  are significantly higher in the peri-implant sulcular fluid (PISF) of waterpipe-smokers (WS) compared with never-smokers with peri-implantitis.PURPOSEThe aim of the present convenience sample case-control study was to compare the levels of IL-6, IL-1 $\beta$ , and TNF- $\alpha$  in the PISF of WS and never-smokers with peri-implantitis.MATERIALS AND METHODSDemographic data was collected using a questionnaire. Peri-implant probing depth (PPD) was measured and crestal bone loss (CBL) was measured on digital bitewing radiographs. PISF samples were collected using paper strips and the collected PISF volume was determined. levels of IL-6, IL-1 $\beta$ , and TNF- $\alpha$  were measured using enzyme linked immunosorbent assay. Study sample-size was estimated and statistical analysis was performed. P values less than .05 were considered statistically significant.RESULTSSixty-six individuals (33 individuals in group-1 and 33 in group-2) were included. In groups 1 and 2, 41 and 44 implants, respectively were placed. The mean total PPD (P < .001) and peri-implant CBL (P < .001) was statistically significantly higher around implants affected by peri-implantitis in group-1 compared with group-2. The PISF volume (P < .05) collected and levels of IL-1 $\beta$  (P < .01), IL-6 (P < .01), and TNF- $\alpha$  (P < .01) were statistically significantly higher among individuals in group-1 compared with group-2.CONCLUSIONWS with peri-implantitis present increased expression of local proinflammatory cytokines in the PISF than never-smokers.

**Patient-Centered Perspectives and Understanding of Peri-Implantitis.**

**Author(s):** Insua, Angel; Monje, Alberto; Wang, Hom-Lay; Inglehart, Marita

**Source:** Journal of periodontology; Nov 2017; vol. 88 (no. 11); p. 1153-1162

**Publication Type(s):** Journal Article

**Abstract:**BACKGROUND Patients undergoing dental treatment have an uncertain understanding about dental implant therapy and its complications. Therefore, the aims of this study assess the following: 1) level of knowledge, awareness, and attitudes about peri-implantitis; 2) information provided by dentists/specialists who perform the treatment; and 3) perceptions, level of satisfaction, and impact on patient quality of life (QoL).METHODS Patients with implant restorative therapy currently undergoing peri-implant maintenance therapy were recruited. Participants completed an anonymous questionnaire that included general aspects of prognosis, including the following: 1) peri-implantitis; 2) etiology; 3) awareness; 4) attitudes; 5) treatment; 6) prevention; 7) risk factors; 8) quality of information; 9) level of patient satisfaction; and 10) QoL. Associations among questionnaire data were identified using univariate and multivariate analyses.RESULTS Overall, 411 implants were included from 135 patients with implants. Frequency of peri-implantitis in the survey was 17.8% at the participant level, with 70% of them reporting high level of post-surgical satisfaction. Worry and concern were frequent findings among patients with peri-implantitis (64%), and 32% reported that living with the disease was terrible. The vast majority of patients (74.1%) did not have knowledge about peri-implant pathology. Patients with peri-implantitis showed statistically significantly better understanding of implant therapy ( $P < 0.001$ ) and also higher average concern ( $P = 0.004$ ).CONCLUSIONS Patients generally have a poor understanding and perception of peri-implantitis and its impact. QoL was impaired by the presence of peri-implantitis with high level of concern and low level of therapeutic satisfaction. Therefore, it is important to develop standardized information brochures to educate patients on risk factors and indicators of the disease to assist in the prevention of peri-implantitis.

#### **Classification and Clinical Management of Retrograde Peri-implantitis Associated with Apical Periodontitis: A Proposed Classification System and Case Report.**

**Author(s):** Sarmast, Nima D; Wang, Howard H; Sajadi, Ali S; Angelov, Nikola; Dorn, Samuel O

**Source:** Journal of endodontics; Nov 2017; vol. 43 (no. 11); p. 1921-1924

**Publication Type(s):** Journal Article

**Abstract:**Biological complications involving dental implants include peri-implant diseases such as peri-implant mucositis and peri-implantitis. The latter presents with progressive bone loss from the alveolar crest in a coronal apical direction. However, a separate disease entity termed retrograde peri-implantitis (RPI), which presents with progressive bone loss at the periapex of the implant, also exists and may be of particular interest to endodontists because it typically presents with periapical pathology of both the implant and adjacent tooth or at a site that previously housed an endodontically treated tooth. The reported prevalence of retrograde peri-implantitis is 0.26%, which is much lower than the prevalence of marginal peri-implantitis; however, its incidence increases to 7.8% when teeth adjacent to the implant exhibit an endodontic infection. It is positively correlated with a shorter distance between the implant and the adjacent tooth and a shorter time elapsed from the endodontically treated adjacent tooth to implant placement. This case report describes a patient diagnosed with an RPI lesion (RPI) associated with an adjacent endodontically treated tooth with a persistent periapical radiolucent lesion. The diagnosis, possible etiology, and management of the RPI lesion is thoroughly reported including follow-up visits showing complete resolution after subsequent periodontal and endodontic therapy. Endodontic evaluation of teeth adjacent to the implant site should be performed for primary prevention of RPI. Proper classification of RPI will aid in determining the course of treatment; class 1 and 2 cases require endodontic therapy of the involved teeth for healing to occur.

**Comparison between two antimicrobial protocols with or without guided bone regeneration in the treatment of peri-implantitis. A histomorphometric study in dogs.**

**Author(s):** Ramos, Umberto Demoner; Suaid, Flavia Adelino; Wikesjö, Ulf M E; Susin, Cristiano

**Source:** Clinical oral implants research; Nov 2017; vol. 28 (no. 11); p. 1388-1395

**Publication Type(s):** Journal Article

**Abstract:**OBJECTIVE This study used a dog model to evaluate two antimicrobial protocols with or without guided bone regeneration (GBR) in the surgical reconstruction of peri-implantitis defects. MATERIAL AND METHOD Eight beagle dogs subject to ligature-induced peri-implantitis were used. The animals either received antimicrobial photodynamic therapy or topical tetracycline hydrochloride combined with GBR or as stand-alone surgical interventions. Block biopsies of the defect sites for histological analysis were obtained at euthanasia, 12 weeks postsurgery. The primary outcome of the study was re-osseointegration; secondary outcomes included alveolar bone gain and remaining defect characteristics. The effects of the implant site, early exposure, and type of antimicrobial protocol on bone regeneration were also evaluated. RESULTS No significant differences were observed between the two antimicrobial protocols, and the adjunctive use of GBR failed to significantly improve re-osseointegration or bone gain using either protocol. Buccal sites and implant early exposure negatively affected bone regeneration. CONCLUSION Both antimicrobial therapies stand-alone or combined with GBR allowed similar and limited bone gain.

**Microbiome of peri-implantitis affected and healthy dental sites in patients with a history of chronic periodontitis.**

**Author(s):** Apatzidou, Danae; Lappin, David F; Hamilton, Graham; Papadopoulos, Christos A

**Source:** Archives of oral biology; Nov 2017; vol. 83 ; p. 145-152

**Publication Type(s):** Journal Article

**Abstract:**OBJECTIVE To determine the composition of the microbiome of peri-implantitis sites and corresponding dental sites in subjects with a history of chronic periodontitis. DESIGN Clinical and radiographic examination assessed the periodontal/peri-implant disease status. Plaque samples were collected from one diseased implant with peri-implantitis, functional for at least two years and healthy sites in ten non-smokers who had received periodontal treatment prior to implant placement. Following DNA extraction, the bacteria present in each sample were determined by high-throughput sequencing of V3-V4 region of the 16S rRNA gene using the Illumina MiSeq platform. OTUs were picked using QIIME. Differences between dental and implant sites were determined using linear discriminant analysis, effect size and diversity analyses were conducted using PAST v3.02. RESULT The microbiomes of healthy samples were more diverse than those found in disease, although disease was associated with a higher abundance of taxa relative to health. The genera Actinobacillus and Streptococcus were most closely associated with health, whereas Prevotella and Porphyromonas were most discriminative for disease. Synergistetes were highly associated with peri-implantitis. CONCLUSION In patients with a history of periodontitis, putative periodontal pathogens prevailed in the microbiome of diseased implants. Diseased implants and corresponding healthy sites appear to have distinct microbiological ecosystems.

## Bisphosphonate-related osteonecrosis of the jaw

**Underlying mechanisms and therapeutic strategies for bisphosphonate-related osteonecrosis of the jaw (BRONJ)**

**Author(s):** Endo Y.; Takahashi T.; Kumamoto H.; Nakamura M.; Sugawara S.; Takano-Yamamoto T.

**Source:** Biological and Pharmaceutical Bulletin; 2017; vol. 40 (no. 6); p. 739-750

**Publication Type(s):** Review

**Abstract:** Bisphosphonates (BPs), with a non-hydrolysable P-C-P structure, are cytotoxic analogues of pyrophosphate, bind strongly to bone, are taken into osteoclasts during bone-resorption and exhibit long-acting anti-bone-resorptive effects. Among the BPs, nitrogen-containing BPs (N-BPs) have far stronger anti-bone-resorptive effects than non-N-BPs. In addition to their pyrogenic and digestive-organ-injuring side effects, BP-related osteonecrosis of jaws (BRONJ), mostly caused by N-BPs, has been a serious concern since 2003. The mechanism underlying BRONJ has proved difficult to unravel, and there are no solid strategies for treating and/or preventing BRONJ. Our mouse experiments have yielded the following results. (a) N-BPs, but not non-N-BPs, exhibit direct inflammatory and/or necrotic effects on soft tissues. (b) These effects are augmented by lipopolysaccharide, a bacterial-cell-wall component. (c) N-BPs are transported into cells via phosphate transporters. (d) The non-N-BPs etidronate (Eti) and clodronate (Clo) competitively inhibit this transportation (potencies, Clo>Eti) and reduce and/or prevent the N-BP-induced inflammation and/or necrosis. (e) Eti, but not Clo, can expel N-BPs that have accumulated within bones. (f) Eti and Clo each have an analgesic effect (potencies, Clo>Eti) via inhibition of phosphate transporters involved in pain transmission. From these findings, we propose that phosphate-transporter-mediated and inflammation/infection-promoted mechanisms underlie BRONJ. To treat and/or prevent BRONJ, we propose (i) Eti as a substitution drug for N-BPs and (ii) Clo as a combination drug with N-BPs while retaining their anti-bone-resorptive effects. Our clinical trials support this role for Eti (we cannot perform such trials using Clo because Clo is not clinically approved in Japan). Copyright © 2017 The Pharmaceutical Society of Japan.

**A case of tooth fracture occurred upon medicating bisphosphonate for an elderly person: Preservation therapy and responses for Stage 0 of bisphosphonate-related osteonecrosis of jaw.**

**Author(s):** Suzuki, Noriko; Oguchi, Hitoshi; Yamauchi, Yu; Karube, Yasuyo; Suzuki, Yukimi;

**Source:** European journal of dentistry; 2017; vol. 11 (no. 2); p. 258-263

**Publication Type(s):** Journal Article

Available at [European Journal of Dentistry](#) - from Europe PubMed Central - Open Access

**Abstract:** This case report aimed to report the progress of preservation therapy and response of symptoms and signs for Stage 0 of bisphosphonate-related osteonecrosis of jaw (BRONJ). A 68-year-old female was recognized having a tooth at the left upper first molar fracture upon medicating bisphosphonate (BP) in 2007. At that time, the extraction of the tooth was an absolute contraindication. Therefore, we performed preservation therapy. We observed the symptoms and signs every month. After 5 months, swelling and redness in the entire first molar tooth were seen and fistula formed partly. Bone exposure was not seen. We administered antibiotics immediately. As a result, symptoms disappeared. On April 10, 2009, the patient visited us as she felt a sense of incongruity in the lower left first and second molar teeth. Clinically, there were no symptoms of pain. However, we observed the radiolucent finding in about 5 mm diameter at apical position by X-ray photography; we considered a possibility of Stage 0 for BRONJ. We immediately administered medicine for 5 days and the symptoms disappeared. At present, no inflammation with signs and symptoms at the upper left first molar and lower left first, second molar parts is shown. We performed preservation therapy for tooth fracture case medicating of BP. Immediate responses for inflammation and symptoms of the Stage 0 of BRONJ have led to success. Hence, dentists should perform regular clinical observation, and enough education to the patient for BRONJ is necessary.

**A Case of Bisphosphonate-Related Osteonecrosis of the Jaw in a Patient with Subpontic Osseous Hyperplasia.**

**Author(s):** Tsuji, Chiaki; Watanabe, Hiroshi; Nakayama, Hidenori; Goto, Mitsuo; Kurita, Kenichi

**Source:** Case reports in dentistry; 2017; vol. 2017 ; p. 9659761

**Publication Type(s):** Journal Article

Available at [Case Reports in Dentistry](#) - from Europe PubMed Central - Open Access

**Abstract:** Subpontic osseous hyperplasia (SOH) is a growth of bone occurring on the edentulous ridge beneath the pontics of fixed partial dentures (FPDs). This report describes a case of bisphosphonate- (BP-) related osteonecrosis of the jaw (BRONJ) in a SOH patient followed by deciduation of the bony lesion. A 73-year-old woman visited a dental clinic after experiencing pain and swelling beneath the pontics of a FPD that had been inserted 15 years ago. The pontics were removed, but the symptoms persisted and she was referred to our hospital. There was an osseous bulge and gum swelling around the edentulous ridge of teeth 18 and 19, as well as bone exposure. As she had been taking an oral BP for 6 years, we diagnosed this case as stage 2 BRONJ. Following BP withdrawal, the bony lesion detached from the mandible. The tissue was diagnosed as sequestrum based on the histopathological findings. Two months after deciduation, epithelialization over the area of exposed bone was achieved and no recurrence has been observed.

#### **Treatment with teriparatide for advanced bisphosphonate-related osteonecrosis of the jaw around dental implants: a case report.**

**Author(s):** Zushi, Yusuke; Takaoka, Kazuki; Tamaoka, Joji; Ueta, Miho; Noguchi, Kazuma;

**Source:** International journal of implant dentistry; Dec 2017; vol. 3 (no. 1); p. 11

**Publication Type(s):** Journal Article

Available at [International Journal of Implant Dentistry](#) - from Europe PubMed Central - Open Access

**Abstract:** We report a case of a 66-year-old severely osteoporotic woman with bisphosphonate-related osteonecrosis of the jaw (BRONJ) around her dental implants, who was treated successfully with teriparatide and sequestrectomy of the mandible. After 5 months of teriparatide therapy, the sequestrum separation had progressed and a sequestrectomy was performed under general anesthesia. Five months after the operation, new bone formation was observed around the bone defect in the region of the sequestrectomy. A repeat computed tomographic image revealed improvement in the bone defect in the mandible. These results suggest that teriparatide provides beneficial effects in the treatment of advanced BRONJ around dental implants.

#### **Effects of dexamethasone and nimesulide on bisphosphonate-related osteonecrosis of the jaw: An experimental study.**

**Author(s):** Oliveira, Camila Carvalho de; Barros Silva, Paulo Goberlânio de;

**Source:** Archives of oral biology; Nov 2017; vol. 83 ; p. 317-326

**Publication Type(s):** Journal Article

**Abstract:** OBJECTIVE To evaluate the effects of dexamethasone (DEX) and nimesulide (NIM) on Bisphosphonate-related Osteonecrosis of the Jaw (BRONJ) in rats. DESIGN BRONJ was induced by zoledronic acid (ZA) infusion (0.2mg/kg) in Wistar rats (n=8), followed by extraction of the left lower first molar (BRONJ groups). Control groups (n=40) received saline (IV). For eight weeks, DEX (0.04, 0.4, 4mg/kg) or saline (SAL) were administered by gavage 24h before each infusion of ZA or saline (IV), or NIM (10.3mg/kg) was administered 24h and 12h before each infusion of ZA or saline (IV). The haematological analyses were conducted weekly. After euthanasia (day 70), the jaws were submitted to radiographic and microscopic analysis. Kidney, liver, spleen and stomach were analysed histopathologically. RESULT The BRONJ groups showed a higher radiolucent area compared with the control groups (p<0.05). Histomorphometric analysis revealed healing and new bone formation in

the control groups, while the BRONJ groups exhibited devitalized bone with bacterial colonies and inflammatory infiltrate. The BRONJ-DEX 0.4 and 4mg/kg groups had a greater number of bacterial colonies ( $p < 0.05$ ) and an increased polymorphonuclear cell count compared to the saline-BRONJ group, while the BRONJ-NIM group had a lower polymorphonuclear count ( $p < 0.05$ ). The BRONJ groups had leucocytosis, which was reduced by DEX administration. Treatments with DEX with or without ZA caused white pulp atrophy. CONCLUSION Thus, DEX or NIM therapy was not effective in preventing radiographic and histopathologic events associated with BRONJ. Treatment with DEX attenuated leucocytosis post-infusion with ZA.

## Dental-related cleft lip and palate

### Multidisciplinary management of a patient with van der Woude syndrome: A case report

**Author(s):** Tehranchi A.; Behnia H.; Nadjmi N.; Yassae V.R.; Ravesh Z.; Mina M.

**Source:** International Journal of Surgery Case Reports; 2017; vol. 30 ; p. 142-147

**Publication Type(s):** Article

Available at [International Journal of Surgery Case Reports](#) - from Europe PubMed Central - Open Access

**Abstract:** Introduction Van der Woude syndrome (VWS) is the most frequent form of syndromic cleft lip and palate (SCLP) accounting for 2% of all patients with CLP. Case presentation We describe the orthodontic treatment of a girl diagnosed with VWS referred by her family dentist for her cosmetic concerns. Discussion Comprehensive orthodontic treatment, secondary bone graft, distraction osteogenesis (for a deficient maxilla), secondary palatoplasty and excision of lower lip pits, as well as orthodontic and prosthetic procedures may provide a satisfactory outcome. Genetic testing showed a known putative splice site mutation (c.174 + 1 G/A) as the prime cause of VWS in our patient and her family. Conclusion SCLP has significant effects on facial aesthetics and the psychosocial status. Parents should be assessed and counseled appropriately. This condition is treatable in the absence of life threatening systemic anomalies. An interdisciplinary team approach is advocated. Copyright © 2016 The Author(s)

### A cross-sectional analysis of the prevalence of tooth agenesis and structural dental anomalies in association with cleft type in non-syndromic oral cleft patients.

**Author(s):** Konstantonis, Dimitrios; Alexandropoulos, Alexandros; Konstantoni, Nikoleta;

**Source:** Progress in orthodontics; Dec 2017; vol. 18 (no. 1); p. 20

**Publication Type(s):** Journal Article

Available at [Progress in Orthodontics](#) - from Europe PubMed Central - Open Access

**Abstract:** BACKGROUND The aim of this study was to investigate the prevalence of tooth agenesis, microdontia, and tooth malformation among non-syndromic oral cleft patients and their potential association with cleft type and gender. METHODS Intraoral records and radiographs of 154 patients (97 males and 57 females) were examined. The variables assessed were tooth agenesis, microdontia, dental malformations, and cleft types. The statistics included chi-square and Fisher's exact tests as well as logistic regression to assess any mutual effects of gender and cleft type on the dental variables. RESULT Tooth agenesis occurred in 50% of the sample and microdontia in 18%. Non-statistically significant odds ratios for the association of gender and cleft type with tooth agenesis were obtained. Tooth agenesis was substantially higher at the unilateral right CL + P and the bilateral CL + P in quadrant 1 and at the unilateral left CL + P and bilateral CL + P in quadrant 2. It was also



higher, at the isolated cleft palate (CP) in quadrants 3 and 4. These results were attributed to teeth 22 (31.8%) and 12 (21.6%) in the maxilla and to teeth 35 (6.1%) and 45 (5.4%) in the mandible. In unilateral CL + P patients, the cleft quadrant that presented tooth agenesis was associated with the side of the cleft. **CONCLUSIONS** Interdisciplinary treatment of the oral cleft patients should take into consideration the high prevalence of tooth agenesis and their association with the different cleft types. The most frequently affected teeth by cleft are by far the upper lateral incisors. Results indicate that tooth agenesis appears to be a genetically controlled anomaly related to the orofacial cleft development through various genetic links and not caused by the cleft disruptive process.

**Three-dimensional evaluation of the maxillary arch and palate in unilateral cleft lip and palate subjects using digital dental casts.**

**Author(s):** Generali, Chiara; Primozic, Jasmina; Richmond, Stephen; Bizzarro, Maria; Flores-Mir, Carlos; Ovsenik, Maja; Perillo, Letizia

**Source:** European journal of orthodontics; Nov 2017; vol. 39 (no. 6); p. 641-645

**Publication Type(s):** Journal Article

**Abstract:** Objectives To assess arch width, palatal surface area, and volume in surgically treated unilateral cleft lip and palate (UCLP) in mixed dentition children in comparison with non-cleft lip and palate (NCLP) children using a 3D laser scanning. Materials and Methods 38 subjects (Caucasian origin), 5.63-11.9 years of age (mean,  $9.33 \pm 1.67$  years), were included. 19 in each group (UCLP and NCLP). Digital dental casts were obtained using a 3 Shape R700 laser scanner. Inter canine and intermolar widths (cusp and gingival levels), palatal surface area and volume were measured. An independent sample Student's t-test and an ANOVA were undertaken with significance level set as  $P < 0.05$ . Results Inter canine widths at the cusp (5.60 mm;  $P < 0.001$ ) and at the gingival level (3.11 mm;  $P = 0.014$ ), palatal area (141.5 mm<sup>2</sup>;  $P = 0.009$ ) and volume (890.7 mm<sup>3</sup>;  $P = 0.029$ ) were significantly lower in the UCLP compared to the control group. Limitations A smaller part of the subjects was in late mixed dentition phase. To overcome this limitation a matched control group was used. In seven subjects with UCLP, some teeth were missing, which might have had an influence on the dental measurements. However, these subjects could not be excluded because eliminating more severely affected subjects, would have introduced bias. Conclusions Three-dimensional evaluation of the maxillary arch and palate highlighted significant differences between UCLP and non-UCLP subjects in mixed dentition phase, suggesting that orthopaedic maxillary expansion is advisable in UCLP.

**Pediatric cleft palate patients show a 3- to 5-fold increase in cumulative radiation exposure from dental radiology compared with an age- and gender-matched population: a retrospective cohort study.**

**Author(s):** Jacobs, Reinhilde; Pauwels, Ruben; Scarfe, William C; De Cock, Carl; Dula, Karl;

**Source:** Clinical oral investigations; Nov 2017

**Publication Type(s):** Journal Article

**Abstract:** OBJECTIVE The objective of the study was to compare estimates of pediatric cumulative exposure and lifetime attributable risk (LAR) of radiation-induced cancer from dental radiology between cleft palate (CP) subjects and age- and gender-matched controls (non-CP), with and without orthodontic treatment. MATERIALS AND METHODS The radiation exposure frequency of CP subjects and non-CP controls with and without orthodontic treatment was compared for two-dimensional radiography (intra-oral, panoramic and cephalometric radiography), computed tomography (CT), and cone-beam CT (CBCT) using cumulative radiation dose as an estimate. From this dose estimate, the age- and gender-dependent risk for radiation-induced stochastic effects was



calculated for each patient group. RESULTSCP patients received more radiographic examinations than non-CP controls, with the exception of intra-oral radiographs. The cumulative dose to CP patients was considerably higher (1963  $\mu$ Sv at the age of 20 years) than non-CP patients with (597  $\mu$ Sv) and without (383  $\mu$ Sv) orthodontic treatment, primarily due to the higher frequency of CT scanning. Accordingly, CP patients had a three to five times higher LAR than non-CP patients. CONCLUSIONSThis study suggests a significantly higher lifetime radiation exposure to CP patients than non-CP controls from dental radiographic procedures. Diagnostic benefits from the use of CT and CBCT in children must be justified and appropriate dose optimization strategies implemented. CLINICAL RELEVANCEThe present study indicates the need for proper justification and optimization of pediatric exposures in dentistry, with a special focus on high-risk groups.

### **Economic Evaluation of Teledentistry in Cleft Lip and Palate Patients.**

**Author(s):** Teoh, Jonathan; Hsueh, Arthur; Mariño, Rodrigo; Manton, David; Hallett, Kerrod

**Source:** Telemedicine journal and e-health : the official journal of the American Telemedicine Association; Nov 2017

**Publication Type(s):** Journal Article

**Abstract:** OBJECTIVETo assess the use of Teledentistry (TD) in delivering specialist dental services at the Royal Children's Hospital (RCH) for rural and regional patients and to conduct an economic evaluation by building a decision model to estimate the costs and effectiveness of Teledental consultations compared with standard consultations at the RCH. METHODSA model-based analysis was conducted to determine the potential costs of implementing TD at the RCH. The outcome measure was timely consultations (whether the patient presented within an appropriate time according to the recommended schedule). Dental records at the RCH of those who presented for orthodontic or pediatric dental consultations were assessed. A cost-effectiveness analysis (CEA), comparing TD with the traditional method of consultation, was conducted. One-way sensitivity analysis was performed to test the robustness of the results. Results and Materials: A total of 367 TD appropriate consultations were identified, of which 241 were timely (65.7%). The mean cost of a RCH consultation was A\$431.29, with the mean TD consult costing A\$294.35. This represents a cost saving of A\$136.95 per appointment. The CEA found TD to be a dominant option, with cost savings of A\$3,160.81 for every additional timely consult. The model indicated that 36.7 days of clinic time may be freed up at the RCH to treat other patients and expand capacity. These results were robust when performing one-way sensitivity analysis. CONCLUSIONWhen taking a societal perspective, the implementation of TD is likely to be a cost-effective alternative compared with the standard practice of face-to-face consultation at the RCH.

### **Dental enamel defect diagnosis through different technology-based devices.**

**Author(s):** Kobayashi, Tatiana Yuriko; Vitor, Luciana Lourenço Ribeiro;

**Source:** International dental journal; Nov 2017

**Publication Type(s):** Journal Article

**Abstract:** INTRODUCTIONDental enamel defects (DEDs) are faulty or deficient enamel formations of primary and permanent teeth. Changes during tooth development result in hypoplasia (a quantitative defect) and/or hypomineralisation (a qualitative defect). OBJECTIVETo compare technology-based diagnostic methods for detecting DEDs. MATERIAL AND METHODSTwo-hundred and nine dental surfaces of anterior permanent teeth were selected in patients, 6-11 years of age, with cleft lip with/without cleft palate. First, a conventional clinical examination was conducted according to the modified Developmental Defects of Enamel Index (DDE Index). Dental surfaces were

evaluated using an operating microscope and a fluorescence-based device. Interexaminer reproducibility was determined using the kappa test. To compare groups, McNemar's test was used. Cramer's V test was used for comparing the distribution of index codes obtained after classification of all dental surfaces. RESULTSCramer's V test revealed statistically significant differences ( $P < .0001$ ) in the distribution of index codes obtained using the different methods; the coefficients were 0.365 for conventional clinical examination versus fluorescence, 0.961 for conventional clinical examination versus operating microscope and 0.358 for operating microscope versus fluorescence. The sensitivity of the operating microscope and fluorescence method was statistically significant ( $P = .008$  and  $P < .0001$ , respectively). Otherwise, the results did not show statistically significant differences in accuracy and specificity for either the operating microscope or the fluorescence methods. CONCLUSIONThis study suggests that the operating microscope performed better than the fluorescence-based device and could be an auxiliary method for the detection of DEDs.

### **Treatment of Maxillary Hypoplasia in Cleft Lip and Palate: Segmental Distraction Osteogenesis With Hyrax Device.**

**Author(s):** Fariña, Rodrigo; Diaz, Alejandro; Pantoja, Roberto; Bidart, Carolina

**Source:** The Journal of craniofacial surgery; Nov 2017

**Publication Type(s):** Journal Article

**Abstract:**The objective of this work is to describe a segmental maxillary distraction osteogenesis (SDO) with segmental Lefort I with an inexpensive device.Four patients who presented severe class III and maxillary hypoplasia due to cleft lip and palate sequel were treated. A SDO was performed using a dental-anchored Hyrax device, achieving enlargement of the upper jaw without altering speech, with adequate and stable occlusion. Dental implants in a new formed bone were installed.The authors can conclude that SDO is a good treatment alternative for patients with maxillary hypoplasia. It preserves velopharyngeal function and is a stable treatment, maintaining the overjet achieved with distraction osteogenesis, without changes in posterior occlusion. The open bite generated with tooth-borne devices can be solved with temporary anchorage devices and intermaxillary elastics during consolidation phase. Modified Hyrax device allows expanding and moving forward the maxillary arch, with a low cost.

### **Alignment Strategy for Constricted Maxillary Dental Arch in Patients With Unilateral Cleft Lip and Palate Using Fixed Orthodontic Appliance.**

**Author(s):** Park, Yoon-Hee; Park, Sumin; Baek, Seung-Hak

**Source:** The Journal of craniofacial surgery; Nov 2017

**Publication Type(s):** Journal Article

**Abstract:**The purpose of this study was to compare the alignment pattern of the constricted maxillary dental arch by fixed orthodontic treatment (FOT) in the well-aligned and constricted arches of unilateral cleft lip and palate (UCLP) patients. 19 UCLP patients were divided into Group 1 (well-aligned arch,  $n = 9$ ) and Group 2 (constricted arch,  $n = 10$ ). After the cephalometric and maxillary dental arch variables before (T1) and after FOT (T2) were measured, statistical analysis was performed. There were no significant differences in the surgical timing of cheiloplasty, palatoplasty, and secondary alveolar bone grafting and in the surgical method of cheiloplasty between the 2 groups. However, Group 2 had a higher percentage of palatoplasty method, which could leave the denuded bone for secondary healing than Group 1 ( $P < 0.05$ ). Although Group 2 showed more constriction and asymmetry in the maxillary dental arch compared to Group 1 at the T1 stage (inter-second premolar width, greater segment angle [GSA], and lesser segment angle [LSA], all  $P < 0.05$ ),

these problems could be effectively resolved by FOT. As a result, at the stage T2, there was no significant difference in all the variables between the 2 groups. During T1-T2, there was a different pattern in change of variables between Groups 1 and 2 (anterior segment angle in the greater segment [ $P < 0.05$ ] in Group 1 and U1-SN [ $P < 0.01$ ], inter-molar width [ $P < 0.05$ ], GSA [ $P < 0.05$ ], and LSA [ $P < 0.01$ ] in Group 2). Therefore, according to the maxillary dental arch shape, different strategy is necessary to obtain proper alignment by FOT.

### **Dentoalveolar Effects of Early Orthodontic Treatment in Patients With Cleft Lip and Palate.**

**Author(s):** Cassi, Diana; Di Blasio, Alberto; Gandolfini, Mauro; Magnifico, Marisabel

**Source:** The Journal of craniofacial surgery; Nov 2017; vol. 28 (no. 8); p. 2021-2026

**Publication Type(s):** Journal Article

**Abstract:** No agreement exists on the most appropriate timing of orthodontic treatment in patients with cleft lip and palate. The aim of this study is to investigate the effect of early orthodontic treatment on development of the dental arches and alveolar bone. A dental casts analysis was performed on 28 children with cleft lip and palate before orthodontic treatment (T0; mean age,  $6.5 \pm 1.7$ ) and at the end of active treatment (T1; mean age,  $9.2 \pm 2.1$  years). The considered variables were: intercanine and intermolar distances; dental arch relationships, evaluated according to the modified Huddart/Bodenham system. The study group was divided into 2 samples according to the age at T0: Group A (age  $< 6$  years) and Group B (age  $\geq 6$  years). A statistical comparison of the treatment effects between the 2 samples was performed. Patients in Group A exhibited a greater increase of intercanine distance (8 mm versus 2.7 mm;  $P < 0.001$ ), intermolar distance (7.2 mm versus 5 mm;  $P = 0.06$ ), and Huddart/Bodenham score (7.1 versus 3;  $P < 0.05$ ) when compared with patients in Group B. Early orthodontic treatment strongly improved the dental arch relationship, since subjects starting the therapy before the age of 6 had a better response in terms of anterior maxillary expansion.

### **Effects of pre-surgical nasoalveolar moulding on maxillary arch and nasal form in unilateral cleft lip and palate before lip surgery.**

**Author(s):** Fuchigami, T; Kimura, N; Kibe, T; Tezuka, M; Amir, M S; Suga, H; Takemoto, Y

**Source:** Orthodontics & craniofacial research; Nov 2017; vol. 20 (no. 4); p. 209-215

**Publication Type(s):** Journal Article

**Abstract:** **OBJECTIVE** To investigate the effects of pre-surgical nasoalveolar moulding (PNAM) on the maxillary arch and nasal form in patients with unilateral cleft lip and palate (UCLP). **SETTING AND SAMPLE POPULATION** This is a retrospective case series study. The subjects were infants with complete UCLP who were treated with PNAM ( $n = 18$ ) at Kagoshima University Medical and Dental Hospital (Japan) between 2006 and 2013. **MATERIAL AND METHODS** Maxillary dental casts and facial photographs were taken at the time of the first visit and immediately prior to lip surgery to evaluate the maxillary arch and nasal form changes. The dental casts were scanned with a laser scanner, and changes in the 3-Dimensional coordinates of anatomical landmarks and alveolar cleft width were analysed. Moreover, we investigated the correlation between the changes in the maxillary alveolar arch and nasal form. **RESULTS** Regarding the maxillary alveolar arch form, the anterior points of the major segment had moved significantly to the cleft side just prior to the time of lip repair, and the alveolar cleft width was significantly decreased. For nasal form, the inclination and displacement of the columella were significantly improved. The improvement of columella inclination was moderately correlated with the posterior movement of the anterior points of the major segment. **CONCLUSION** These findings indicate that PNAM for infants with UCLP enhanced symmetry

in the maxillary alveolar arch and nasolabial form. In addition, the posterior movement of the anterior points of the maxillary alveolar arch was correlated with the improvement of columella deformation.

**Longitudinal dental maturation of children with complete unilateral cleft lip and palate: A case-control cohort study.**

**Author(s):** Tan, E L Y; Kuek, M C; Wong, H C; Yow, M

**Source:** Orthodontics & craniofacial research; Nov 2017; vol. 20 (no. 4); p. 189-195

**Publication Type(s):** Journal Article

**Abstract:**OBJECTIVES Many reports suggest that children with cleft lip and palate (CLP) have delayed dental development and asymmetrical timing of tooth-pair formation. We aimed to investigate the dental maturation of permanent teeth in children with complete unilateral CLP (UCLP) and compare the findings with non-CLP children. SETTING AND SAMPLE POPULATION This case-control study used 115 radiographs of children with complete UCLP and controls (non-CLP children matched on age, gender and ethnicity) from a hospital-based dental clinic in Singapore. MATERIAL AND METHODS Orthopantomographs of 60 children with complete UCLP (5-9 years old) and 55 children (9-13 years old) from the same cohort were investigated using the Demirjian's method and compared with controls to determine if there were any differences in dental maturation with age. RESULTS Delayed dental maturation was found in the 5- to 9-year-old children with UCLP compared to controls by 0.55 years (standard deviation: 0.75) ( $P < .001$ ). There was no significant difference between the dental maturation of children with UCLP and controls in the 9- to 13-year-old group ( $P = .744$ ). The group with UCLP had higher risk of asymmetrically developing tooth pairs than the control group for both age groups ( $P < .001$ ). CONCLUSION No difference in dental maturation between UCLP and controls in the 9- to 13-year-old group was found. However, there was diametrical difference in dental maturation in the 5- to 9-year-old group, which attenuated as they grew older. There was a consistently higher risk of asymmetrical tooth formation in children with UCLP than in controls.

**Is Linear Advancement Related to Relapse in Unilateral Cleft Lip and Palate Orthognathic Surgery?**

**Author(s):** Watts, Guy D.; Antonarakis, Gregory S.; Forrest, Christopher R.; Tompson, Bryan D.

**Source:** Cleft Palate-Craniofacial Journal; Nov 2015; vol. 52 (no. 6); p. 717-723

**Publication Type(s):** Academic Journal

Available at [Cleft Palate-Craniofacial Journal](#) - from ProQuest (Hospital Premium Collection) - NHS Version

**Abstract:**Objective: To investigate the stability of major versus minor Le Fort I maxillary advancements in unilateral cleft lip and palate (UCLP) patients. Design: A retrospective longitudinal study was undertaken on 30 nonsyndromic UCLP patients treated with the same protocol at The Hospital for Sick Children, Toronto, Canada. Patients were grouped into major and minor movement groups based on planned surgical advancement. Standard lateral cephalometric radiographs were taken preoperatively (T1), immediately postoperatively (T2), and at least 1 year postoperatively (T3). Skeletal and dental variables were measured using cephalometric analysis. Stability was compared between groups using repeated-measures analysis of variance. Linear regression analysis was used to assess the relationship between advancement and relapse for the entire study population. Results: A mean maxillary advancement of 9.8 mm and 4.9 mm was seen for the major ( $n = 10$ ) and minor ( $n = 20$ ) movement groups, respectively. The mean skeletal horizontal relapse was 1.8 mm (18%) for the major advancement group and 1.5 mm (31 %) for the minor advancement group.

There was no significant difference in skeletal horizontal relapse between the groups ( $P > .05$ ). The correlation coefficient ( $r$ ) between linear horizontal advancement and relapse was calculated to be .31 ( $P > .05$ ). Dental horizontal relapse was not significant for either the major or minor groups, and no significant difference was found between the groups ( $P > .05$ ). Conclusion: Skeletal and dental relapse was found to be unrelated to the amount of maxillary linear advancement using conventional Le Fort I osteotomies in UCLP.

## Periodontal disease and antibiotics

### 1. Electrospun polycaprolactone nanofibres decorated by drug loaded chitosan nano-reservoirs for antibacterial treatments.

**Author(s):** Guarino, Vincenzo; Cruz-Maya, Iriczalli; Altobelli, Rosaria; Abdul Khodir, W K;

**Source:** Nanotechnology; Dec 2017; vol. 28 (no. 50); p. 505103

**Publication Type(s):** Journal Article

**Abstract:**The main limitation of conventional antibiotic therapies concerns the low efficacy to fight bacteria attacks during long treatment times. In this context, the integrated use of electrofluidodynamics (EFDs)-basically electrospinning and electrospraying-may represent an interesting route for designing nanostructured platforms with controlled release to prevent the formation of bacterial biofilms in oral implant sites. They allow for the deposition of nanofibres and nanoparticles by different modes-i.e. sequential, simultaneous-for the fabrication of more efficacious systems in terms of degradation protection, pharmacokinetic control and drug distribution to the surrounding tissues. Herein, we will investigate EFDs processing modes and conditions to decorate polycaprolactone nanofibres surfaces by chitosan nano-reservoirs for the administration of Amoxicillin Trihydrate as an innovative antibacterial treatment of the periodontal pocket.

### Microbiologic Response to Periodontal Therapy and Multivariable Prediction of Clinical Outcome.

**Author(s):** Mombelli, Andrea; Almaghlouth, Adnan; Cionca, Norbert; Cancela, José

**Source:** Journal of periodontology; Dec 2017; vol. 88 (no. 12); p. 1253-1262

**Publication Type(s):** Journal Article

**Abstract:**BACKGROUND This study assesses the microbiologic effects of a two-phase antimicrobial periodontal therapy and tested microbiologic, clinical, and biologic markers as prognostic indicators for clinical success. METHODSEighty patients with chronic or aggressive periodontitis received periodontal treatment supplemented with 375 mg amoxicillin plus 500 mg metronidazole, three times daily for 7 days. In group A, antibiotics were given during the first non-surgical phase (T1); in group B, antibiotics were given during the second surgical phase (T2). Six microorganisms, group assignment, demographic and clinical variables, peak values of 15 cytokines, and nine acute-phase proteins in serum were evaluated as potential predictors of at least one site with probing depth (PD)  $>4$  mm and bleeding on probing (BOP) at 12 months post-therapy. RESULTST1 decreased the counts of Porphyromonas gingivalis, Tannerella forsythia, Prevotella intermedia (Pi), and Treponema denticola significantly more in group A than group B. Aggregatibacter actinomycetemcomitans and Parvimonas micra (Pm) showed a significant decrease only if the treatment was supplemented with antibiotics, i.e., T1 in group A, or T2 in group B. After T2, differences between groups were no longer significant. A multivariable model including four parameters revealed a predictive value of Pm (odds ratio [OR] = 4.38,  $P = 0.02$ ) and Pi (OR = 3.44,  $P = 0.049$ ) and yielded moderate accuracy for predicting the treatment outcome (area under the curve = 0.72). Host-derived factors and treatment sequence were not significantly associated with the outcome. CONCLUSIONS Long-term microbiologic

outcomes of periodontal therapy with adjunctive antibiotics either in T1 or T2 were similar. Detection of Pm before therapy was a predictor for persistence of sites with PD >4 mm and BOP at 12 months post-treatment.

### **Evaluation of Post-surgical Bacteremia with Use of Povidone-Iodine and Chlorhexidine During Mandibular Third Molar Surgery.**

**Author(s):** Managutti, Anil; Managutti, Sunita A; Patel, Jigar; Puthanakar, Nagaraj Y

**Source:** Journal of maxillofacial and oral surgery; Dec 2017; vol. 16 (no. 4); p. 485-490

**Publication Type(s):** Journal Article

Available at [Journal of Maxillofacial and Oral Surgery](#) - from Europe PubMed Central - Open Access

**Abstract:**BACKGROUND Microorganisms may invade the blood stream by oral routes through surgical procedures like extractions, fractured teeth and periodontal pockets. The incidence of bacteremia is 70-80 % following tooth extraction, sub gingival scaling and intra ligament injection. AIMS AND OBJECTIVES Aim of study was to evaluate and compare the efficacy of two topical antimicrobial agents for the prevention of post-surgical bacteremia during mandibular third molar surgery. And objectives were to suggest need of proper topical antimicrobial agents and select proper antibiotics before oral surgical procedures in high risk cardiac patients. MATERIALS AND METHODS Thirty patients with Class 1, Position B mesioangular impacted mandibular third molar were randomly included in study and divided into 3 groups, each group containing 10 patients. Group I; sterile water group, Group II: povidone-iodine (5 %) group, Group III: chlorhexidine (Q, 2 %) group, pre and post-surgical blood samples were collected and Microbiological analyses of the blood samples were done. The organisms were identified by standard method on grams staining and identification of bacterial species by biochemical tests. RESULTS The clinical parameters like oral hygiene index simplified and periodontal index of Russel showed that all patients in three groups had fair oral hygiene with simple gingivitis on mean. In some individuals with slightly higher OHIS and PI scores, bacteremia was noted. All the pre surgical blood samples were negative for the growth of bacteria after 7 days of culture. In total 30 patients, 12 subjects had postoperative bacteremia. Out of those 12 patients 6 cases (60 %) of group I showed positive bacterial growth in the post surgical blood sample, while 4 cases in group III and 2 cases (20 %) in group II showed the same. CONCLUSION Use of povidone-iodine and chlorhexidine prior to the oral surgical procedures decreases the incidence of bacteremia as compared to sterile water irrigation. Povidone-iodine significantly reduces the incidence bacteremia and number of organisms compared to chlorhexidine and sterile water.

### **Revascularization-associated Intracanal Calcification: Assessment of Prevalence and Contributing Factors.**

**Author(s):** Song, Minju; Cao, Yangpei; Shin, Su-Jung; Shon, Won-Jun; Chugal, Nadia; Kim, Reuben H

**Source:** Journal of endodontics; Dec 2017; vol. 43 (no. 12); p. 2025-2033

**Publication Type(s):** Journal Article

**Abstract:**INTRODUCTION Intracanal calcifications have been reported in endodontic cases after revascularization. The purpose of the current study was to determine the incidence of intracanal calcification and potential contributing factors in retrospective revascularization cases. METHODS Among 37 patients who had undergone revascularization between 2010 and 2014, 29 cases were assessed with average follow-up period of 24.9 months. Clinical and radiographic examinations were performed to evaluate the treatment outcomes, eg, resolution of apical periodontitis (AP), root development, and occurrence of intracanal calcification. Radiographic assessment revealed varied calcification patterns, which were classified into calcific barrier or canal obliteration, collectively referred to as revascularization-associated intracanal calcification

(RAIC).RESULTS All 29 cases demonstrated resolution of AP, whereas continued root development with apical closure occurred in 23 of 29 cases (79.3%). RAIC was noted in 18 of 29 cases (62.1%), among which 5 of 18 cases (27.8%) were classified as calcific barrier and 13 of 18 cases as canal obliteration (72.2%). Higher frequency of RAIC was noted in the cases with induced bleeding (16 of 23 cases, 69.6%), whereas the 6 cases without induced bleeding showed RAIC at 33.4%. Also, RAIC occurred more frequently in cases medicated with Ca(OH)<sub>2</sub> (10 of 13 cases, 76.9%) than in those medicated with antibiotic pastes (6 of 13 cases, 46.2%).CONCLUSION This study indicated that RAIC is common (62.1%) among cases treated with revascularization. Multiple contributing factors may include the type of medicaments and induction of intracanal bleeding. Although RAIC does not interfere with resolution of AP, some cases may progress to complete obliteration of root canals and would impede normal function of dental pulp tissues.

### **Surgical treatment of peri-implantitis intrabony lesions by means of deproteinized bovine bone mineral with 10% collagen: 7-year-results.**

**Author(s):** Rocuzzo, Mario; Pittoni, Dario; Rocuzzo, Andrea; Charrier, Lorena; Dalmasso, Paola

**Source:** Clinical oral implants research; Dec 2017; vol. 28 (no. 12); p. 1577-1583

**Publication Type(s):** Journal Article

**Abstract:**OBJECTIVE The aim of this study was to evaluate the long-term results of the surgical treatment of single peri-implantitis intrabony defects, by means of deproteinized bovine bone mineral with 10% collagen (DBBMC).MATERIAL AND METHODS The original population consisted of 26 patients with one crater-like defect, around either sandblasted and acid-etched (SLA) or titanium plasma-sprayed (TPS) dental implants, with a probing depth (PD)  $\geq 6$  mm and no implant mobility (Rocuzzo et al. J Clin Periodontol. 2011; 38: 738). Implants were mechanically debrided and treated using EDTA gel and chlorhexidine gel. The bone defects were filled with DBBMC, and the flap was sutured around the non-submerged implant. Patients were placed on an individually tailored supportive periodontal therapy (SPT).RESULT Two patients were lost to follow-up. During SPT, additional antibiotic and/or surgical therapy was necessary in eight implants, and four of these were removed for biologic complications. At 7-year, the survival rate was 83.3% for SLA implants and 71.4% for TPS. PD was significantly reduced from  $6.6 \pm 1.3$  to  $3.2 \pm 0.7$  mm in SLA and  $7.2 \pm 1.5$  to  $3.4 \pm 0.6$  mm in TPS. Bleeding on probing decreased from  $75.0 \pm 31.2\%$  to  $7.5 \pm 12.1\%$  (SLA) and from  $90.0 \pm 12.9\%$  to  $30.0 \pm 19.7\%$  (TPS). When successful therapy was defined as PD  $\leq 5$  mm, absence of bleeding/suppuration on probing, and no further bone loss, treatment success was obtained in 2 of 14 (14.3%) of the TPS and in 7 of 12 (58.3%) of the SLA implants.CONCLUSION Seven years after surgical treatment with DBBMC, patients, in an adequate SPT, maintained sufficient peri-implant conditions in many cases, particularly around SLA implants. Nevertheless, some patients required further treatment and some lost implants. The clinical decision on whether implants should be treated or removed should be based on several factors, including implant surface characteristics.

### **Periodontal treatment in private dental practice: a case-based survey.**

**Author(s):** Darby, I; Barrow, S-Y; Cvetkovic, B; Musolino, R; Wise, S; Yung, C; Bailey, D

**Source:** Australian dental journal; Dec 2017; vol. 62 (no. 4); p. 471-477

**Publication Type(s):** Journal Article

**Abstract:**BACKGROUND This study aimed to assess the management and referral patterns of Victorian general dental practitioners based on periodontal diagnosis.METHODS Following ethics approval, Victorian general dental practitioners were invited to complete five randomized text-based periodontitis scenario questionnaires. Based on their diagnosis, respondents were asked for their management options and asked to specify who would perform these treatments. Respondents were also asked about referral procedures.RESULTS One hundred and thirty-five dentists attempted the

survey. Most were in group practice and based in Melbourne. Of the total respondents, 22.5% worked in a practice employing a hygienist. The management of periodontal disease was appropriate, and treatment options increased with severity. As severity increased, patients were more likely to be referred to a periodontist. Periodontal services referred by general dentists to dental hygienists increased with the number of days the hygienists worked within a practice. Over- and underdiagnosis did not markedly affect management. The recommendation of antibiotics, mouthwashes and periodontal surgery varied depending on year and school of graduation. **CONCLUSION** The general dentists that completed the survey are managing periodontal conditions appropriately and according to current guidelines.

### **Full-Mouth Rehabilitation with Calvarium Bone Grafts and Dental Implants for a Papillon-Lefèvre Syndrome Patient: Case Report.**

**Author(s):** Kinaia, Bassam M.; Hope, Kristyn; Zuhaili, Ahmed; Tulasne, Jean Francois

**Source:** International Journal of Oral & Maxillofacial Implants; Nov 2017; vol. 32 (no. 6)

**Publication Type(s):** Academic Journal

**Abstract:** Papillon-Lefèvre syndrome (PLS) is a rare autosomal recessive disorder of keratinization associated with palmoplantar keratoderma and severe periodontitis resulting in complete edentulism in late adolescence. The pathognomonic dental features of PLS are pathologic migration, hypermobility and exfoliation of the teeth without any signs of root resorption. It has been suggested that an effective way to treat PLS patients presenting early in the disease progression is extraction of the erupted primary dentition or hopeless permanent teeth followed by antibiotic coverage with periodontal therapy for the remaining teeth. Unfortunately, studies have shown that this regimen only temporarily delays the progression of periodontal disease and does not prevent further tooth loss and bone destruction in the long term. Post-tooth loss, atrophic ridges make conventional prosthodontic rehabilitation quite challenging and more recently, implant-supported prostheses have been considered as a viable alternative. In a PLS patient, implant placement is complicated by inadequate bone volume; thus, bone augmentation techniques or the use of short implants is often considered. When large volumes of bone are required, parietal calvarium bone can be used to predictably reconstruct severe defects. A PLS patient aged 21 years presented a chief complaint of ill-fitting conventional complete dentures. The patient had severely atrophic ridges, requiring significant bone augmentation for an implant-supported prosthesis. The present case is the first example of bone augmentation using autogenous calvarium parietal graft followed by endosseous implant placement and prosthetic restoration in a PLS patient.

### **Microbial colonization of the periodontal pocket and its significance for periodontal therapy.**

**Author(s):** Mombelli, Andrea

**Source:** Periodontology 2000; Nov 2017

**Publication Type(s):** Journal Article Review

**Abstract:** The aim of this paper was to evaluate strategies for periodontal therapy from the perspective of periodontal disease being a consequence of microbial colonization of the periodontal pocket environment. In classic bacterial infections the diversity of the microbiota decreases as the disease develops. In most cases of periodontitis, however, the diversity of the flora increases. Most incriminating bacteria are thought to harm tissues significantly only if present in high numbers over prolonged periods of time. Clinical trials have repeatedly demonstrated that scaling and root planing, a procedure that aims to remove subgingival bacterial deposits by scraping on the tooth surface within the periodontal pocket, is effective. At present, for the therapy of any form of periodontal disease, there exists no protocol with proven superiority, in terms of efficiency or effectiveness, over scaling and root planing plus systemic amoxicillin and metronidazole. Some



exponents advocate rationing these drugs for patients with a specific microbial profile. However, the evidence for any benefit of bacteriology-assisted clinical protocols is unsatisfactory. Treated sites are subject to recolonization with a microbiota similar to that present before therapy. The degree and speed of recolonization depends on the treatment protocol, the distribution patterns of periodontal microorganisms elsewhere in the oral cavity and the quality of the patient's oral hygiene. To limit the use of antibiotics and to avoid accumulation of harmful effects by repeated therapy, further efforts must be made to optimize procedures addressing the microbial colonization and recolonization of the periodontal pocket.

### **Reduced antibiotic prescription rates following physician-targeted interventions in a dental practice.**

**Author(s):** Kim, Hyesung; Oh, Jeong Kyu; Kim, Myeng Ki; Bae, Kwanghak; Choi, Hyungkil

**Source:** Acta odontologica Scandinavica; Nov 2017 ; p. 1-8

**Publication Type(s):** Journal Article

**Abstract:**BACKGROUND The prescription rate for antibiotics in dental clinics is not declining despite the increase in the antibiotic resistance problem. In this study, we observed the change in antibiotic prescription rates by dentists in a Korean dental hospital for various treatments after conducting interventions targeting dentists. METHOD The first intervention was to distribute guidelines. The second intervention was to remove the bundled prescription button containing antibiotics from the Electronic Medical Record system. A total of 22,098 treatment records were divided into 12 main treatment categories, and Chi-square tests and logistic regression analyses were performed. RESULTS After the interventions were applied, the overall prescription rate for antibiotics dropped. The antibiotic prescription rate decreased by an odds ratio of 0.774 (95% CI: 0.686-0.873) after intervention 1 and by an odds ratio of 0.574 (95% CI: 0.501-0.658) after intervention 2. The treatments with significantly reduced antibiotic prescription rates were extraction for orthodontic treatment, dental implant surgery, extraction of an impacted tooth and general extraction. These treatments are typically performed in patients without an active infection. The prescription rate did not change for periodontal treatments or endodontic treatments, which are usually performed in patients with an infection. The prescription rate also remained constant for minor operations and other basic treatments. CONCLUSION The interventions induced behavioural changes in the dentists and were effective in lowering the antibiotic prescription rates in a dental hospital. In particular, there was a significant reduction in the prescription rates for implant surgery and tooth extraction in the absence of infection.

### **Histological Evaluation of the Effect of Platelet-rich Plasma on Pulp Regeneration in Nonvital Open Apex Teeth: An Animal Study.**

**Author(s):** Ghoddusi, Jamileh; Maghsudlu, Amir; Jafarzadeh, Hamid; Jafarian, Amirhossein;

**Source:** The journal of contemporary dental practice; Nov 2017; vol. 18 (no. 11); p. 1045-1050

**Publication Type(s):** Journal Article

**Abstract:**AIM Platelet-rich plasma (PRP), which is a concentration of growth factors found in platelets, may be a suitable material for pulp regeneration. The aim of this animal study was a histological evaluation of PRP on pulp regeneration in nonvital teeth with immature apices. MATERIALS AND METHODS A total of 40 premolar dogs' teeth were chosen for this study. After general anesthesia, the teeth were exposed, and subsequently, pulps were removed and the cavities were opened to the oral cavity. After 2 weeks, root canals were irrigated and disinfected with sodium hypochlorite with noninstrumentation technique, and triple antibiotic paste was placed inside the canals. Cavities were sealed with a temporary restoration. About 4 weeks later, canals were irrigated again and the teeth were randomly divided into three groups. Bleeding was evoked

with overinstrumentation, then experimental materials for each group [PRP, mineral trioxide aggregate (MTA), and parafilm respectively] were placed over the bleeding, and orifices were sealed with MTA and glass ionomer. After 3 months, dogs were sacrificed and the teeth were separated from the jaws and sections prepared for histological evaluation. RESULTS Regeneration was shown in 44.7% of the samples. About 47.3% of the samples in the MTA group and 42.1% of the samples in the PRP group showed regeneration; however, no regeneration was observed in the parafilm group. Chi-square test showed no significant difference between groups I and II. The soft regenerative tissue included pulp-like tissue and vessels. Mineralized regenerative tissue included cementum-like, periodontal ligament-like, and bone-like tissues. No normal pulp and nerve tissue were observed. CONCLUSION Both PRP and MTA may be ideal scaffolds to accelerate the regeneration process. CLINICAL SIGNIFICANCE Pulp repair in immature permanent teeth with weak roots has a better outcome than replacement of the pulp with gutta-percha or biomaterials.

### **Effects on HbA1c in diabetic patients of adjunctive use of systemic antibiotics in nonsurgical periodontal treatment: A systematic review.**

**Author(s):** Lira Junior, Ronaldo; Santos, Caroline de Moura Martins; Oliveira, Branca Heloisa

**Source:** Journal of dentistry; Nov 2017; vol. 66 ; p. 1-7

**Publication Type(s):** Journal Article Review

**Abstract:** OBJECTIVE To assess the effects of adjunctive use of systemic antibiotics in nonsurgical periodontal treatment compared to nonsurgical periodontal treatment alone, on mean glycated hemoglobin (HbA1c) reductions in patients with diabetes. DATA Two independent reviewers screened six electronic databases, registers of clinical trials, meeting abstracts and four major dental journals for controlled clinical trials with at least 3-month follow-up. SOURCES After duplicates removal, electronic and hand searches yielded 2136 records; 32 full-text articles were independently read by two reviewers. To evaluate the additional effect of antibiotic usage, pooled weighted mean differences and 95% confidence intervals were calculated using fixed and random effects models. STUDY SELECTION Twelve studies met the inclusion criteria, nine of which provided data that allowed their inclusion in meta-analyses. The meta-analyses showed no significant effect favouring scaling and root planing (SRP) plus antibiotic for reductions in mean HbA1c (-0.11% [-0.35, 0.13]; 6 studies), and an estimated prediction interval varying from -0.45 to 0.23. There was also no significant effect favouring the adjunctive usage of sub-antimicrobial doxycycline in HbA1c mean reduction (-0.19% [-1.04, 0.67]; 2 studies). CONCLUSION Adjunctive use of systemic antibiotic provides no statistically significant benefit in terms of HbA1c improvement in periodontal treatment of patients with diabetes. CLINICAL SIGNIFICANCE Adjunctive use of systemic antibiotics associated with nonsurgical periodontal treatment provides no additional benefit in terms of HbA1c of diabetic patients. Clinicians should weigh the trade-off between risks and benefits provided by the use of systemic antibiotics before prescribing them for periodontal disease treatment.

### **An injectable in situ gel with cubic and hexagonal nanostructures for local treatment of chronic periodontitis.**

**Author(s):** Mei, Liling; Xie, Yecheng; Huang, Xintian; Chen, Jintian; Huang, Ying; Wang, Bei;

**Source:** Drug delivery; Nov 2017; vol. 24 (no. 1); p. 1148-1158

**Publication Type(s):** Journal Article

Available at [Drug Delivery](#) - from EBSCO (MEDLINE Complete)

**Abstract:** Periodontitis is a chronic bacterial infection, and its effective treatment is dependent on the retention of antibiotics of effective concentrations at the periodontal pockets. In this study, a solution-gel based inverse lyotropic liquid crystalline (LLC) system was explored to deliver

metronidazole to the periodontal pockets for local treatment of periodontitis. It was found that the metronidazole-loaded LLC precursor spontaneously transformed into gel in the presence of water in the oral cavity. The low viscosity of the precursor would allow its penetration to the rather difficult to reach infection sites, while the adhesiveness and crystalline nanostructures (inverse bicontinuous cubic Pn3m phase and inverse hexagonal phase) of the formed gel would permit its firm adhesion to the periodontal pockets. The LLC system provided sustained drug release over one week in vitro. Results from in vivo study using a rabbit periodontitis model showed that the LLC system was able to maintain the metronidazole concentrations in the periodontal pockets above the minimum inhibition concentration for over 10 days without detectable drug concentration in the blood. Owing to the spontaneous solution-gel transition in the periodontal pockets and unique liquid crystalline nanostructures, the LLC in situ gel provided effective treatment of periodontitis for a prolonged period of time with reduced systematic side effects, compared to metronidazole suspension which was effective for 24 h with detectable metronidazole concentrations in the blood after 6 h.

## Dental-related head and neck oncology

### **Dual-Energy CT: Balance Between Iodine Attenuation and Artifact Reduction for the Evaluation of Head and Neck Cancer.**

**Author(s):** Nair, Jaykumar R; DeBlois, François; Ong, Thomas; Devic, Slobodan; Tomic, Nada

**Source:** Journal of computer assisted tomography; ; vol. 41 (no. 6); p. 931-936

**Publication Type(s):** Journal Article

**Abstract:**OBJECTIVEDual-energy computed tomography high energy virtual monochromatic images (VMIs) can reduce artifact but suppress iodine attenuation in enhancing tumor. We investigated this trade-off to identify VMI(s) that strike the best balance between iodine detection and artifact reduction.METHODSThe study was performed using an Alderson radiation therapy phantom. Different iodine solutions (based on estimated tumor iodine content in situ using dual-energy computed tomography material decomposition) and different dental fillings were investigated. Spectral attenuation curves and quality index (QI:  $1/SD$ ) were evaluated.RESULTSThe relationship between iodine attenuation and QI depends on artifact severity and iodine concentration. For low to average concentration solutions degraded by mild to moderate artifact, the iodine attenuation and QI curves crossed at 95 keV.CONCLUSIONSHigh energy VMIs less than 100 keV can achieve modest artifact reduction while preserving sufficient iodine attenuation and could represent a useful additional reconstruction for evaluation of head and neck cancer.

### **Prosthetic rehabilitation involving the use of implants following a fibula free flap reconstruction in the treatment of Osteosarcoma of the maxilla: a case report.**

**Author(s):** Brauner, E; Quarato, A; De Angelis, F; Pompa, G; Jamshir, S; Valentini, V; Di Carlo, S

**Source:** La Clinica terapeutica; 2017; vol. 168 (no. 6); p. e392

**Publication Type(s):** Journal Article

**Abstract:**INTRODUCTIONOsteosarcoma is an aggressive primary bone tumor composed of connective tissue cells directly producing osteoid and bone. Prosthetic rehabilitations in post-oncological patients after bone reconstruction are not substantially different than those of patients affected by severe atrophy of upper or lower jaw after bone reconstruction. The treatment for patients with a malignant neoplasia of the oral cavity requires multidisciplinary approach by a team of different specialists that follow the patient through the phases of diagnosis, therapy and oral rehabilitation. Reconstructive surgery of jaws using vascularized free flap allows a significant gain of tissues that enables a successful final prosthetic rehabilitation. In fact main prosthetics difficulties

result from lack of hard and soft tissues in affected area. Reconstructed patients have a greater ease of care management. **CASE PRESENTATION** A 25-year-old Caucasian male was diagnosed with chondroblastic osteosarcoma of the pre-maxilla. The patient initially noticed the displacement of his maxillary incisors with progression into a definite swelling of the pre-maxillary a month later. Computerized Tomographic Scan and Radionuclide Bone Scan revealed the absence of both distant metastasis and regional nodal involvement. A biopsy and subsequent histopathology examination confirmed the lesion as being a chondroblastic type of osteosarcoma. The case study directed us to rehabilitate the patient by implant supported prosthesis consisting 3 different components: a titanium base screwed on implants, a titanium structure (primary structure) assembled on the base and a composite coated structure (secondary structure) that reproduced teeth and gum. At surgery, we proceeded placing 6 dental implants in 1.4, 1.3 1.2, 2.1, 2.2 and 2.4 positions. Contextually was performed a bone graft using particulate bone and collagen membranes. **CONCLUSIONS** Prosthetic rehabilitation in Maxillofacial Osteosarcoma treatment is an hard challenge for prosthodontist due to anatomic conditions of this kind of patients. Dental implants play a crucial role in the therapy of patients affected by malignancies in the head-and-neck region. The goal of implant rehabilitation is to improve the quality of life of these patients by allowing proper retention of removable prostheses and a reduction in the load placed on vulnerable soft tissues. Today prosthetically guided rehabilitation represents the main rehabilitation protocol in prosthodontics, especially in those oncological patients with relevant lost of tissues and modified anatomy.

#### **Dosimetric evaluation of scattered and attenuated radiation due to dental restorations in head and neck radiotherapy**

**Author(s):** Azizi M.; Mowlavi A.A.; Azadegan B.; Ghorbani M.; Akbari F.

**Source:** Journal of Radiation Research and Applied Sciences; 2017

**Publication Type(s):** Article In Press

**Abstract:** In radiotherapy of head and neck cancer, the presence of high density materials modifies photon dose distribution near these high density materials during treatment. The aim of this study is to calculate the backscatter and attenuation effects of a healthy tooth, Amalgam, Ni-Cr alloy and Ceramco on the normal tissues before and after these materials irradiated by 6 and 15 MV photon beams, respectively. All measurements were carried out in a water phantom with dimension of 50 x 50 x 50 cm<sup>3</sup> with an ionization chamber detector. Two points before and four points after the dental sample were considered to score the photon dose. The depth dose on the central beam axis was explored in a water phantom for source to surface distance (SSD) of 100 cm in a 10 x 10 cm<sup>2</sup> field size. The percentage dose change was obtained relative to the dose in water versus depth of water, tooth, Amalgam, Ni-Cr alloy and Ceramco for the photon beams. The absolute dose (cGy) was measured by prescription of 100 cGy dose in the water phantom at depth of 2.0 and 3.1 cm for 6 and 15 MV photons, respectively. At depth of 0.6 cm, the maximum percentage dose increase was observed with values of 6.99% and 9.43% for Ni-Cr and lowest percentage dose increase of 1.49% and 2.63% are related to the healthy tooth in 6 and 15 MV photon beams, respectively. The maximum absolute dose of 95.58 cGy and 93.64 cGy were observed at depth of 0.6 cm in presence of Ni-Cr alloy for 6 and 15 MV photon beams, respectively. The presence of dental restorations can cause backscattering dose during head and neck radiation therapy. Introduction of compositions and electron density of high density materials can improve the accuracy of dosimetric calculations in treatment planning systems to deliver the relevant dose to target organ and reduce the backscattering dose in healthy tissues in the surrounding of tooth. Copyright © 2017 The Egyptian Society of Radiation Sciences and Applications.

#### **Assessment of the quality of life of the patients with treated oral cancer in Iran.**

**Author(s):** Tahani, Bahareh; Razavi, Sayed Mohammad; Emami, Hamid; Alamchi, Fatemeh

**Source:** Oral and maxillofacial surgery; Dec 2017; vol. 21 (no. 4); p. 429-437

**Publication Type(s):** Journal Article

**Abstract:****PURPOSE**Oral cancer diagnosis and treatment could influence the well-being of patients. The aim of this study was to assess the quality of life (QOL) of oral cancer patients after their treatments.**METHOD**In this descriptive-analytical study, all oral cancer patients' records were retrieved from the archives of the oral pathology departments of Isfahan dental school and Seyed-al-Shohada from 2004 to 2015. Telephone interviews were conducted to collect data using the short form 36 (SF-36) and Head and Neck (H&N35) questionnaire. Demographic information of participants as well as tumor-related information, including last treatment date, therapy method, differentiation grade (mild, moderate, poorly differentiated), primary place of tumor in the mouth, and history of recurrence were recorded. Analysis of variance (ANOVA), t test, and Pearson and Spearman correlation coefficients were used for data analysis ( $\alpha = 0.5$ ).**RESULTS**From 223 registered patients, 73 were available. Most of the participants were in the age group of 29-87 years ( $61 \pm 16.3$ ). The mean of SF36 and H&N QOL was  $63.77 \pm 23.44$  (from 100) and  $63.7 \pm 15.36$  (35-140). Females and those receiving combined therapy had lower QOL status. Participants who received their last treatment earlier had a significantly better QOL for both scores ( $P$  value  $< 0.001$ ). History of recurrence, older age, and lower education had a significant correlation with general and disease specific QOL ( $P$  value  $< 0.001$ ).**CONCLUSION**The general QOL of patients with oral cancer was lower than that of the normal population in most domains. The postoperative QOL in our patients was significantly influenced by demographic and tumor-related factors. These factors should be considered by the treatment teams.

#### **Dental disease before radiotherapy in patients with head and neck cancer: Clinical Registry of Dental Outcomes in Head and Neck Cancer Patients.**

**Author(s):** Brennan, Michael T; Treister, Nathaniel S; Sollecito, Thomas P; Schmidt, Brian L

**Source:** Journal of the American Dental Association (1939); Dec 2017; vol. 148 (no. 12); p. 868-877

**Publication Type(s):** Journal Article

**Abstract:****BACKGROUND**No evidence-based guidelines exist for preventive dental care before radiation therapy (RT) in patients with head and neck cancer (HNC). An ongoing multicenter, prospective cohort study, Clinical Registry of Dental Outcomes in Head and Neck Cancer Patients (OraRad), is addressing this knowledge gap. The authors evaluated the level of dental disease before RT in the OraRad cohort, factors associated with dental disease, and dental treatment recommendations made before RT.**METHODS**As part of OraRad, the authors assessed caries, periodontal disease, dental recommendations, and dental interventions performed before RT.**RESULTS**Baseline measures were reported for 356 participants (77% men) with mean (standard deviation) age of 59.9 (11.0) years. Measures included mean number of teeth (22.9), participants with at least 1 tooth with caries (37.2%), and participants with at least 1 tooth with probing depth 5 millimeters or greater (47.4%). Factors associated with less extensive dental disease before RT included having at least a high school diploma, having dental insurance, history of routine dental care, and a smaller tumor size (T1 or T2). Based on the dental examination before RT, 163 (49.5%) participants had dental treatment recommended before RT, with extractions recommended most frequently.**CONCLUSION**Many patients with HCN require dental treatment before RT; more than one-third require extractions.**PRACTICAL IMPLICATIONS**Most patients have some level of dental disease at the start of RT, indicating the importance of dental evaluation before RT. By observing dental outcomes after RT, OraRad has the potential to determine the best dental treatment recommendations for patients with HCN.

**The role of hyperbaric oxygen therapy in the prevention and management of radiation-induced complications of the head and neck - a systematic review of literature.**

**Author(s):** Ravi, P; Vaishnavi, D; Gnanam, A; Krishnakumar Raja, V B

**Source:** Journal of stomatology, oral and maxillofacial surgery; Dec 2017; vol. 118 (no. 6); p. 359-362

**Publication Type(s):** Journal Article

**Abstract:** Radiation therapy for the treatment of head and neck cancer can injure normal tissues and have devastating side effects. Hyperbaric oxygen (HBO) is known to reduce the severity of radiation-induced injury by promoting wound healing. While most of the research in literature has focused on its efficacy in osteonecrosis, HBO has other proven benefits as well. The aim of this review was to identify the various benefits of hyperbaric oxygen therapy in patients who have undergone radiation for head and neck cancer. An electronic database search was carried out to identify relevant articles and selected articles were reviewed in detail. The quality of evidence for each benefit, including preserving salivary gland function, preventing osteonecrosis, dental implant success, and overall quality of life, was evaluated. Evidence showed that HBO was effective in improving subjective symptoms of xerostomia, swallowing, speech and overall quality of life. There was no conclusive evidence to show that HBO improved implant survival, prevented osteonecrosis, or improved salivary gland function. The high costs and accessibility of HBO therapy must be weighed against the potential benefits to each patient.

**Oncology Curricula in Postgraduate General Dentistry Programs: a Survey of Residency Program Directors.**

**Author(s):** Rosen, Evan B; Drew, Alexander; Hury, Joseph M

**Source:** Journal of cancer education : the official journal of the American Association for Cancer Education; Dec 2017

**Publication Type(s):** Journal Article

**Abstract:** Management of patients undergoing treatment for cancer requires a multidisciplinary team including general dentistry providers; however, the relative knowledge and training of general dentists in the management of this patient population are relatively unknown. The purpose of this study was to assess the oncology curricula of postgraduate general dentistry training programs, from the perspective of the program directors, to better understand the opportunities for and/or barriers to dental care for cancer patients. A cross-sectional survey was sent to the 275 Commission on Dental Accreditation-accredited programs; 82 program directors responded (response rate, 30%). More than 50% of respondents indicated "none" or "little" curricular emphasis on cancer biology, bone marrow transplantation, immunotherapy, or prosthetics for use during head and/or neck surgery. Conversely, more than 50% of respondents indicated "moderate" or "substantial" emphasis on acute oral effects of cancer-related therapy, long-term oral effects of cancer-related therapy, antiresorptive medication pharmacology, radiotherapy techniques and biological effects, and osteonecrosis of the jaw. Residents had the most experience with radiotherapy patients and the least with bone marrow or transplantation patients. Overall, general dentistry program directors were enthusiastic to participate in the multidisciplinary team but reported challenges to including oncology curricula in residency training programs. Training for general dentistry providers in formalized postgraduate residency programs may be variable or limited-as a result, communication regarding patient management is critical. Opportunities exist to enhance the general dentistry curricula and, thereby, improve access to dental care for patients receiving treatment for cancer.

**Impact of oral hygiene on head and neck cancer risk in a Chinese population.**

**Author(s):** Kawakita, Daisuke; Lee, Yuan-Chin Amy; Li, Qian; Chen, Yuji; Chen, Chien-Jen

**Source:** Head & neck; Dec 2017; vol. 39 (no. 12); p. 2549-2557

**Publication Type(s):** Journal Article

Available at [Head & neck](#) - from Ovid (Journals @ Ovid)

**Abstract:**BACKGROUND Although the impact of oral hygiene on head and neck cancer risk has been investigated, few studies have been conducted among the Asian population. METHODS We conducted a multicenter case-control study to investigate this potential association. We performed unconditional multiple logistic regression models adjusted by potential confounders. RESULTS We observed an inverse association of frequency of dental visits with head and neck cancer risk, with an adjusted odds ratio (OR) of 3.70 (95% CI 2.51-5.45) for never dental visits compared with  $\geq 1$  time/year (Ptrend < .001). We also observed a positive association between the number of missing teeth and head and neck cancer risk, with an adjusted OR for  $\geq 5$  missing teeth compared with <5 missing teeth of 1.49 (95% CI 1.08-2.04). Combining multiple oral hygiene indicators, poor oral hygiene scores increased head and neck cancer risk. CONCLUSION Poor oral hygiene may increase head and neck cancer risk in the Chinese population. Therefore, improving oral hygiene may contribute to reducing the head and neck cancer risk in the Chinese population.

### **Diagnostic x-ray exposure and thyroid cancer risk: systematic review and meta-analysis.**

**Author(s):** Han, Mi Ah; Kim, Jin Hwa

**Source:** Thyroid : official journal of the American Thyroid Association; Nov 2017

**Publication Type(s):** Journal Article

**Abstract:**BACKGROUND Radiation exposure is a well-known risk factor for thyroid cancer. However, the specific effects of diagnostic radiation exposure on thyroid cancer risk are controversial. The purpose of this study was to perform a systematic review and meta-analysis to assess the effects of diagnostic radiation exposure on thyroid cancer risk. METHODS The PubMed and EMBASE databases were searched to identify eligible studies. Summary odds ratio (OR) estimates and 95% confidence intervals (CIs) were used to compute the risk of thyroid cancer using fixed- and random-effects models. Subgroup and sensitivity analyses were performed to evaluate the potential heterogeneity. RESULTS Nine studies from twelve publications were included in the meta-analysis. Overall exposure to diagnostic radiation exposure was associated with a significantly increased thyroid cancer risk (summary OR=1.52, 95% CI=1.13-2.04). The subgroup and sensitivity analyses revealed similar results. By type of exposure, exposure to CT scans (OR=1.46, 95% CI=1.27-1.68) or dental x-rays (OR=1.69, 95% CI=1.17-2.44) were associated with an increased thyroid cancer risk. Head and neck (OR=1.31, 95% CI=1.02-1.69) and chest (OR=1.71, 95% CI=1.09-2.69) exposure to diagnostic radiation was associated with an increased thyroid cancer risk. CONCLUSION The results of this meta-analysis indicates that diagnostic radiation exposure is associated with an increased thyroid cancer risk. Therefore, to the extent that it will not compromise the information being sought, radiation exposure to the thyroid should be minimized during diagnostic examinations.

### **Oral complications at 6 months after radiation therapy for head and neck cancer.**

**Author(s):** Lalla, R V; Treister, N; Sollecito, T; Schmidt, B; Patton, L L; Mohammadi, K; Hodges, J S

**Source:** Oral diseases; Nov 2017; vol. 23 (no. 8); p. 1134-1143

**Publication Type(s):** Journal Article

**Abstract:**OBJECTIVE To examine oral complications 6 months after modern radiation therapy (RT) for head and neck cancer (HNC). METHODS Prospective multicenter cohort study of patients with HNC receiving intensity-modulated radiation therapy or more advanced RT. Stimulated whole salivary flow, maximal mouth opening, oral mucositis, oral pain, oral health-related quality of life (OH-QOL), and oral hygiene practices were measured in 372 subjects pre-RT and 216 subjects at 6 months from

the start of RT. RESULTS Mean stimulated whole salivary flow declined from 1.09 to 0.47 ml/min at 6 months ( $p < .0001$ ). Mean maximal mouth opening reduced from 45.58 to 42.53 mm at 6 months ( $p < .0001$ ). 8.1% of subjects had some oral mucositis at 6 months, including 3.8% with oral ulceration. Mean overall pain score was unchanged. OH-QOL was reduced at 6 months, with changes related to dry mouth, sticky saliva, swallowing solid foods, and sense of taste ( $p \leq .0001$ ). At 6 months, there was greater frequency of using dental floss and greater proportion using supplemental fluoride ( $p < .0001$ ). CONCLUSIONS Despite advances in RT techniques, patients with HNC experience oral complications 6 months after RT, with resulting negative impacts on oral function and quality of life.

#### **Pilot survey of the health of Massachusetts dentists.**

**Author(s):** Nalliah, Romesh P; Budd, Alan; Allareddy, Veerasathpurush

**Source:** Journal of investigative and clinical dentistry; Nov 2017; vol. 8 (no. 4)

**Publication Type(s):** Journal Article

**Abstract:** AIM Dentistry is a career that is very rewarding because of the direct opportunity to deliver essential health services to patients in need. Dentistry is also very demanding; mentally, physically, and even emotionally. Little is known about the health of dentists and how it compares to the health of the general population. The aim of the present study was to report on the general health and health practices of dentists in Massachusetts. METHODS A medical health and health practices survey was developed from the Delaware Valley Community Health Center and customized. The surveys contained 36 questions relating to demographics, general health, and health practices. RESULTS A total of 399 dentists completed the survey. Of those who responded to the survey, 78.2% were males, 32.6% were 56-65 years of age, 23.1% were 66-75 years of age, and 21.6% were 46-55 years of age. CONCLUSION This pilot study highlights several health issues where dentists seem to have a lower incidence than the general population: asthma, depression, diabetes, hearing loss, obesity, smoking, sleep apnea, and thyroid disease. However, there are some health issues where dentists have a higher incidence than the general population: taking at least one prescription medication, gastroesophageal reflux disease, some form of cancer, back pain, neck pain, headache, osteoarthritis, rheumatic arthritis, psoriatic arthritis, and alcohol abuse.

#### **The influence of dental treatment on the development of osteoradionecrosis after radiotherapy by modern irradiation techniques.**

**Author(s):** Schweyen, Ramona; Stang, Andreas; Wienke, Andreas; Eckert, Alexander; Kuhnt, Thomas

**Source:** Clinical oral investigations; Nov 2017; vol. 21 (no. 8); p. 2499-2508

**Publication Type(s):** Journal Article

Available at [Clinical Oral Investigations](#) - from ProQuest (Hospital Premium Collection) - NHS Version

**Abstract:** OBJECTIVE The aim of this study was to analyze the influence of dental treatment on the development of osteoradionecrosis (ORN) of the jaw. METHOD This study included the data of 776 patients who underwent 3D-CRT or IMRT because of head and neck cancer. Sex, dental status before and after radiotherapy (RT), tumor site, bone surgery during tumor operation, concomitant chemotherapy, and the development of an advanced ORN were documented for each patient. The patients' dentitions before and after RT were classified into four groups with regard to the number and localization of the remaining teeth. Differences between the patients with ORN and patients without ORN with regard to the teeth's condition before and after RT, and with regard to the extent of dental treatment were determined descriptively. Cox proportional hazards regression to study the association between dentition and the development of ORN. RESULT The extent of dental treatment



in patients with and without ORN did not differ in a clinically relevant way. The highest risk of developing ORN was observed in patients who had undergone primary bone surgery during the tumor operation (HR = 5.58, 95%CI 2.91-10.7) and patients who had a tumor in the oral cavity (HR = 4.84, 95%CI 1.37-17.11). **CONCLUSIONS** Based on the results of this study, tumor localization and its required treatment are prognostic factors for the development of ORN. **CLINICAL SIGNIFICANCE** After implementing a consequent dental treatment scheme, no influence of dentition on the risk of developing ORN could be demonstrated. Patients with a lower risk could prospectively benefit from a more moderate dental treatment scheme.

### **Tobacco use and prevalence of head and neck cancers among Malayali Tribes, Yelagiri Hills, Tamil Nadu, India**

**Author(s):** Francis D.L.

**Source:** Asia-Pacific Journal of Clinical Oncology; Nov 2017; vol. 13 ; p. 160-161

**Publication Type(s):** Conference Abstract

**Abstract:** Background: India has the second largest tribal population of the world next to the African countries. Despite remarkable world-wide progress in the field of diagnostic, curative and preventive medicine, still there are large populations of people living in isolation in natural and unpolluted surroundings far away from civilisation, maintaining their traditional values, customs, beliefs and myths. Aim: 1. To assess the prevalence of head and neck cancers among the Malayali tribes, Yelagiri Hills, Tamil Nadu, India. 2. To assess the association of tobacco use with head and neck cancers among the Malayali tribes, Yelagiri Hills, Tamil Nadu, India. Methodology: A cross-sectional descriptive study was conducted to assess the tobacco use and head and neck cancer prevalence among 660 Malayali tribes in the Yelagiri Hills. Inhabitants of the villages aged 18 to 75 years who were residing for more than 15 years were included. Data were collected using a survey proforma which comprised of a questionnaire and WHO Oral Health Surveys-Basic Methods Proforma (1997). The collected data were subjected to statistical analysis. Results: Results showed that among 660 study population, 57.7% had no formal education, 64.5% had indigenous brushing habits. Fifty-eight percent had the habit of tobacco, of which 37% were males and 21% were females. The percentage of oral mucosal lesions observed were as follows: 19.09% leukoplakia, 29% ulceration and 6% malignant tumour. Thirty-seven percent of the study populations had other abnormal conditions like candidiasis and OSMF. Prevalence of oral mucosal lesions in the study population was due to tobacco usage and alcohol consumption and lack of awareness regarding the deleterious effects of the products used. Conclusion: The oral health status of Malayali tribes was poor with high prevalence of periodontal disease and dental caries. Oral cancer and cancerous lesions were at very high percentage.

### **Frequency evaluation of head and neck neoplasms in age group less than 20 years in Isfahan City, Iran, during a 10-year period (2006-2015)**

**Author(s):** Torabinia N.; Kargahi N.; Emami H.; Noroozi N.

**Source:** Journal of Isfahan Medical School; Nov 2017; vol. 35 (no. 445); p. 1139-1144

**Publication Type(s):** Article

**Abstract:** Background: Head and neck tumors in children have been reported and compared to similar tumors in adults; these tumors reveal significant differences in histological and clinical conditions and treatments. Malignancies of head and neck in children have been the subject of a few studies and the major problem in the conclusion of these studies is the lack of same or similar parameters in them. This study aimed to determine the frequency of head and neck neoplasms in age group less than 20 years in Isfahan City, Iran, during a 10-year period. Methods: In this retrospective descriptive study, files related to patients with head and neck malignancies, holding in

department of oral and maxillofacial pathology of Isfahan Dentistry School and archive of three related hospital in Isfahan City (Alzahra, Seiedoshohada, and Kashani) were studied. All the data were extracted and analyzed using chi-square statistical test at the significant level of P Copyright © 2017, Isfahan University of Medical Sciences(IUMS). All rights reserved.

## Dental implants

### **Bone autografts & allografts placed simultaneously with dental implants in rabbits**

**Author(s):** Ribeiro M.; Fraguas E.H.; Brito K.I.C.; Kim Y.J.; Pallos D.; Sendyk W.R.

**Source:** Journal of Cranio-Maxillofacial Surgery; 2017

**Publication Type(s):** Article In Press

**Abstract:**Objective: This study compared stability, removal torque, bone implant contact (BIC) and area (BA) of implants installed simultaneously with onlay autografts or allografts in rabbits' tibias. Material and methods: Total of 18 rabbits were used in this study. Fresh frozen allografts were obtained from six animals at T(-6). Two implants with autogenous grafts (Group 1) or allografts (Group 2) were simultaneously inserted into both sides of the tibiae in a vertical periimplant defect model at T0. The resonance frequency (ISQ) was measured in implant proximal epiphysis on the day of installation of T0 and T18 (18 weeks post-surgery). At T18 the removal torque was assessed at the distal implants, the implants' proximal epiphysis and surrounding bone were harvested to perform histomorphometric analysis. The BIC and BA within the limits of the implants threads were evaluated. Results: The ISQ revealed a statistically significant difference between T0 and T18 in each group ( $p = 0.024$ ,  $p = 0.003$ ). The removal torque indicates that there was no significant difference between the two groups ( $p = 0.47$ ). No significant differences were observed between the groups regarding both BIC ( $p = 0.3713$ ) and the BA ( $p = 0.3883$ ). Conclusion: Both grafts and implants demonstrated the same stability, torque removal and the BIC and BA. Copyright © 2017 European Association for Cranio-Maxillo-Facial Surgery.

### **Dental implants in a patient with suspected leucocyte adhesion deficiency**

**Author(s):** Karaky A.A.; Sawair F.; Hassona Y.; Tamimi Z.

**Source:** BMJ Case Reports; 2017; vol. 2017

**Publication Type(s):** Article

**Abstract:**Aggressive periodontitis and premature tooth loss in leucocyte adhesion deficiency (LAD) have adverse functional and psychological consequences on affected individuals. Dental implant rehabilitation might become necessary to overcome the functional and psychological adverse effects of LAD periodontitis, especially in patients with milder forms who are expected to have a relatively normal life expectancy. Outcome of dental implants in patients with LAD has not been previously reported; we describe the dental rehabilitation of a 24-year-old man with clinical features of LAD using endosseous dental implants. Copyright © 2017 BMJ Publishing Group Ltd. All rights reserved.

### **Clinical outcomes of dental implants after use of tenting for bony augmentation: A systematic review**

**Author(s):** Pourdanesh F.; Aghdashi F.; Esmaeelinejad M.

**Source:** British Journal of Oral and Maxillofacial Surgery; 2017

**Publication Type(s):** Article In Press

**Abstract:**The reconstruction of severely atrophic ridges is often challenging and complicated. We searched the Medline, Embase, and Cochrane databases for articles up to October 2015 that reported the success of all types of tenting for bony regeneration. We extracted data on the size and site of the defect, the number of patients, vertical and horizontal augmentation, survival of dental implants, and complications. Thirteen studies were included, which yielded data on 423 patients with 1111 dental implants. Follow-up periods were more than five years, severely resorbed mandibles were augmented vertically by up to 10. mm, and the survival rate of the implants was over 97%. The mean (SD) gain in horizontal width by screw tenting was 3 (0.63). mm, and over 97.6% of dental implants in cortical tenting investigations survived. A tenting approach may reduce the need for large autogenous bone grafts in the reconstruction of severely atrophic ridges and local bony defects, and improves the survival of implants. Copyright © 2017 The British Association of Oral and Maxillofacial Surgeons.

### **Enhanced antimicrobial activity of naturally derived bioactive molecule chitosan conjugated silver nanoparticle against dental implant pathogens**

**Author(s):** Divakar D.D.; Alkheraif A.A.; Jastaniyah N.T.; Altamimi H.G.; Alnakhli Y.O.; Muzahed X

**Source:** International Journal of Biological Macromolecules; 2017

**Publication Type(s):** Article In Press

**Abstract:**Various metal coated implants have been tested against dental pathogens which causes increased biofilm formation and lead to failure of dental implants. The possibility of using nanoparticle together with native biomolecules to enhance the activity of such bioactive compound is also in progress. In this study we tested the efficacy of Ag conjugated chitosan nanoparticles as a prospective coating material of titanium dental implants. Known bioactive molecule chitosan was extracted from *A. flavus* Af09 and conjugated with Ag nanoparticle. Fully characterized Ag-chitosan nanoparticle had a sound inhibitory effect on the growth of two major dental pathogens *S. mutans* and *P. gingivalis*. It not only inhibits the adhesion of these two tested bacteria but also able to reduce the biofilm formation. Apart from this, nanoparticle was also able to inhibit the QS production in bacteria tested in this study. Naturally extracted chitosan has been known for its antibacterial activity for a different group of bacteria. Nanoparticles are the good option to enhance the biocompatibility. No cell cytotoxicity of nanoparticle indicates its biocompatibility and coating of titanium dental implants with Ag-chitosan may have an added advantage on the corrosion resistance of dental implants and also augments the passivating effect of these implants. Copyright © 2017 Elsevier B.V.

### **Dental implants: A remote option in case of somatic delusion disorder**

**Author(s):** Niazi T.; Ulaganathan G.; Kalaiselvan S.; Lambodharan R.; Mahalakshmi R.; Sophia M.

**Source:** Journal of Pharmacy and Bioallied Sciences; Nov 2017; vol. 9 (no. 5)

**Publication Type(s):** Article

Available at [Journal of Pharmacy And Bioallied Sciences](#) - from Europe PubMed Central - Open Access

**Abstract:**A 29-year-old female was referred by a psychiatrist for dental implantation and prosthodontic rehabilitation, as she had all her healthy permanent teeth extracted within a span of 2-6 months, due to somatic delusional disorder. She presently refuses artificial dentures and implants with the fear of having worms in her teeth and the fear not yet allayed. The patient cannot

be treated for her edentulous state until her psychiatric symptoms are treated. This is the limitation for the implant surgeon where service rendered is impaired in spite of advanced professional skills, ideal patient ridge, and other factors, just where the patient is not mentally prepared for the dental rehabilitation procedures.

### **Histological differences in the adherence of connective tissue to laser-treated abutments and standard abutments for dental implants. An experimental pilot study in humans**

**Author(s):** Blazquez-Hinarejos M.; Ayuso-Montero R.; Lopez-Lopez J.; Alvarez-Lopez J.M.

**Source:** Medicina Oral, Patología Oral y Cirugía Bucal; Nov 2017; vol. 22 (no. 6)

**Publication Type(s):** Article

Available at [Medicina Oral, Patología Oral y Cirugía Bucal](#) - from Europe PubMed Central - Open Access

**Abstract:**Background: The goal of the current study is to assess the difference in connective tissue adherence to laser microtextured versus machined titanium abutments. Material and Methods: Six patients were selected and each of them received 2 implants, one combined with a laser treated abutment and one with a machined abutment. After three months, the abutments were retrieved together with their surrounding gingival tissue for histological analysis. Qualitative and quantitative evaluation of microscopical images was performed to assess the presence or absence of adherence between the soft tissues and the abutment, and the percentage of soft tissue adhered to the two different surfaces. Results: Intimate adherence between connective tissue and the laser treated abutments, while on machined abutments no adherence was detected. A significant difference was found in the percentage of surface in contact with soft tissue between both implant abutments  $p=0.03$ . Conclusions: Within the limitation of the current study, it can be concluded that connective tissues show enhanced adherence to microtextured abutments compared to machined abutments. Copyright © Medicina Oral S. L. C.I.F.

### **Immediate loading of subcrestally placed dental implants in anterior and premolar sites**

**Author(s):** Henningsen A.; Smeets R.; Koppen K.; Sehner S.; Kornmann F.; Gerlach T.; Grobe A.

**Source:** Journal of Cranio-Maxillofacial Surgery; Nov 2017; vol. 45 (no. 11); p. 1898-1905

**Publication Type(s):** Article

**Abstract:**Purpose Immediate loading of dental implants has been evolving into an appropriate procedure for the treatment of partially edentulous jaws. The purpose of this study was to evaluate the clinical success and radiological outcome of immediately and delayed loaded dental implants in anterior and premolar sites. Materials and methods In this retrospective study, data of 163 individuals requiring tooth removal with subsequent implant placement in anterior and premolar sites were analyzed. Implants were immediately loaded by provisional acrylic resin bridges or loaded with delay. Implants were followed up annually for up to 9 years including intraoral radiographs. Results A total of 285 implants in 163 patients were placed. 218 implants were immediately loaded and 67 implants with delay. Fifteen implants failed during the follow-up period resulting in survival rates of 94.5% for immediate loading and 95.5% for delayed loading. After an initial decrease of 0.3 mm in the first 12 months the marginal bone level remained stable. No statistically significant differences were found in marginal bone loss between immediately and delayed loaded implants ( $P = 0.518$ , 95% CI). Conclusion Within the limits of this study, immediate loading of immediately subcrestally placed dental implants in anterior and premolar sites is a reliable treatment option for dental rehabilitation. Copyright © 2017 European Association for Cranio-Maxillo-Facial Surgery

### **Anatomical landmarks of mandibular interforaminal region related to dental implant placement with 3D CBCT: comparison between edentulous and dental mandibles**

**Author(s):** Sener E.; Onem E.; Baksi Sen B.G.; Akar G.C.; Govsa F.; Ozer M.A.; Pinar Y.; Mert A.

**Source:** Surgical and Radiologic Anatomy; Nov 2017 ; p. 1-9

**Publication Type(s):** Article In Press

**Abstract:**Background: Anterior mandibular (interforaminal) region is important in implant applications as it serves a basis for neurovascular bedding and holds the prosthesis for patients. Treatment planning for dental implant patients is often complicated by the unknown extent of the anterior loop of the neurovascular bundle. Anatomical structures including mandibular incisive canal (MIC) and lingual foramen (LF) should also be examined as part of the detailed analysis for their neurovascular structures. This study aimed to detect the positions of LF and MIC as well as the prolongation of interforaminal region in Anatolian population to supply the reference data of the surgical safe zone in chin for the clinicians. Materials and methods: Mandibles of 70 adult specimens (35 edentulous + 35 dentate) were retrieved from the Department of Anatomy, Ege University. Images of the dry mandibles were obtained using a cone beam computed tomography unit applying a standardized exposure protocol. Afterwards, mandibles were sawn into vertical sections according to the respective tomographic cross-sections. Images were evaluated for the absence/presence of the MIC, its dimensions and antero-posterior length for both edentulous and dentate groups. In addition; the presence, number, location, labial canal and LF diameter and height of the LF were determined for both groups. Results: The MIC was observed in 80 and 68.6% of the dentate and edentulous groups, consecutively ( $p > 0.05$ ). The MIC continued towards the incisor region in a slightly downward direction. The LF was observed in all dentate mandibles (100%), while it was present in 94.3% of the edentulous mandibles ( $p > 0.05$ ). For the dentate group, 62.9% of the specimens had two foramens and 20% had three foramens in the mandibular midline. Mean length of the MIC in dentate groups and edentulous groups was measured as 2.55 +/- 0.809 and 3.08 +/- 1.745 mm, respectively. Well-defined MIC mean diameter in dentate groups and edentulous groups were measured as 2.44 +/- 0.702 and 2.35 +/- 0.652 mm, respectively. Significant difference was found between dentate and edentulous group in most of the parameters except for the LF and the diameter of the MIC ( $p > 0.05$ ). The correlation between observers' measurements ranged between 0.742 and 0.993 for all anatomical landmarks and mandible groups. Conclusion: The MIC and LF are associated with neurovascular bundle variations in number, location and size. Therefore, clinicians should determine each of these anatomical structures on a case-by-case basis to recognize their presence and to take measures for the possible implications of various treatment options. These guidelines included leaving a 2 mm safety zone between an implant and the coronal aspect of the neurovascular bundle. To avoid neurovascular injury during surgery in the interforaminal area, guidelines were developed with respect to validating the presence of an anterior loop of the neurovascular bundle. Copyright © 2017 Springer-Verlag France SAS

### **Floor-of-Mouth Hematoma Following Dental Implant Placement: Literature Review and Case Presentation**

**Author(s):** Law C.; Alam P.; Borumandi F.

**Source:** Journal of Oral and Maxillofacial Surgery; Nov 2017; vol. 75 (no. 11); p. 2340-2346

**Publication Type(s):** Review

**Abstract:**Purpose The authors provide a structured review of reported cases of floor-of-mouth hematoma during or after dental implantation and frequent causes and management and present a related case. Materials and Methods An online search of the medical literature was conducted from

1990 through 2016. The following search terms were used: floor of mouth hematoma, sublingual hematoma, dental implant hematoma, implant in mandible, and complication of dental implant. Abstracts were screened for relevance to the aims of the review. Relevant reports in the English language were included and referenced. The articles were reviewed for patient demographics, implant location, coagulopathy, pre- or postoperative imaging, airway management, treatment of the hematoma, and management of the offending implant. Results The literature search identified 25 reported cases. Hemorrhage was caused by perforation of the lingual cortex in 84% of cases (n = 21). Airway obstruction resulted in emergency intubation or tracheostomy in 68% of patients (n = 17). Most cases (n = 18; 72%) required surgical management in the hospital setting. Management of the offending implant was reported inconsistently. Of 17 reported cases, 5 implants had to be removed, 9 remained in situ, and in 3 cases implant placement was abandoned. Only 1 case involved preoperative 3-dimensional (3D) imaging before implant insertion. The authors report on an additional case with a serious floor-of-mouth hematoma that required immediate surgical evacuation and hemostasis. Conclusion Serious complications, such as floor-of-mouth hematoma after dental implant insertion, can occur, which could be life-threatening. Preoperative 3D imaging helps to visualize the individual mandibular shape, which could decrease the incidence of serious complications. If injury to vessels of the floor of the mouth cannot be confidently excluded, then further assessment and treatment are recommended before the patient is discharged. Copyright © 2017 American Association of Oral and Maxillofacial Surgeons

#### **Titanium-released from dental implant enhances pre-osteoblast adhesion by ROS modulating crucial intracellular pathways**

**Author(s):** Rossi M.C.; Bezerra F.J.B.; Silva R.A.; Crulhas B.P.; Fernandes C.J.C.; Nascimento A.S.

**Source:** Journal of Biomedical Materials Research - Part A; Nov 2017; vol. 105 (no. 11); p. 2968-2976

**Publication Type(s):** Article

**Abstract:**It is important to understand the cellular and molecular events that occur at the cell-material interface of implants used for bone repair. The mechanisms involved in the initial stages of osteoblast interactions with the surface of the implant material must be decisive for cell fating surrounding them. In order to address this issue, we decided to investigate if conditioned medium for dental implants was able to modulate murine pre-osteoblast metabolism. First, we determined the concentration of titanium (Ti)-containing conditioned medium and found that it was 2-fold increased (p Copyright © 2017 Wiley Periodicals, Inc.

#### **The application of a delayed expansion technique for horizontal alveolar ridge augmentation in dental implantation**

**Author(s):** Li X.; Xu P.; Liu S.; Xu X.

**Source:** International Journal of Oral and Maxillofacial Surgery; Nov 2017; vol. 46 (no. 11); p. 1451-1457

**Publication Type(s):** Article

**Abstract:**The aim of this study was to evaluate the application of delayed expansion of the alveolar ridge in dental implantation. This method avoids the need to harvest autogenous bone and the requirement to fix a block with screws, and could help prevent the uncontrolled fracture and avascular necrosis that may result from the traditional alveolar split. Eighteen patients and 43 implants were included in this retrospective study. The width of the alveolar ridge was measured before implantation, immediately after implantation, and after the final restoration. The width increased significantly after the insertion of implants and decreased slightly after bone remodelling.

Overall, the width of the alveolar ridge increased by 2.37 +/- 1.44 mm on average, ranging from -0.20 mm to 5.75 mm. The results suggest the use of delayed expansion for horizontal alveolar bone augmentation; however, the maxillary premolar area may not be a suitable site. Copyright © 2017 International Association of Oral and Maxillofacial Surgeons

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