Oral & Maxillofacial Surgery

Current Awareness Newsletter

April 2015
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Your Friendly Local Librarian...

Whatever your information needs, the library is here to help. As your outreach librarian I offer literature searching services as well as training and guidance in searching the evidence and critical appraisal – just email me at bennet.jones@uhbristol.nhs.uk

Outreach: Your Outreach Librarian can help facilitate evidence-based practice for all in the oral and maxillofacial surgery team, as well as assisting with academic study and research. We can help with literature searching, obtaining journal articles and books, and setting up individual current awareness alerts. We also offer one-to-one or small group training in literature searching, accessing electronic journals, and critical appraisal. Get in touch: bennet.jones@uhbristol.nhs.uk

Literature searching: We provide a literature searching service for any library member. For those embarking on their own research it is advisable to book some time with one of the librarians for a 1 to 1 session where we can guide you through the process of creating a well-focused literature research and introduce you to the health databases access via NHS Evidence. Please email requests to bennet.jones@uhbristol.nhs.uk
New from the Cochrane Library of Systematic Reviews

PROTOCOL: Interventions for missing teeth: Removable prostheses for the edentulous mandible

Leila Jahangiri, Mijin Choi, Marjan Moghadam, Sarra Jawad

Published 20th February 2015

Objectives: To assess the effects of no treatment, treatment with conventional removable complete denture, and treatment with implant-retained removable prosthesis for the rehabilitation of edentulous mandibles.

New Activity in DynaMed

3-dimensional conformal radiation therapy may have similar effect on survival but higher risk of late xerostomia and poorer quality of life compared to intensity-modulated radiation therapy in patients with head and neck cancer receiving concurrent chemotherapy (level 2 [mid-level] evidence)

- based on systematic review of mostly observational studies
- systematic review of 1 randomized trial and 13 cohort studies evaluating radiation therapy in patients with head and neck cancer
- 13 studies compared 3-dimensional conformal radiation therapy (3DCRT) to intensity-modulated radiation therapy (IMRT)
- all 3DCRT and IMRT protocols delivered 60-74 Gy ionization radiation using conventional fractionation schedules (30-35 fractions, 2 Gy per fraction for 5-7 weeks)
- in patients receiving concurrent chemotherapy
  - no significant difference in 3- or 5-year overall survival in 3 studies with 509 patients
  - 3DCRT associated with
    - increased late xerostomia in 3 studies with 509 patients
    - poorer quality of life in 2 studies with 215 patients
    - increased salivary gland dysfunction in 1 study with 60 patients
  - inconsistent evidence for effect on dysphagia
    - 3DCRT significantly increased acute and late dysphagia in 1 study
    - no significant differences in
      - acute and late dysphagia in 1 study
      - acute dysphagia in 1 further study
- in 1 study with 80 patients receiving postoperative radiation therapy
• 3DCRT associated with
  • increased dysphagia, salivary gland dysfunction, and late xerostomia
  • decreased disease-free survival at 2 years
  • no significant difference in overall survival at 2 years
• no trials found evaluated proton-beam radiation therapy
• Reference - AHRQ Comparative Effectiveness Review 2014 Dec:144 PDF

Recent Literature Searches on Oral and Maxillofacial Surgery

Below is a sample of literature searches carried out by librarians for UH Bristol members of staff on the subject of maxillofacial and oral surgery. For further details get in touch:
bennet.jones@uhbristol.nhs.uk

• Dental abscess sensitivity and antibiotic treatment
• Perioperative and stress steroids
• Bisphosphonate induced osteonecrosis of the jaw
• Vitamin E and pentoxyfylline treatment of osteochemonecrosis
Current Awareness Database Articles on Oral and Maxillofacial Surgery

Below is a selection of articles on oral and maxillofacial surgery recently added to the healthcare databases, grouped in the following categories:

- Oral
- Bisphosphonate-related osteonecrosis of the jaw
- Maxillofacial
- Cleft lip and palate
- General/other

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: bennet.jones@uhbristol.nhs.uk

Oral

Title: Oral surgery during therapy with anticoagulants-a systematic review.

Citation: Clinical oral investigations, Mar 2015, vol. 19, no. 2, p. 171-180 (March 2015)

Author(s): Kämmerer, Peer W, Frerich, Bernhard, Liese, Jan, Schiegnitz, Eik, Al-Nawas, Bilal

Abstract: Oral anticoagulation therapy (OAT) with vitamin K inhibitors protects the patients from thromboembolic events. It may however lead to excessive hemorrhage during and after an oral surgery procedure. The aim of this systematic review was to evaluate the justifications to reduce, withdraw, or alter OATs prior to minor oral surgery procedures to manage bleeding events. A systematic MEDLINE search was conducted for clinical studies in English or German language from 1994 to 2014 comparing patients treated with OAT, without OAT, as well as patients with altered OAT for oral surgery purposes. Relevant outcome parameters were: postoperative local hemostasis, bleeding episodes, occurrence of thromboembolic events, and other complications due to the anticoagulation medication. A hand search for references cited in the identified publications completed the review. After screening of 1755 abstracts, 16 clinical studies were identified according to the selection criteria. Due to the heterogeneity of the obtained data, aggregation and synthesis were not possible. There was no significant difference in bleeding events comparing patients under continued OAT to those with reduced, altered, and/or discontinued OAT medications. Minor bleeding events in the test and control groups were successfully stopped with local measures. However, no superiority of a single hemostatic measure could be identified. Neither the international normalized ratio (INR), within the therapeutic range (2-4), nor the extent of the minor oral surgery procedure had an influence on postoperative bleeding episodes. There is strong evidence that OAT patients undergoing minor oral surgery should not discontinue their medication.
in order to prevent thromboembolic complications. Nonetheless, INR should be less than 4, local hemostatic measures are of high importance and patients need to be instructed and closely monitored as minor bleedings might occur more often in OAT patients.

**Title:** Oral surgery-associated postoperative bleeding in haemophilia patients - a tertiary centre's two decade experience.

**Citation:** Haemophilia : the official journal of the World Federation of Hemophilia, Mar 2015, vol. 21, no. 2, p. 234-240 (March 2015)

**Author(s):** Givol, N, Hirschhorn, A, Lubetsky, A, Bashari, D, Kenet, G

**Abstract:** Our goal in this research was to evaluate potential and targeted therapy, correlated with haemophilia severity and dental procedural risk, to reduce postoperative bleeding risk. Patients with haemophilia who were treated at the Oral and Maxillofacial Surgery Clinic at Sheba Medical Center between 1996 and 2012 comprised the study cohort. Data collected included disease history and severity, perioperative factor concentrate therapy, local haemostatic agent application, systemic tranexamic acid use and outcome. Bleeding was defined as excessive bleeding during or within 20 days following procedure. Dental procedures (n = 1968) of 125 patients were studied. Patients' bleeding risk score was evaluated according to the severity of haemophilia with or without the presence of an inhibitor, presence of comorbid coagulopathy and the type of dental procedure. Thirty-four patients undergoing a total of 880 high-risk and 1088 low-risk procedures suffered 40 postoperative bleeding events that necessitated further dental and/or haematological intervention. Among risk factors for delayed bleeding, the use of fibrin glue was significantly (P = 0.027) associated with the risk of postprocedural bleed probably as it was applied to high-risk patients and procedures. Earlier treatment period (P = 0.055), postprocedure hospitalization (P = 0.039) and dental "high-risk" procedures (P

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**Title:** Validation of data on the use of twin mix in minor oral surgery: comparative evaluation of efficacy of twin mix versus 2 % lignocaine with 1:200000 epinephrine based on power analysis and an UV spectrometry study for chemical stability of the mixture.

**Citation:** Oral and maxillofacial surgery, Mar 2015, vol. 19, no. 1, p. 37-41 (March 2015)

**Author(s):** Bhargava, Darpan, Deshpande, Ashwini, Khare, Piush, Pandey, Sharad P, Thakur, Niharika

**Abstract:** There is convincing evidence supporting the addition of dexamethasone to lignocaine and its administration as an intra-space injection to achieve benefit of a single dose steroid after third molar surgery. This study was undertaken to validate the existing data on the use of twin mix in minor oral surgery based on power analysis, statistical sample size estimation and an ultraviolet (UV) spectrometry study for chemical stability of the mixture. A prospective, randomized, double-blind trial was designed to validate the pilot study on the efficacy of twin mix and 2 % lignocaine with 1:200,000 epinephrine in the surgical removal of impacted mandibular third molars. Clinical parameters of anaesthetic latency, anaesthetic duration, efficacy of twin mix as an anaesthetic and
Dexamethasone and lignocaine as an intra-space injection in decreasing the post-operative patient discomfort. The stability of active ingredients in the solution was assessed using a double beam UV-visible spectrophotometry. The results of the study showed better post-operative outcome with administration of dexamethasone and lignocaine as an intra-space injection in decreasing the post-operative patient discomfort. The anaesthetic efficacy of the twin-mix admixture was found statistically similar to the control solution of 2% lignocaine with 1:200,000 epinephrine. The λmax recorded for dexamethasone and local anaesthetic individually was obtained with the twin-mix solution, which indicated no change in the active pharmacological compounds. Clinical anaesthetic efficacy of twin mix is comparable to 2% lignocaine with 1:200,000 epinephrine when administered in the pterygomandibular space with the additional advantage of a single prick co-administration of dexamethasone with local anaesthetic, lesser sting of the local anaesthetic injection, shorter anaesthetic latency, prolonged duration of the soft tissue anaesthesia and decrease in post-operative discomfort after the oral surgical procedure.

**Bisphosphonate-related osteonecrosis of the jaw**

**Title:** Tooth alterations in areas of bisphosphonate-induced osteonecrosis.

**Citation:** Clinical oral investigations, Mar 2015, vol. 19, no. 2, p. 489-495 (March 2015)

**Author(s):** de Camargo Moraes, Paulo, Silva, Carolina Amália Barcellos, Soares, Andrea Borges, Passador-Santos, Fabrício, Corrêa, Maria Elvira Pizzigatti, de Araújo, Ney Soares, de Araújo, Vera Cavalcanti

**Abstract:** Osteonecrosis of the jaw is a potential side effect when using bisphosphonates. Most studies on the effects of bisphosphonates on teeth have been conducted in vitro or in animal models of tooth development. Therefore, the aim of this study was to describe alterations found in human teeth extracted from areas of bisphosphonate-induced osteonecrosis. Using a retrospective study design, 16 teeth from 13 patients were extracted from areas of bisphosphonate-induced osteonecrosis during surgical debridement. The specimens were decalcified and embedded in paraffin. A series of 5-μm sections were prepared, stained with hematoxylin and eosin (H&E) and observed under a light microscope. The majority of the patients were female (53.85%), with a mean age of 60.23 ± 13.18 years. Zoledronate (IV) was the most common bisphosphonate used (92.3%), over a mean period of 2 years. The commonest alteration observed was hypercementosis (87.5%), followed by pulpar necrosis (81.25%), pulp stones attached to the dentine and loose pulp stones in the pulp chamber and root canals in addition to linear calcifications (68.75%), dentinoid/osteoid material formation (18.75%), and dental ankylosis (6.25%). Patients undergoing bisphosphonate therapy present diverse tooth alterations, which should be closely monitored by clinicians to prevent complications. It is paramount that the teeth involved in oral lesions are always examined. Attention should be drawn to the need to establish preventive measures, in terms of dental treatment, for patients prior to starting bisphosphonate therapy.

**Title:** Macrophages and bisphosphonate-related osteonecrosis of the jaw (BRONJ): evidence of local immunosuppression of macrophages in contrast to other infectious jaw diseases.
Citation: Clinical oral investigations, Mar 2015, vol. 19, no. 2, p. 497-508 (March 2015)

Author(s): Hoefert, Sebastian, Schmitz, Inge, Weichert, Frank, Gaspar, Marcel, Eufinger, Harald

Abstract: Bisphosphonates (BIP) are well established in bone diseases. A serious side effect is the bisphosphonate-related osteonecrosis of the jaw (BRONJ). Among different aetiology factors, local suppression of immune functions is gaining interest. The aim of this study was to analyze the function of macrophages in BRONJ in contrast to patients with osteoradionecrosis (ORN) and secondary chronic osteomyelitis (OM) of the jaws. Samples were also taken from patients with bisphosphonate medication (BP) without signs of infection, radiation therapy (RA), and osteoporosis (OP) as controls. One hundred five patients with surgery to the jaw were included in this study: 33 patients with BRONJ, 17 with ORN, 11 with secondary chronic OM, 8 with RA, 25 with BP medication and 11 with OP. Samples were histologically analysed and monocytes/macrophages stained using CD14 and CD68. The number of positively marked cells was counted per view (pv), and the CD68/CD14 ratio was calculated. Statistically, the Naïve-Bayes and decision-tree classifier were used. The number of CD14 positive cells was 10.3 cells/pv in the BRONJ-group in as compared to 5 in the ORN- and 3.8 in the OM-group respectively. The number of CD68 positive cells was 11.4/pv (BRONJ-group) as compared to 14/pv (ORN-group) and 12.7/pv (OM-group). With 0.89, the BRONJ-group showed a statistically different CD68/CD14 ratio than ORN-group with 3.39 and OM-group with 3.03. Our results indicate a different expression of CD14 and CD68 markers of monocytes/macrophages in BRONJ as compared to other jaw infections. This could be a sign of macrophage immunosuppression by BPs. In contrast, patients receiving BP medication without BRONJ showed no differences to other controls. This is the first study that clinically indicates a compromised macrophage function at BRONJ sites in contrast to ORN or secondary OM sites. The BRONJ itself could be forwarded by this effect.

Title: How concerns for bisphosphonate-induced osteonecrosis of the jaw affect clinical practice among dentists: a study from the South Texas Oral Health Network.

Citation: General dentistry, Mar 2015, vol. 63, no. 2, p. 61-67, 0363-6771 (2015 Mar-Apr)

Author(s): Gonzales, Cara B, Young, Veronica, Ketchum, Norma S, Bone, Jamie, Oates, Thomas W, Mungia, Rahma

Abstract: Bisphosphonate-induced osteonecrosis of the jaw (BONJ) represents a growing concern for dentists and patients in that it may alter clinical care. This study assessed the knowledge and perceptions of practicing dentists in relation to the risk of BONJ and how their knowledge and perceptions influence their decisions when developing treatment plans. For this study, a sample of dentists (n = 93) in South Texas completed a 38-item survey about BONJ knowledge and perception and their current clinical practices for patients undergoing bisphosphonate therapy. Knowledge score groupings reflected differences between low knowledge and high knowledge dentists in terms of their behavior concerning medical history, alternative treatments offered, and routine blood testing for patients on bisphosphonate therapy.

Title: Treatment perspectives for medication-related osteonecrosis of the jaw (MRONJ)
Abstract: The medication-related osteonecrosis of the jaw (MRONJ) is believed to be a therapy-resistant entity. Although the application of the recommended conservative and surgical treatment regimens have returned variable success rates, the increased awareness and experience with MRONJ suggests that surgical therapy can halt the progression of the disease, thereby allowing a histology-based diagnosis of the osteonecrosis. Surgical treatment protocols can achieve success rates of over 90% and novel techniques such as the visualization of bone fluorescence can assist in the intra-operative delineation of the osteonecrosis and standardize the procedure. Copyright © 2014 European Association for Cranio-Maxillo-Facial Surgery. Published by Elsevier Ltd. All rights reserved.

Title: Pedicled buccal fat pad flap as a reliable surgical strategy for the treatment of medication-related osteonecrosis of the jaw.

Abstract: The purpose of this study was to evaluate the coverage of the pedicled buccal fat pad flap (PBFP) and the long-term results of this treatment in patients with medication-related osteonecrosis of the jaw (MRONJ). Ten patients (2 men and 8 women; average age, 72.9 yr old) diagnosed with MRONJ were selected. Patients were treated with a PBFP. Data from patients regarding MRONJ stage, defect size, bone exposure after surgery, operation time, admission period, duration of antibiotic therapy, recurrence of disease, and postoperative complications were analyzed retrospectively. Six patients were diagnosed with MRONJ stage 2, and 4 patients were diagnosed with MRONJ stage 3. The maximum defect in the study was 62 × 18 mm. Among the 10 patients, there was only 1 bony exposure, which occurred on postoperative day 2 after receiving the PBFP. This exposure might have been due to an incomplete resection of the affected bone. There were no severe donor site morbidities, and all patients showed satisfactory healing without incident. According to this evaluation, the PBFP effectively covered a relatively large surgical defect. Complications were minimal, and there was no recurrence of bony exposure during follow-up. In conclusion, using the PBFP was a reliable treatment option for the management of denuded bone in patients with MRONJ. Copyright © 2015 American Association of Oral and Maxillofacial Surgeons. Published by Elsevier Inc. All rights reserved.

Title: Sclerosis in bisphosphonate-related osteonecrosis of the jaws and its correlation with the clinical stages: study of 43 cases.
Abstract: We analysed the degree of sclerosis in the different stages of bisphosphonate-related osteonecrosis of the jaws (BRONJ) and studied the relation between the grade of sclerosis, the clinical symptoms, and the depth of lucency. We compared 43 patients with mandibular BRONJ with a control group of 40 cases with no bony lesions. The presence of sclerotic bone, cortical irregularities, radiolucency, fragmentation or sequestration, periostitis, and narrowing of the mandibular canal were studied from computed tomographic (CT) scans using the program ImageJ 1.47v (National Institute of Health, Bethesda, USA) to measure the radiolucency, width of the cortices, and degree of sclerosis. Patients with BRONJ had more severe sclerosis than controls (p<0.05). We conclude that the degree of sclerosis increases with the clinical stage of BRONJ, and is correlated with the depth of lucency. Copyright © 2014 The British Association of Oral and Maxillofacial Surgeons. Published by Elsevier Ltd. All rights reserved.
**Author(s):** Shaye, David A, Tollefson, Travis T, Strong, E Bradley

**Abstract:** Intraoperative computed tomography (CT) provides surgeons with real-time feedback during maxillofacial trauma and reconstructive surgery, which can affect intraoperative decision making. To evaluate the time needed to perform intraoperative CT scans during maxillofacial surgery, determine any trend toward shorter total scan times as experience is gained with the technique, and identify the characteristics of cases that required intraoperative revision based on the results of intraoperative CT scanning. A retrospective review was completed for all maxillofacial reconstruction procedures that used intraoperative CT between January 1, 2012, and March 31, 2014. Patients were cared for by the routine practice pattern of the authors. Intraoperative CT scans were obtained for all patients. Time needed for intraoperative CT scan was measured and trends were analyzed. Covariates included age, sex, complexity of fracture, procedure type, total scan time, surgeon, and need for intraoperative revision based on intraoperative CT findings. Thirty-eight cases were identified, including 30 males (79%) and 8 females (21%). The mean (SE) age was 37.4 (16.0) years (range, 7-75 years). Cases were defined as routine (18 [47%]) or complex (20 [53%]). Isolated orbital fractures were the most common fracture (23 [61%]) in both the routine (14 [78%]) and complex (9 [45%]) cases. The mean (SE) total scan time was 14.5 (4.9) minutes (range, 6-27 minutes) and did not differ based on complexity (P = .34). Intraoperative revisions were performed in 9 patients (24%) and were more common in complex (n = 8) than routine (n = 1) cases (P = .004). There was no reduction in total scan time during the study period (P = .22). The mean (SE) scan time for the most experienced surgeon was 3.78 (1.53) minutes shorter than for the other surgeons as a group (P = .02). Current intraoperative CT scanning techniques are rapid, averaging 14.5 minutes per case. No decrease in total scan time was noted during the study; however, the surgeon most experienced with the CT software had the shortest total scan times. Intraoperative revisions were most common in complex cases. We recommend surgeons consider the use of intraoperative CT imaging for maxillofacial reconstruction, particularly in complex procedures. NA.

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**Title:** The value of early intraoral incisions in patients with perimandibular odontogenic maxillofacial abscesses.

**Citation:** Journal of cranio-maxillo-facial surgery : official publication of the European Association for Cranio-Maxillo-Facial Surgery, Mar 2015, vol. 43, no. 2, p. 220-223 (March 2015)

**Author(s):** Mücke, Thomas, Dujka, Nina, Ermer, Michael A, Wolff, Klaus-Dietrich, Kesting, Marco, Mitchell, David A, Ritschl, Lucas, Deppe, Herbert

**Abstract:** Perimandibular abscesses require drainage and removal of the underlying cause of infection. Traditionally drainage was established extraorally, but this can be associated with delay to treatment, because this is done under general anaesthesia. Between July 2008 and June 2013, 205 patients were initially either treated by immediate intraoral incision under local anaesthesia or extraoral incisions under general anaesthesia and prospectively evaluated. Predictors of treatment outcomes and complications were analysed. Fewer secondary procedures were needed for patients with primary treatment under general anaesthesia (p
Title: Subjective assessment of facial aesthetics after maxillofacial orthognathic surgery for obstructive sleep apnoea.

Citation: The British journal of oral & maxillofacial surgery, Mar 2015, vol. 53, no. 3, p. 235-238 (March 2015)

Author(s): Islam, Shofiq, Aleem, Fahd, Ormiston, Ian W

Abstract: We aimed to evaluate the subjective perception of facial appearance by patients after maxillofacial surgery for obstructive sleep apnoea (OSA), and explored the possible correlation between satisfaction and surgical outcome. A total of 26 patients, 24 men and 2 women (mean (SD) age 45 (7) years), subjectively assessed their facial appearance before and after operation using a visual analogue scale (VAS). To investigate a possible association between postoperative facial appearance and surgical outcome, we analysed postoperative scores for the apnoea/hypopnoea index (AHI) and Epworth sleepiness scale (ESS). Postoperatively, 14 (54%) indicated that their facial appearance had improved, 4 (15%) recorded a neutral score, and 8 (31%) a lower score. The rating of facial appearance did not correlate with changes in the AHI or ESS following surgery. This study supports the view that most patients are satisfied with their appearance after maxillofacial orthognathic surgery for OSA. The subjective perception of facial aesthetics was independent of the surgical outcome. Copyright © 2014 The British Association of Oral and Maxillofacial Surgeons. Published by Elsevier Ltd. All rights reserved.

Title: Incidence of symptomatic venous thromboembolism in oncological oral and maxillofacial operations: retrospective analysis.

Citation: The British journal of oral & maxillofacial surgery, Mar 2015, vol. 53, no. 3, p. 244-250 (March 2015)


Abstract: We retrospectively analysed the incidence of symptomatic venous thromboembolism (VTE) and associated risk factors in operations under general anaesthesia for cancer of the oral cavity. To identify symptoms related to deep venous thrombosis (DVT) and pulmonary embolism (PE), together with associated risk factors, we reviewed medical records of patients operated on in the department of oral and maxillofacial surgery at the Queen Elizabeth Hospital, Birmingham, United Kingdom, between June 2007 and October 2012. All patients were categorised according to their level of risk of VTE. The incidence of VTE was calculated with univariate associations and odds ratios with related 95% confidence intervals, where possible. In total, 233 patients were included, comprising 244 operations (mean (SD) age at operation 60.9 (13) years). Almost all patients (97%) were classified as having the highest risk of VTE. Swelling of an extremity, expectoration of blood, and tightness of the chest were the most common symptoms for suspected cases. An incidence of 0.41% was found for symptomatic VTE; one man developed a PE 2 days after operation. Associations between the analysed factors and symptomatic VTE were not significant. The development of the complication in oncological oral and maxillofacial operations seems to be rare, even in patients with
a high risk. We cannot recommend the use of routine thromboprophylaxis, but it could be advocated in patients with obvious serious risk factors. Copyright © 2015. Published by Elsevier Ltd.

Title: Investigation of maxillofacial morphology and dental development in hemifacial microsomia.

Citation: The Cleft palate-craniofacial journal : official publication of the American Cleft Palate-Craniofacial Association, Mar 2015, vol. 52, no. 2, p. 203-209 (March 2015)

Author(s): Ahiko, Nozomi, Baba, Yoshiyuki, Tsuji, Michiko, Suzuki, Shoichi, Kaneko, Tsuyoshi, Kindaichi, Junko, Moriyama, Keiji

Abstract: Objective: Hemifacial microsomia (HFM) is a congenital anomaly characterized by unilateral underdevelopment of the mandible and ear. This study was conducted to characterize maxillofacial morphology and dental development in Japanese patients with HFM. Design: This is a retrospective hospital-based study. Patients: The subject population comprised 12 boys and 12 girls (average age, 9.3 years) diagnosed with HFM. Main Outcome Measures: We used posteroanterior (PA) and lateral cephalograms obtained at the first visit to analyze maxillofacial morphology and orthopantomograms to compare dental development between the affected and unaffected sides. Dental development was graded according to Nolla's stages of tooth calcification. Results: PA cephalogram analysis showed that the occlusal plane inclined upward on the affected side in each patient. The mandibular body and ramus were smaller on the affected side than on the unaffected side. Lateral cephalogram analysis showed that the patients tended to have steep mandibles, large gonial angles, and a slightly convex facial structure. The affected side/unaffected side ratio of the mandibular body and ramus correlated with SNB, ANB, convexity, and mandibular plane. The difference in dental development between the affected and unaffected sides was significant at the mandibular molars and the mandibular canine. Conclusions: This study demonstrates a correlation between lateral and frontal measurement parameters in patients with HFM. The data also showed delayed calcification in the mandibular molars on the affected side.

Cleft lip and palate

Title: Distraction osteogenesis and orthognathic surgery for a patient with unilateral cleft lip and palate.

Citation: American journal of orthodontics and dentofacial orthopedics : official publication of the American Association of Orthodontists, its constituent societies, and the American Board of Orthodontics, Mar 2015, vol. 147, no. 3, p. 381-393 (March 2015)

Author(s): Kim, Ji Hyun, Lee, Il Hong, Lee, Sang Min, Yang, Byoung Eun, Park, In Young

Abstract: Maxillary deficiency is a common feature in patients with repaired cleft lip and palate. Orthognathic surgery has been the conventional approach for the management of cleft-related maxillary hypoplasia. However, for patients with a severe maxillary deficiency, orthognathic surgery alone has many disadvantages, such as high relapse rates of 25% to 40%, instability, limited amount
of advancement, and a highly invasive surgical technique. As an alternative treatment method, distraction osteogenesis has been used successfully in the distraction of the mandible, the maxilla, the entire midface, and the orbits as well as the cranial bones, with stable outcomes. The type of distraction device, either external or internal, can be chosen based on the surgical goals set for the patient. In this study, we report on the use of a rigid external distraction device for maxillary advancement in a 22-year-old woman with a repaired unilateral cleft lip and palate and severe maxillary hypoplasia. After the distraction osteogenesis, 2-jaw surgery was performed to correct the maxillary yaw deviation and the mandibular prognathism. Copyright © 2015 American Association of Orthodontists. Published by Elsevier Inc. All rights reserved.

Title: Upper triangular flap method for primary repairs of incomplete unilateral cleft lip patients: minor to two-thirds way defects.

Citation: Annals of plastic surgery, Mar 2015, vol. 74, no. 3, p. 318-323 (March 2015)

Author(s): Koh, Kyung S, Oh, Tae Suk, Song, Jin Woo

Abstract: Incomplete unilateral cleft lips show a wide range of deformities, ranging from microform to near-complete clefts. Because there are different amounts and qualities of tissue present on the cleft and non-cleft sides, surgical approaches should make distinctions based on the remnant tissue. A new procedure using an upper triangular flap that combines characteristics of both rotation advancement and straight line repair was applied and the surgical results were reviewed. Between June 2007 and April 2011, 28 patients with minor to two-thirds way unilateral cleft lips [minor (n = 12), one-third (n = 2), halfway (n = 11), and two-thirds way (n = 3)] were subjected to the upper triangular flap method. The patients ranged in age from 62 days to 6 years (mean, 9 months). The average follow-up period was 25 months (range, 12-60 months). The repairs were successful in all 28 patients without complications. The scar was acceptable because it ran along the vertical philtral columns. During the follow-up period, long lip deformities and Cupid bow drooping were not observed in any of the patients. However, misalignment of the white skin roll was observed due to insufficient rotation at the cleft side in 1 patient. The repairs of minor to two-thirds way unilateral cleft lips using the upper triangular flap method allowed for a symmetric Cupid bow and philtrum. Moreover, this method allowed for satisfactory nostril sill reconstruction with acceptable scarring. The upper triangular flap method is recommended as an alternative to conventional methods for repair of minor to two-thirds way incomplete unilateral cleft lips.

Title: The double unilimb z-plasty technique for whistler deformity repair in unilateral cleft lip patients: an anthropometric study.

Citation: Annals of plastic surgery, Mar 2015, vol. 74, no. 3, p. 324-329 (March 2015)

Author(s): Rossell-Perry, Percy, Cotrina-Rabanal, Omar

Abstract: The purpose of this study was to evaluate the symmetry in lip and vermilion height after using the double unilimb Z-plasty method for whistler deformity repair. This is a retrospective audit
of 1 surgeon's outcome of 52 consecutive performed whistler deformity repairs. Data from the Outreach Surgical Center Program, Lima, Peru, were used. Since 2009, 52 adult patients with lip deformity related to unsatisfactory unilateral cleft lip repair were operated on using the double unilimb Z-plasty. All these patients met the study criterion of having anthropometric measurements performed at least 1 year postoperatively. Data collection of lip and vermilion height was performed at the right and left side of the lip, immediately before the surgery (preoperative) and at least 1 year postoperatively. The lip measurements were obtained using calipers. The matched pair t test analyses were performed when the assumptions required were met. When the normality assumption was not met, the Wilcoxon signed rank test, a nonparametric test, was used to assess the statistical significance of differences between the cleft side and the noncleft side. The study found no statistically significant differences between the right and left side in lip height (P = 0.51) and vermilion height (P = 0.57) after lip repair using the double unilimb Z-plasty technique measured at least 1 year postoperatively. The findings suggest that the double unilimb Z-plasty technique is a good alternative to address the whistler deformity related to the unilateral cleft lip primary repair. This is a simple method, easy to perform by surgeons, for whistler deformity management in unilateral cleft lip patients.

Title: Extent of palatal lengthening after cleft palate repair as a contributing factor to the speech outcome.

Citation: Annals of plastic surgery, Mar 2015, vol. 74, no. 3, p. 330-332 (March 2015)

Author(s): Bae, Yong-Chan, Choi, Soo-Jong, Lee, Jae-Woo, Seo, Hyoung-Joon

Abstract: Operative techniques in performing cleft palate repair have gradually evolved to achieve better speech ability with its main focus on palatal lengthening and accurate approximation of the velar musculature. The authors doubted whether the extent of palatal lengthening would be directly proportional to the speech outcome. Patients with incomplete cleft palates who went into surgery before 18 months of age were intended for this study. Cases with associated syndromes, mental retardation, hearing loss, or presence of postoperative complications were excluded from the analysis. Palatal length was measured by the authors' devised method before and immediately after the cleft palate repair. Postoperative speech outcome was evaluated around 4 years by a definite pronunciation scoring system. Statistical analysis was carried out between the extent of palatal lengthening and the postoperative pronunciation score by Spearman correlation coefficient method. However, the authors could not find any significant correlation. Although the need for additional research on other variables affecting speech outcome is unequivocal, we carefully conclude that other intraoperative constituents such as accurate reapproximation of the velar musculature should be emphasized more in cleft palate repair rather than palatal lengthening itself.

Title: The burden of selected congenital anomalies amenable to surgery in low and middle-income regions: cleft lip and palate, congenital heart anomalies and neural tube defects.

Citation: Archives of disease in childhood, Mar 2015, vol. 100, no. 3, p. 233-238 (March 2015)
Author(s): Higashi, Hideki, Barendregt, Jan J, Kassebaum, Nicholas J, Weiser, Thomas G, Bickler, Stephen W, Vos, Theo

Abstract: To quantify the burden of selected congenital anomalies in low and middle-income countries (LMICs) that could be reduced should surgical programmes cover the entire population with access to quality care. Burden of disease and epidemiological modelling. LMICs from all global regions. All prevalent cases of selected congenital anomalies at birth in 2010. Disability-adjusted life years (DALYs). Surgical programmes for three congenital conditions were analysed: clefts (lip and palate); congenital heart anomalies; and neural tube defects. Data from the Global Burden of Disease 2010 Study were used to estimate the combination of fatal burden that could be addressed by surgical care and the additional long-term non-fatal burden associated with increased survival. Of the estimated 21.6 million DALYs caused by these three conditions in LMICs, 12.4 million DALYs (57%) are potentially addressable by surgical care among the population born with such conditions. Neural tube defects have the largest potential with 76% of burden amenable by surgery, followed by clefts (59%) and congenital heart anomalies (49%). Sub-Saharan Africa and South Asia have the greatest proportion of surgically addressable burden for clefts (68%), North Africa and Middle East for congenital heart anomalies (73%), and South Asia for neural tube defects (81%). There is an important and neglected role surgical programmes can play in reducing the burden of congenital anomalies in LMICs. Published by the BMJ Publishing Group Limited. For permission to use (where not already granted under a licence) please go to http://group.bmj.com/group/rights-licensing/permissions.

Title: Behavioral assessment of auditory processing disorder in children with non-syndromic cleft lip and/or palate.

Citation: International journal of pediatric otorhinolaryngology, Mar 2015, vol. 79, no. 3, p. 349-355 (March 2015)

Author(s): Ma, Xiaoran, McPherson, Bradley, Ma, Lian

Abstract: Peripheral hearing disorders have been frequently described in children with non-syndromic cleft lip and/or palate (NSCL/P). However, auditory processing problems are rarely considered for children with NSCL/P despite their poor academic performance in general compared to their craniofacially normal peers. This study aimed to compare auditory processing skills, using behavioral assessment techniques, in school age children with and without NSCL/P. One hundred and forty one Mandarin-speaking children with NSCL/P aged from 6.00 to 15.67 years, and 60 age-matched, craniofacially normal children, were recruited. Standard hearing health tests were conducted to evaluate peripheral hearing. Behavioral auditory processing assessment included adaptive tests of temporal resolution (ATTR), and the Mandarin pediatric lexical tone and disyllabic-word picture identification test in noise (MAPPID-N). Age effects were found in children with cleft disorder but not in the control group for gap detection thresholds with ATTR narrow band noise in the across-channel stimuli condition, with a significant difference in test performance between the 6 to 8 year group and 12 to 15 year group of children with NSCL/P. For MAPPID-N, the bilateral cleft lip and palate subgroup showed significantly poorer SNR-50% scores than the control group in the condition where speech was spatially separated from noise. Also, the cleft palate participants
showed a significantly smaller spatial separation advantage for speech recognition in noise compared to the control group children. ATTR gap detection test results indicated that maturation for temporal resolution abilities was not achieved in children with NSCL/P until approximately 8 years of age compared to approximately 6 years for craniofacially normal children. For speech recognition in noisy environments, poorer abilities to use timing and intensity cues were found in children with cleft palate and children with bilateral cleft lip and palate compared to craniofacially normal children. Consequently, it is worthwhile to consider the potential for auditory processing disorder in when assessing the auditory status of children with NSCL/P. Copyright © 2014 Elsevier Ireland Ltd. All rights reserved.

Title: Risk of persistent palatal fistula in patients with cleft palate.

Citation: JAMA facial plastic surgery, Mar 2015, vol. 17, no. 2, p. 126-130 (March 1, 2015)

Author(s): Ahmed, Mairaj K, Maganzini, Anthony L, Marantz, Paul R, Rousso, Joseph J

Abstract: Many individuals with a cleft palate also have an associated craniofacial syndrome or anomaly. To investigate the predictive associations of persistent palatal fistulas in patients with previously repaired cleft palate. We performed a case-control study of patients with cleft palate repairs from January 1, 1986, through December 31, 2000, at a major tertiary care hospital center in the Bronx, New York. The study population consisted of patients who had their primary surgery before the age of 3 years and had all their cleft-related treatment completed at the same hospital center. Palatal fistula was defined as a breakdown of the primary surgical repair of the palate, resulting in persistent patency between the oral and nasal cavities. Data collection was conducted by using the hospital centers' electronic medical records and patient tracking systems and confirmed by review of hard copies of patient records. The Veau classification system was used to classify the preoperative cleft severity. A total of 130 patients were identified-23 patients with palatal fistula and 107 controls. A total of 12 girls and 11 boys were identified in the palatal fistula group and 56 girls and 51 boys in the control group. The mean patient age at the time of palatoplasty was 12.6 and 14.5 months in the palatal fistula and control groups, respectively. A statistically significant association was found between the outcome of fistula and severity of cleft, as defined by the Veau classification system (P = .01). Furthermore, for each Veau class increase, the odds of a palatal fistula increased by 2.64 (95% CI, 1.35-5.13; P = .004). No statistically significant associations were found between the outcome of fistula and the following independent variables: patient sex (P = .98), patient age at palatoplasty (P = .82), type of palatoplasty (P = .57), surgeon (P = .15), orthodontic treatment (P = .59), ear infection (P = .30), or clefts associated with syndromes (P = .96). Palatal fistulas are reliably associated with severity of cleft, as defined by the Veau classification system. This knowledge gives the health care professional a more reliable method of preoperatively assessing the risk of postoperative palatal fistula in the cleft palate population.

Title: Facial tissue depths in children with cleft lip and palate.

Citation: Journal of forensic sciences, Mar 2015, vol. 60, no. 2, p. 274-284 (March 2015)
Author(s): Starbuck, John M, Ghoneima, Ahmed, Kula, Katherine

Abstract: Cleft lip and palate (CLP) is a craniofacial malformation affecting more than seven million people worldwide that results in defects of the hard palate, teeth, maxilla, nasal spine and floor, and maxillobuccal asymmetry. CLP facial soft-tissue depth (FSTD) values have never been published. The purpose of this research is to report CLP FSTD values and compare them to previously published FSTD values for normal children. Thirty-eight FSTDs were measured on cone beam computed tomography images of CLP children (n = 86; 7-17 years). MANOVA and ANOVA tests determined whether cleft type, age, sex, and bone graft surgical status affect tissue depths. Both cleft type (unilateral/bilateral) and age influence FSTDs. CLP FSTDs exhibit patterns of variation that differ from normal children, particularly around the oronasal regions of the face. These differences should be taken into account when facial reconstructions of children with CLP are created. © 2014 American Academy of Forensic Sciences.

Title: Assessment of morbidity following insertion of fixed preoperative orthopedic appliance in infants with complete cleft lip and palate.

Citation: Oral surgery, oral medicine, oral pathology and oral radiology, Mar 2015, vol. 119, no. 3, p. 278-284 (March 2015)

Author(s): Bronkhorst, A, Allareddy, V, Allred, E, Ross, E, Shusterman, S

Abstract: To examine physiologic and behavioral indicators of pain within the first 24 hours following insertion of the fixed presurgical orthopedic appliance (FPOA) under general anesthesia in infants with unilateral and bilateral complete cleft lip and palate. The study sample included 109 infants who had either a dentomaxillary appliance (DMA) or an elastomeric chain premaxillary retraction (ECPR) appliance. Vital signs and FLACC (Face, Legs, Activity, Cry, Consolability) scores were used to measure the outcomes. There was an initial postoperative increase in the median heart rate. Heart rate returned to the median baseline level by 8 hours. The median systolic blood pressure increased postoperatively and remained elevated throughout the time of evaluation. The median respiratory rate remained below that at baseline throughout the study period. The highest mean change in FLACC measurements was observed approximately 2 hours postoperatively. By 3 hours postoperatively, the scores decreased. Although there was a large individual variability, the FLACC scores became reduced after 3 hours following surgical insertion of the DMA and the ECPR appliance. Copyright © 2015 Elsevier Inc. All rights reserved.

Title: Curvilinear transformation of z-shaped upper lip scar by diamond-shaped excision in secondary cleft lip deformities: a photogrammetric evaluation.

Citation: The Cleft palate-craniofacial journal : official publication of the American Cleft Palate-Craniofacial Association, Mar 2015, vol. 52, no. 2, p. 143-151 (March 2015)

Author(s): Han, Kihwan, Jeong, Hoijoon, Choi, Tae Hyun, Kim, Jun Hyung, Son, Daegu
Abstract: Purpose: The visible Z-shaped upper lip scar that occurs after the Tennison and Randall triangular flap technique remains a cleft stigma. Herein, we present our curvilinear transformation technique for the Z-shaped upper lip scar by diamond-shaped excision and evaluate the results using photogrammetric analyses. Patients and Methods: From 1997 to 2006, 23 patients with secondary cleft lip deformity with the visible Z-shaped upper lip scar underwent correction with the technique. The scar was excised in the diamond shape above the muscle. After curvilinear closure, the elongated length of the upper lip was excised just below the nostril sill, as the measured Cupid's bow height discrepancy. The result was assessed by the authors' standardized photogrammetry technique. Results: There was a statistically significant decrease between the preoperative central limb of the Z-shaped scar and the width of the postoperative curvilinear upper lip scar. The pre- and postoperative Cupid's bow height differences were not statistically significant. Conclusions: The curvilinear transformation of the Z-shaped scar is an efficient procedure that provides (1) a significant decrease in the width of an upper lip scar to make it less conspicuous, (2) incorporation of the scar into the philtral column, (3) a biconcave natural philtral column shape in frontal view, and (4) formation of the natural concave philtral contour in profile view.

Title: Longitudinal study of growth of children with unilateral cleft lip and palate: 2 to 10 years of age.

Citation: The Cleft palate-craniofacial journal : official publication of the American Cleft Palate-Craniofacial Association, Mar 2015, vol. 52, no. 2, p. 192-197 (March 2015)

Author(s): Marques, Ilza Lazarini, Nackashi, John, Borgo, Hilton Coimbra, Martinelli, Angela Patrícia Menezes Cardoso, de Souza, Luiz, Dutka, Jeniffer de Cássia Rillo, Williams, William N, Pegoraro-Krook, Maria Inês

Abstract: Objective: To study the growth of children with complete unilateral cleft lip and palate (UCLP) from 2 to 10 years of age and to assess whether growth varied from that of children without UCLP (typical children). Design: Physical growth was one of the outcome measures of a National Institutes of Health-sponsored longitudinal, prospective clinical trial conducted by the University of Florida and the University of São Paulo. Setting: Hospital of Rehabilitation of Craniofacial Anomalies, University of São Paulo (HRAC-USP), Bauru, Brazil. Main Outcome Measures: Height and weight were prospectively measured for 360 healthy children with UCLP who were nonsyndromic, belonged to median socioeconomic status, and received health care at HRAC-USP. To compare growth of children with UCLP to that of typical children, growth curves for UCLP were developed and compared with World Health Organization curves for 2006 and 2007, which were used as reference for typical children. Third-degree polynomials were used to explain the relationship of length and weight with age. Confidence limits of 95% were used for the mean curve using the statistic $Z \sim N (0,1)$. Results: Children with UCLP from 2 to 10 years old presented height and weight growth curves similar to those of typical children for both genders. Conclusion: Children with UCLP from 2 to 10 years old presented physical growth similar to that of typical children.
Title: Optimization of dental status improves long-term outcome after alveolar bone grafting in unilateral cleft lip and palate.

Citation: The Cleft palate-craniofacial journal : official publication of the American Cleft Palate-Craniofacial Association, Mar 2015, vol. 52, no. 2, p. 210-218 (March 2015)

Author(s): Jabbari, Fatima, Skoog, Valdemar, Reiser, Eicka, Hakelius, Malin, Nowinski, Daniel

Abstract: Objective : To evaluate the importance of dental status for long-term outcome after alveolar bone grafting in patients with unilateral cleft lip and palate. Design : Retrospective longitudinal study. Setting : Cleft lip and palate-craniofacial center, Uppsala University Hospital, Sweden. Patients : A total of 67 consecutive patients with unilateral complete cleft lip and palate. Interventions : Secondary alveolar bone grafting, prior to the eruption of the permanent canine, was performed at the average age of 10.0 years (range, 8.5 to 12.0 years). Main Outcome Measures : Alveolar bone height was evaluated with the modified Bergland index at 1 and 10 years after surgery. Results : Of the patients, 97% had modified Bergland index grade I and the remaining 3% had modified Bergland index grade II at 1 year after surgery. At 10 years' follow-up, 43% showed modified Bergland index grade I; 55%, modified Bergland index grade II; and 2% (one patient), modified Bergland index grade III. The degree of dental anomalies in the cleft area, such as enamel hypoplasia, incisor rotation, incisor inclination, canine inclination, and oral hygiene registered preoperatively, all correlated negatively to the modified Bergland index at 10 years after surgery. Enamel hypoplasia (p = 0.70195, P

Title: Unilateral microform cleft lip repair: application of muscle tension line group theory.

Citation: The Journal of craniofacial surgery, Mar 2015, vol. 26, no. 2, p. 343-346 (March 2015)

Author(s): Yin, Ningbei, Song, Tao, Wu, Jiajun, Chen, Bo, Ma, Hengyuan, Zhao, Zhenmin, Wang, Yongqian, Li, Haidong, Wu, Di

Abstract: In microform cleft lip repair, reconstructing the elaborate structures is difficult. We describe a new technique of unilateral microform cleft lip repair that is based on the muscle tension line group theory. According to the shape of Cupid bow, a different small incision is used without creating an obvious cutaneous scar. First, the nasolabial muscle around the nasal floor (the first auxiliary tension line group) is reconstructed, and then the orbicularis oris muscle around the philtrum (the second auxiliary tension line group) is reconstructed based on the muscle tension line group theory. From June 2006 to June 2012, the technique was used in 263 unilateral microform cleft lip repairs. For 18 months, 212 patients were followed up. The appearance of the nasal alar, nasal sill, philtrum, and Cupid bow peak improved. Most patients had a satisfactory appearance. Based on the muscle tension line group theory, using this technique offers the ability to adduct the nasal alar effectively to form a good nasal sill and philtrum.

Title: Asymmetric Maxillary Protraction for Unilateral Cleft Lip and Palate Patients Using Finite Element Analysis.
Unilateral cleft lip and palate (UCLP) patients frequently present with an asymmetry in the nasomaxillary complex and a maxillary hypoplasia. The aim of this study was to investigate biomechanic effects of asymmetric maxillary protraction in UCLP patients using finite element method. A finite element model of a UCLP patient's skull was generated using data from spiral computed tomographic scans. On the basis of this finite element model, three groups of orthopedic forces were loaded. All forces were applied in a direction that was 30 degrees downward and forward to the occlusal plane on the region of the alveolar of the maxillary canine. The value of orthopedic force was 5 N in cleft side and 5 N in noncleft side (group A), 6 N in cleft side and 5 N in noncleft side (group B), and 7 N in cleft side and 5 N in noncleft side (group C), respectively. All 3 groups were effective in promoting maxilla forward. In group B, the displacement difference between the cleft side and the noncleft side was the smallest. The largest value difference between the cleft side and the noncleft side was found in group C. Maxillary protraction with a loading of 6 N in the cleft side and 5 N in the noncleft side produced the most favorable outcome. It can be suggested that it might be advantageous to perform asymmetric maxillary protraction on UCLP patients.
Title: How do general dentists and orthodontists determine where to refer patients requiring oral and maxillofacial surgical procedures?

Citation: Journal of Oral & Maxillofacial Surgery (02782391), 01 March 2015, vol./is. 73/3(509-513), 02782391

Author(s): Schlieve, Thomas, Funderburk, Joseph, Flick, William, Miloro, Michael, Kolokythas, Antonia

Abstract: PURPOSE: This study investigated the influence of specific criteria on referral selection among general dentists and orthodontists in deciding referrals to oral and maxillofacial surgeons. MATERIALS AND METHODS: A cross-sectional study was designed to examine the importance of criteria used by 2 groups of practitioners, general dentists and orthodontists, for deciding on referrals to oral and maxillofacial surgeons. Data were collected by 2 multiple-choice surveys. The surveys were e-mailed to general dentists and orthodontists practicing in the state of Illinois and to graduates from the University of Illinois at Chicago (UIC) College of Dentistry and the UIC Department of Orthodontics. Participants were asked to rate referral criteria from most important to least important. Analysis of variance was used to examine the data for any differences in the importance of the criteria for each question and linear regression analysis was used to determine whether any 1 criterion was statistically meaningful within each group of practitioners. RESULTS: In total, 235 general dental practitioners and 357 orthodontists completed the survey, with a 100% completion rate. The most important criterion for referral to oral and maxillofacial surgeons in the general dentist group was the personal and professional relationship of the referring doctor to the specialist. In the orthodontist group, no single criterion was statistically meaningful. CONCLUSION: General dentists tend to develop long-term relationships with their patients, and when deciding the appropriate referrals it appears that personal and professional relationships that promote trust and open communication are key elements. General dentists favor these relationships when making referral decisions across a wide spectrum of procedures. Orthodontists do not place a substantial value on a specific criterion for referral and therefore may not develop the same relationships between patient and doctor and between doctors as general dentists.
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