

Does Platform Switching Help Preserve Crestal Bone?

Immediate Maxillary Restoration of Single-Tooth Implants Using Platform Switching for Crestal Bone Preservation: A 12-Month Study.

Calvo-Guirado JL, Ortiz-Ruiz AJ, et al:

Int J Oral Maxillofac Implants 2009; 24 (2): 275-281

Minimal first year peri-implant crestal bone loss is seen 1 year after extraction, immediate implant placement and restoration, and use of platform switching abutment connection.

Objective: To look at implant survival and crestal peri-implant bone stability after immediate placement of implants in extraction sites and simultaneous restoration using platform switching.

Design: Prospective clinical study.

Participants: 50 patients in whom 61 implants were placed.

Methods: All patients recruited for the study needed anterior oral rehabilitation that included removal of a single tooth with implant replacement. Enough residual alveolar bone was needed to accommodate an implant with a minimum of 4.1 mm in diameter and 10 mm in length. Implants used in the study were Certain Prevail 3i 4 mm in diameter fixtures that expand at the coronal portion to a 4.8-mm collar and a restorative platform connected to a 4.1-mm prosthetic abutment. Restorative treatment started as soon as implant placement was completed, and a temporary crown was placed within 24 hours. Clinical and radiographic exams were done after abutment connection at 15 days postoperatively and again 1, 2, 3, 6, 8, and 12 months later. Evaluations included marginal bone height, width of keratinized mucosa, implant stability, probing depth, and any evidence of sepsis. Final porcelain crowns were placed 15 days after implant insertion.

Results: The reasons that teeth needed removal were due to sports trauma, fracture, and/or endodontic failure. Thirty-four subjects had thick-tissue biotypes, and 16 had thinner gingival tissues. The mean patient age was 39.64 years. Eleven patients needed 2 teeth removed and 2 implants; the remaining patients needed 1 implant. All implants were placed in the anterior maxilla. All implants were stable by resonance frequency analysis at insertion, and all but one remained stable (the one that did not remain stable was removed). Overall, implant survival at 12 months was 96.7%. Mean crestal bone loss at 12 months was just 0.08 mm, with almost all fixtures having probing depths <3 mm.

Conclusions: When a platform-switching technique is used with immediate implant placement and restoration after tooth removal, crestal bone loss appears to be less than normally expected in the year following usual implant placement and restoration.

Reviewer's Comments: This is a very interesting paper that clearly describes this small prospective clinical study. The paper's introduction nicely details the problems and theories we have about peri-implant crestal bone loss shortly after placement and restoration and the concept of platform switching. (Reviewer-Sterling R. Schow, DMD).

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Keywords: Single-Tooth Implants, Platform Switching

Print Tag: Refer to original journal article

Plexiform Ameloblastoma Can Metastasize to Lymph Nodes

Metastatic Ameloblastoma to the Cervical Lymph Nodes: A Case Report and Review of Literature.

Cardoso A, Lazow SK, et al:

J Oral Maxillofac Surg 2009; 67 (1163-1166):

Although rare, metastatic ameloblastoma does occur in cervical lymph nodes.

Objective: To review the literature and present a case of metastatic spread of a plexiform ameloblastoma.

Design/Methods: One case of metastatic spread of ameloblastoma is presented, along with a review of the literature. **Case Report:** A 27-year-old patient had ameloblastoma of the mandible that was resected and reconstructed reported 3 years later with swelling in a submandibular region. Removal of the submandibular gland along with the neoplastic lesion resulted in a pathologic diagnosis of metastatic plexiform ameloblastoma with similar histologic features to the original tumor. Malignant ameloblastoma with metastatic spread to regional lymph nodes is reported in this case.

Results: A review of the literature reported 14 metastatic ameloblastomas in the English language literature. The most common variances to metastasize are plexiform and follicular ameloblastomas. Metastasis most commonly occurs in the lungs and lymph nodes but has also been seen in the liver, brain, bone, kidneys, and intestines.

Conclusions: Although rare, metastatic ameloblastomas do occur, and the most likely region for metastasis is the lungs and lymph nodes.

Reviewer's Comments: This is an interesting study of metastatic spread of an ameloblastoma 3 years after original diagnosis. Although rare, these tumors do exist and should be on the differential diagnosis list of any lymph node mass in a patient with a history of ameloblastoma. (Reviewer-Edwin D. Joy, Jr, DDS).

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Keywords: Metastatic Ameloblastoma, Pathology & Immunology

Print Tag: Refer to original journal article

Parotidectomy Wounds--Is Adhesive Better Than Sutures?

Incidence of Hypertrophic and Keloid Scars After N-Butyl 2-Cyanoacrylate Tissue Adhesive Had Been Used to Close Parotidectomy Wounds: A Prospective Study of 100 Consecutive Patients.

Greenhill GA, O'Regan BO:

Br J Oral Maxillofac Surg 2009; 47 (290-293):

The rate of hypertrophic scarring and keloid formation with a tissue adhesive is similar to that seen with conventional sutures.

Objective: To determine the incidence of hypertrophic and keloid scarring following the use of N-butyl 2-cyanoacrylate adhesive.

Design/Participants: Prospective clinical investigation involving 100 patients.

Methods: All patients underwent a parotidectomy with a modified Blair incision. In all cases, the subcutaneous tissues were closed with polyglactin, and the cutaneous layer was closed with N-butyl 2-cyanoacrylate. The aesthetics of the closure were evaluated at various times over a 6-month period. Any patient who showed hypertrophic scarring at the 6-month evaluation was followed up for another 6 months. If the abnormal scar persisted for a year, it was determined to be a keloid, since a hypertrophic scar should have resolved within a year.

Results: All of the patients were white, with a mean age of 47.7 years; 99 of 100 patients had benign disease on histopathological examination. Surgical complications consisted of the following: sialocele (1), hemorrhage (1), and wound infection (1). Abnormal scarring was seen in 17 patients. In 8 cases, there was spontaneous regression of the scarring in 6 to 12 months. Those scars were deemed hypertrophic, and the remaining 9 cases were classified as keloid scars. In all cases, the keloids were found in the infra-auricular region of the scar.

Conclusions: There were a total of 17 cases of abnormal scarring, 8 hypertrophic and 9 keloid scarring in nature. The rate of hypertrophic and keloid scarring with a tissue adhesive is within the range seen with suturing.

Reviewer's Comments: This is a well-done investigation revealing the acceptable incidence of abnormal scar formation associated with a tissue adhesive. One advantage of a tissue adhesive is the rapidity in which the cutaneous layer can be closed. (Reviewer-David M. Grogan, DMD).

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Keywords: Hypertrophic & Keloid Scars

Print Tag: Refer to original journal article

Ketamine Plus Local Anesthesia Reduces Postoperative Pain

Assessment of Combined Local Anesthesia and Ketamine for Pain, Swelling, and Trismus After Surgical Extraction of Third Molars.

SatilmıÅ T, Garip H, et al:

J Oral Maxillofac Surg 2009; 67 (1206-1210):

The combination of ketamine and local anesthesia for the removal of impacted third molars will reduce postoperative pain, swelling, and trismus.

Objective: To assess the efficacy of combining local anesthetic with ketamine for the prevention of postoperative pain, swelling, and trismus after the extraction of third molars.

Design: Prospective, randomized study of patients requiring the removal of mandibular impacted third molars.

Participants/Methods: 50 patients requiring the removal of horizontal impacted mandibular third molars were divided into 2 groups. The first group was given local anesthetic alone for the surgical procedure along with saline. The second group was given the same local anesthetic combined with ketamine. Patient satisfaction, surgeon satisfaction, postoperative pain, postoperative swelling, and trismus were measured in both groups, and the difference was statistically compared. Patients were seen postoperatively at 30 minutes and 1, 4, 12, and 24 hours.

Results: There was a statistically significant reduction in postoperative pain, swelling, and trismus with the combination of ketamine and local anesthetic over local anesthetic alone. Patient satisfaction with the procedure was statistically better with the ketamine local combination, as was the surgeon's satisfaction with the procedure.

Conclusions: The addition of ketamine to a local anesthetic solution reduces postoperative pain, swelling, and trismus and also improves patient satisfaction with the surgical procedure in the removal of impacted third molars.

Reviewer's Comments: This is a very interesting paper showing that the combination of ketamine and local anesthesia can significantly improve pain, swelling, and trismus after the removal of mandibular third molars because of the significant pharmacological activity of ketamine. (Reviewer-Edwin D. Joy, Jr, DDS).

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Keywords: Anesthesia & Analgesia

Print Tag: Refer to original journal article

What Factors Predict Impossible Mask Ventilation?

Prediction and Outcomes of Impossible Mask Ventilation: A Review of 50,000 Anesthetics.

Kheterpal S, Martin L, et al:

Anesthesiology 2009; 110 (April): 891-897

Neck radiation changes are the most significant predictor of impossible mask ventilation and difficult intubation.

Objective: To look at cases of impossible mask ventilation and to determine its predictors, incidence, and outcomes.

Design: 4-year observational study.

Participants: Patients having 53,041 attempts at mask ventilation in the authors' institution over the study period.

Methods: All adult patients having a general anesthetic were included in the study. Patients who had no attempt at mask ventilation were excluded. For each case, a detailed pre-anesthetic history and physical examination were done by an anesthesia provider, which included anthropomorphic details, airway examination, and other general patient clinical information. The evaluation included details about cervical spine mobility, dentition, neck anatomy, thyromental distance, jaw position, mouth opening, and Mallampati oropharyngeal classification. The experience level of the anesthesia provider was also considered. The primary outcome was impossible mask ventilation despite multiple airway adjuvants and 2-handed mask ventilation with and without neuromuscular blockade. Secondary outcomes included the ultimate airway management technique and the difficulty of intubation in patients who could not be mask ventilated.

Results: A total 53,041 patients had an attempt at mask ventilation. Of these, only 77 patients (0.15%) were impossible to mask ventilate. Of the 77 impossible-to-mask-ventilate individuals, 25% were also difficult to intubate (19), and 15 of these patients were eventually successfully intubated (the other 4 were also eventually intubated). An alternative intubation method was needed for 12 patients, including 2 needing surgical airways and 2 who were awakened and then intubated using flexible fiberoptic instrumentation. Of the 77 impossible-to-mask-ventilate patients, all but 4 received neuromuscular blockade in the process of managing their airway. The study identified 5 independent predictors of impossible mask ventilation: neck radiation changes, male sex, sleep apnea, Mallampati class III or IV, and the presence of a beard. Patients who had ≥ 3 of these risk factors were determined to have an odds ratio of 8.9 for impossible mask ventilation compared to patients with none of these risk factors.

Conclusions: Impossible mask ventilation is infrequent. However, when it occurs, it is also associated with difficult intubation. Neck radiation changes may be the most significant predictor of both problems.

Reviewer's Comments: The authors point out that their findings may be somewhat skewed because patients at very high risk probably underwent awake fiberoptic intubation from the outset. Additionally, they do not offer concrete guidance on the management of patients who are impossible to mask ventilate. (Reviewer-Sterling R. Schow, DMD).

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Keywords: Anesthesia & Analgesia

Print Tag: Refer to original journal article

Preventing CV Events in Patients with PAD--Does Aspirin Really Work?

Aspirin for the Prevention of Cardiovascular Events in Patients With Peripheral Artery Disease: A Meta-Analysis of Randomized Trials.

Berger JS, Krantz MJ, et al:

JAMA 2009; 301 (May 13): 1909-1919

Aspirin alone or in combination with dipyridamole does not appear to reduce the risk of cardiovascular events in patients with peripheral vascular disease. It does appear to reduce the risk of nonfatal stroke.

Objective: To determine the effectiveness of aspirin in preventing cardiovascular events in patients with peripheral artery disease (PAD).

Design: A comprehensive literature review involving 5269 patients.

Methods: Data were extracted from multiple search platforms along with unpublished data from the Antithrombotic Trialists' Collaboration. All pertinent studies needed to be prospective, randomized, controlled investigations in which participants were taking aspirin alone or in combination with dipyridamole. The primary outcomes measured included the relative risk reduction of the following: nonfatal myocardial infarction, cardiovascular death, or nonfatal stroke in patients taking aspirin.

Results: 18 appropriate studies were identified with 5269 patients; 251 (8.9%) of the 2823 patients on aspirin suffered cardiovascular events versus 269 (11%) of the 2446 patients taking a placebo. This represented a 12% reduction in the cardiovascular event rate for patients on aspirin therapy, a statistically nonsignificant result. In contrast, a statistically significant reduction in nonfatal stroke was revealed, 2.1% with aspirin therapy versus 3.4% with placebo. The addition of dipyridamole had no significant effect on outcome.

Conclusions: Patients with PAD on aspirin therapy alone or in combination with dipyridamole had no significant reduction in the relative risk for cardiovascular events, but did have a statistically significant reduction in the risk of nonfatal stroke. The relatively small number of patients involved in these studies may be the reason for the lack of statistical significance, and further studies are indicated.

Reviewer's Comments: The therapeutic benefits of aspirin in patients with symptomatic coronary artery disease are very well established, but it appears that the benefits may not exist for patients with PAD. The 12% risk reduction appeared significant, but, due to the small sample size, it lacked statistical power. (Reviewer-David M. Grogan, DMD).

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Keywords: Aspirin, PAD

Print Tag: Refer to original journal article

Mid-Facial Fractures Can Be Treated With Resorbable Plate and Pin System

Clinical Experiences With Resorbable Ultrasonic-Guided, Angle-Stable Osteosynthesis in the Panfacial Region.

Reichwein A, Schicho K, et al:

J Oral Maxillofac Surg 2009; 67 (1211-1217):

A special resorbable pin welded ultrasonically into bone holding bone plates in the mid-face is superior to conventional screws.

Objective: To report the results of a retrospective study of mid-facial fractures treated with a resorbable plate and pin system for the fixation of several types of mid face and frontal bone fractures.

Participants/Methods: 75 patients underwent surgery for a variety of mid-facial and frontal bone fractures. A resorbable plating system used a conventional plate and specially designed pins that could be welded into the bone and welded to the plate with an ultrasonic device. The long-term results of fractures treated with this method were evaluated for complications and satisfactory healing.

Results: All fractures healed without significant complications. There was some swelling around plates where the soft-tissue coverage was thin. The surgical procedure was relatively easy and required very little additional training.

Conclusions: The use of resorbable plates with the welded screw provides excellent results with freedom from complications and excellent long-term healing.

Reviewer's Comments: This is an interesting procedure that precludes the need for tapping a thread into thin bone in the mid-face as required for the use of conventional screws. (Reviewer-Edwin D. Joy, Jr, DDS).

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Keywords: Trauma, Mid-Facial Fractures

Print Tag: Refer to original journal article

Cervical Necrotizing Fasciitis Should Be Treated Aggressively

Surgical Debridement and Adjunctive Hyperbaric Oxygen in Cervical Necrotizing Fasciitis.

Flanagan CE, Daramola OO, et al:

Otolaryngol Head Neck 2009; 140 (May): 730-734

The treatment of cervical necrotizing fasciitis needs to be aggressive and should include frequent surgical debridement, broad-spectrum antibiotic therapy, and hyperbaric oxygen therapy, if possible.

Objective: To present the authors' management techniques in treating cervical necrotizing fasciitis and their treatment results.

Design: Case-series records review with some comparisons to a 1994 study.

Participants: 10 patients admitted for treatment of cervical necrotizing fasciitis.

Methods: The records of each of the patients were identified and reviewed. Information obtained included demographics, presenting symptoms, etiology, co-morbidities, hospital and ICU stays, management, and complications. Treatment included broad-spectrum antibiotics, prompt surgical debridement, and, for 9 of the patients, hyperbaric oxygen (HBO). Surgical debridement was performed within 24 hours of admission for most patients and was always done before 48 hours.

Results: CT scans were performed for all patients. Most of the patients were transfers from other institutions. Eight of the patients developed necrotizing fasciitis as a result of an odontogenic infection. Three patients also had mediastinitis, one of which needed thoracic drainage. Bacterial cultures were all polymicrobial, and the most common isolates were streptococci. The average number of debridements required was 2.2. Airways were secured by tracheostomy for 6 patients. Hospital time ranged from 7 to 28 days, with an average of 11 ± 6 days. Four patients had both diabetes and hypertension as co-morbidities, whereas 3 patients had no known co-morbidity. Hospitalization time for patients with diabetes was double that of patients without diabetes. Nine patients had HBO therapy, each receiving a minimum of 3 dives. Compared to a similar group of patients reviewed in a 1994 study, HBO therapy reduced the mean hospital days from 32.1 in 1994 to 11 days in this study.

Conclusions: The index of suspicion for cervical necrotizing fasciitis should be high because early signs and symptoms are not good indicators of the potential severity of the disease. CT scans are important in making a diagnosis. Aggressive medical and surgical management is required when treating cervical necrotizing fasciitis, and HBO is thought to be helpful adjunctive treatment.

Reviewer's Comments: This is another paper reviewing this difficult clinical situation—a problem that is clearly life-threatening. Our experience is very similar to that of the authors. None of the patients presented in this review died. (Reviewer-Sterling R. Schow, DMD).

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Keywords: Infection, HBO

Print Tag: Refer to original journal article

Bisphosphonate Osteonecrosis--Protocol for Surgical Management

Bisphosphonate Osteonecrosis: A Protocol for Surgical Management.

Markose G, Mackenzie FR, et al:

Br J Oral Maxillofac Surg 2009; 47 (294-297):

Aggressive debridement of the alveolus that produces edge-to-edge closure without excessive mobilization of the adjacent periosteum significantly improves the healing potential of bisphosphonate-related osteonecrosis.

Objective: To present a protocol for the management of patients with bisphosphonate-related osteonecrosis.

Design: Retrospective clinical investigation.

Participants: 15 patients.

Methods: Patients were treated with parenteral therapy for a variable period of time for metastatic disease. All patients presented with symptomatic osteonecrotic lesions limited to a small portion of the alveolus. Asymptomatic lesions, pathological fractures, and lesions with extraoral fistulas were excluded. Involved teeth in the region were extracted, and the alveolar bone was removed to a level where bleeding bone was covered by periosteum. All patients were given a dose of clindamycin and placed on chlorhexidine mouthwash postoperatively. Patients were followed up on a routine schedule for 24 months.

Results: The mean age for the group was 64 years. Five patients were on zoledronate, 8 on pamidronate, and 2 had been on both agents. The 2 most frequent diagnoses were breast cancer and multiple myeloma. Four patients had developed lesions spontaneously, and the remaining cases were secondary to multiple tooth extractions. At 2 weeks, 14 patients had complete closure at the site, and the single remaining site was completely closed by week 3. Patients have been followed up for 24 months, all sites remain closed, and patients are without complaints.

Conclusions: Aggressive debridement of the alveolus, limited elevation of the periosteum, and edge-to-edge closure of the site improve the healing of bisphosphonate-related osteonecrosis of the jaw. Closure of the site with vascularized mucosa aids in the healing process.

Reviewer's Comments: This is a very interesting small series of patients. It is also interesting to note that these authors believed it was their limited mobilization of the periosteum and closure that assisted in healing, while a recent publication by Stanton et al had similar successes and utilized mucosal rotational flaps, necessitating a greater degree of periosteal elevation. (Reviewer-David M. Grogan, DMD).

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Keywords: Bisphosphonate Osteonecrosis

Print Tag: Refer to original journal article

Coronectomy in Third Molar Surgery Can Protect Inferior Alveolar Nerve

A Preferable Technique for Protecting the Inferior Alveolar Nerve: Coronectomy.

Dolanmaz D, Yildirim G, et al:

J Oral Maxillofac Surg 2009; 67 (1234-1238):

Intentional removal of the crown of an impacted third molar can protect the inferior alveolar nerve.

Objective: To evaluate the effectiveness of intentional coronectomy for teeth with roots that are in close proximity to the inferior alveolar nerve.

Design: A prospective study of patients with impacted mandibular third molars requiring removal with apices in close proximity to the inferior alveolar nerve.

Methods: Intentional coronectomy was performed under local anesthesia on these patients, with careful removal of the crown of the tooth without imparting any significant force onto the root. Patients were followed up for 24 months after surgery. Movement of the tooth as well as any complications were recorded.

Results: No significant complications were found in any patient. There was no damage to the inferior alveolar nerve. At the last follow-up, there was a 3-mm movement of the tooth roots away from the inferior alveolar nerve. A coronectomy can be performed satisfactorily on impacted mandibular third molars that are in close proximity to the inferior alveolar nerve, eliminating the part of the tooth most likely to result in odontogenic pathology and allowing the root to remain in place. Follow-up for up to 24 months shows no significant pathology, complete healing, and a slight movement of the roots away from the inferior alveolar nerve.

Conclusions: Intentional coronectomy of mandibular third molars in close proximity to the inferior alveolar nerve is a safe and efficient method for dealing with the pathological part of the impacted third molar without disturbing the inferior alveolar nerve.

Reviewer's Comments: This is a tried-and-true procedure that has been in use for some years, and this paper provides further evidence to the effectiveness of this surgical approach to these difficult third molars. (Reviewer-Edwin D. Joy, Jr, DDS).

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Keywords: Dentoalveolar Surgery

Print Tag: Refer to original journal article

How Common Is Marginal Mandibular Nerve Injury in Neck Dissection?

Marginal Mandibular Nerve Injury During Neck Dissection and Its Impact on Patient Perception of Appearance.

Batstone MD, Scott B, et al:

Head Neck 2009; 31 (May): 673-678

Smile asymmetry rates after neck dissections are relatively high, even though severe injuries to the marginal mandibular nerve are uncommon.

Objective: To determine the incidence of marginal mandibular nerve injury in patients undergoing a level 1 submandibular triangle neck dissection and to determine the patients' perception of their appearance after this procedure.

Design: Observational study.

Participants: 66 patients who had undergone 85 neck dissections.

Methods: All patients had been treated for an oral or oropharyngeal carcinoma which included a level 1 neck dissection. Some of the patients had bilateral procedures. All patients were operated on by 1 of 3 consultant surgeons or trainees under the consultant's supervision. In all cases, attempts were made to preserve the marginal mandibular nerve. The patients did not have preoperative radiation therapy, but some had postoperative RT. Examinations of the patients were completed at their scheduled follow-up appointments 6 months to 5 years following surgery. Patients responded to an 8-item questionnaire related to lip and smile function, swallowing, and perception of their appearance.

Results: The objective marginal mandibular nerve injury rate was 18% when analyzed by patient and 23% when analyzed by neck (19 patients had bilateral neck dissections). The injury rate was 28% for unilateral neck dissections and 11% for patients with bilateral neck dissections. In total, 50% of patients felt their surgery had caused no changes to their smile, 47% felt there was a slight change, and 5% said their smile bothered them. Most patients felt they were able to remain active. A third of the patients who had a unilateral neck dissection thought they had lip weakness on the operated side, as did 28% of patients who had a bilateral dissection. About 15% of patients felt some limitation with eating, smiling, or drinking. Patients who were treated for larger tumors generally reported more problems than those with smaller lesions. Women were more likely to have adverse comments regarding lip movement than were men, as were younger patients.

Conclusions: The incidence of lower lip asymmetry after neck dissection is high enough that it is important to discuss when obtaining informed consent for surgery.

Reviewer's Comments: Patients' perceptions of aesthetic outcomes after even ablative surgery are complex and dependent on many factors including age and sex. In addition to mandibular nerve injury, cervical nerve injury and platysma muscle transection can also affect lower lip symmetry and function. (Reviewer-Sterling R. Schow, DMD).

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Keywords: Marginal Mandibular Nerve Injury, Neck Dissection, Appearance

Print Tag: Refer to original journal article

Do You Graft Le Fort I Osteotomy Lines After Applying Rigid Fixation?

Improving Bony Stability in Maxillofacial Surgery: Use of Osteogenetic Materials in Patients With Profound (≥ 5 mm) Maxillary Advancement, A Clinical Study.

Kuvat SV, Cizmeci O, et al:

J Plast Reconstr Aesthet Surg 2009; 62 (May): 639-645

When maxillary osteotomy cuts are grafted with a mixture of human demineralized bone matrix and bovine bone, osseous healing follows without formation of ectopic bone.

Objective: To study the effects on the osseous healing of Le Fort I osteotomy cuts and the stability of the newly positioned maxilla when osteoconductive and osteoinductive human demineralized bone matrix and bovine bone matrix proteins combined with type I collagen are placed between the maxillary segments.

Design: Prospective clinical, radiographic, and histologic study.

Participants: 10 patients with a Class III facial profile and occlusion planned for a minimum of 5 mm of maxillary surgical advancement.

Methods: All patients had at least a year of orthodontic preparation prior to surgery. The patients all had both Le Fort I and mandibular ramus sagittal osteotomies with the maxilla being advanced a minimum 5 mm. The mobilized maxillae were rigidly stabilized using 4 titanium mini-plates and 16 screws. Following application of the rigid fixation, a mixture of human demineralized bone matrix and the bovine bone matrix in type I collagen was placed between the osteotomized segments. Maxillomandibular fixation was maintained for a week. On the second postop day, panoramic, lateral, and posteroanterior cephalometric radiographs were taken. Lateral cephalometric radiographs were repeated 3 and 12 months later to evaluate for surgical relapse. Thirty tomograms were obtained 3 and 12 months later to look for ectopic or abnormal bone formation. Four patients who wanted their bone plates removed a year after surgery had bone biopsies taken from the osteotomy sites during plate removal.

Results: Maxillary advancement was determined on the cephalometric films to be as planned with a mean 5.7-mm movement. The 3- and 12-month repeat cephalometric films showed that the advancements were stable. No ectopic or abnormal bone formation was noted in the "grafted" osteotomy sites. In the 4 patients who had plates removed after a year, complete or near complete ossification was found at the osteotomy sites. Histologically, the bone removed from the augmented sites showed extensive osteoblastic and osteocytic activity and trabeculae formation mimicking intramembranous bone formation.

Conclusions: Human demineralized bone matrix and Colloss, a mixture of bovine bone matrix proteins combined with type I collagen, are effective in promoting ossification between osteotomized maxillary segments and seem to help promote the long-term stability of maxillary osteotomies.

Reviewer's Comments: To this point, most of the surgeons I know use either block hydroxyapatite or autologous bone when they feel grafts are needed in their maxillary osteotomy sites. What do you use? (Reviewer-Sterling R. Schow, DMD).

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Keywords: Bony Stability, Osteogenetic Materials

Print Tag: Refer to original journal article

Where to Place Orthodontic Mini-Implants?

Evaluation of Interdental Space of the Maxillary Posterior Area for Orthodontic Mini-Implants With Cone-Beam Computed Tomography.

Kim SH, Yoon HG, et al:

Am J Orthod Dentofacial Orthop 2009; 135 (May): 635-641

The most ideal insertion of maxillary orthodontic mini-screws is between the second bicuspid and first molar at the mucogingival line at less than a 45° apical angulation to the tooth long axis.

Objective: To measure the interradicular spaces between maxillary second bicuspid and first molars to determine guidelines for safe placement of mini-screws for orthodontic anchorage.

Design: Radiographic study using cone-beam computed tomography (CBCT) data.

Participants: 35 orthodontic patients.

Methods: All patients were non-growing, had no previous orthodontic treatment, and were planned to have mini-implants as the sole source of anchorage. In addition, they had no significant periodontal disease or rotated, malformed, or restored teeth. CBCT exams with a slice thickness of 0.15 mm in a panoramic mode were obtained. Sagittal images between the maxillary second bicuspid and first molars were constructed as were sequential axial plane images in 1-mm intervals from the cemento-enamel junction (CEJ) apically and parallel to the occlusal plane. The narrowest interradicular distance between buccal cortical bone and the narrowest interradicular space was finally measured in the same axial plane.

Results: The narrowest point between the roots of the teeth was 2 mm from the CEJ and the widest areas 10 mm apical to the CEJ. When evaluating the distances from the buccal cortical bone margin to the widest area between the second bicuspid and first molar roots, the thickest area of bone was found 6 mm from the CEJ of the teeth at about the level of the junction between alveolar and attached keratinized mucosa.

Conclusions: Likely, the best initial point for orthodontic mini-implant insertion between the maxillary second bicuspid and first molar is near the mucogingival line with the screw directed at less than a 45° angle to the perpendicular axis of the tooth roots with the screw point aimed apically. This allows the most screw length engagement with solid bone and the least chance for damaging the tooth roots.

Reviewer's Comments: The usual preferred site for mini-implant placement for orthodontic anchorage is between the maxillary second bicuspid and first molar because the interradicular space is usually adequate or can be made that way by minor tooth movement. Mini-screws in this location are easily utilized for various orthodontic mechanics. (Reviewer-Sterling R. Schow, DMD).

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Keywords: Implants, Cone-Beam CT, Interradicular Spaces

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2-Stage Implant With Autologous Bone Grafting Yields Excellent Results

Immediate Implant Placement in Fresh Extraction Sockets: A Clinical Report.

Kahnberg KE:

Int J Oral Maxillofac Implants 2009; 24 (March-April): 282-288

Implants immediately placed in extraction sockets with voids grafted with autologous bone do well over 2 years or more after restoration.

Objective: To evaluate placement of implants in fresh extraction sites with simultaneous use of particulate autologous bone grafts.

Design: Prospective clinical study.

Participants: 26 patients, in whom 40 implants were placed in fresh extraction sites.

Methods: All 26 patients had been referred to the authors for tooth removal and implant rehabilitation. Tooth removals were completed without destroying marginal bone. Implants were placed against palatal or lingual osseous surfaces of the extraction sites, and resulting gaps between the implant and the labial wall of the socket were filled with autologous graft material. Grafts were obtained using local sites. Clinical and radiographic examinations were completed postoperatively and 6, 12, and 24 months later. All implants were placed using a 2-surgery protocol with abutment connection 6 months after implant and graft placement. Marginal bone levels at each implant were measured at each follow-up interval.

Results: Most of the implants were placed in anterior aesthetic zone areas. Average patient age was 60 years. Implants used in the study were all Astra Tech TiOblast ST fixtures. None of the 40 implants failed and there were no significant clinical complications. Second-stage surgical procedures demonstrated bone healing to the level of the implant cover screws. Marginal bone loss over the follow-up period was minimal at 0.10 to 0.15 mm at 6 months and just 0.12 to 0.19 mm for the ST implants and up to 1.2 mm for the standard implants that had been used (no microthread at the implant neck). No increased marginal bone loss was noted at the 2-year follow-up visits. Good osseous fill of the grafted socket areas was noted with no signs of gingival retraction at 2 years.

Conclusions: A 2-stage implant placement technique in fresh tooth removal sites in aesthetic areas with autologous bone grafting in void areas can yield excellent clinical and radiographic results, at least over 2 years of follow-up.

Reviewer's Comments: This is a nice, clean report from a well-managed, small, prospective clinical study. Other authors have reported similar results with grafts of autologous, allogeneic, or xenogeneic materials. Others have reported some problems if the gap between the implant and socket walls is greater than 1.0 to 1.5 mm at the alveolar crest. (Reviewer-Sterling R. Schow, DMD).

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Keywords: Immediate Implant Placement, Fresh Extraction Sites

Print Tag: Refer to original journal article

How Accurate Is Computer-Aided Implant Surgery?

Accuracy of Computer-Aided Oral Implant Surgery: A Clinical and Radiographic Study.

Valente F, Schirotti G, Sbrenna A:

Int J Oral Maxillofac Implants 2009; 24 (March-April): 234-242

Implant survival is good when fixtures are placed with computer guidance, but significant implant deviations from planned positions occur.

Objective: To look at the accuracy of computer-aided, template guided dental implant surgery by comparing the planned 3-dimensional implant positions with those of the placed implants.

Design: 2-center retrospective clinical/radiographic study.

Participants: 25 adult patients.

Methods: All 25 patients were consecutively treated using computer-aided implant surgery. The integrated treatment sequences included construction of a radiopaque diagnostic appliance, exposing a CT scan of the patient's dental arch with a spiral CT device exposed with the template in place, digital 3D CT-based surgical planning, construction of a stereolithographic surgical guide appliance, and computer-aided, template-guided implant placement using either Tapered Screw-Vent Zimmer implants or Nobel Biocare Mk III or Mk IV TiUnite implants. After surgery, a second CT scan was taken. The pre- and postoperative scans were aligned, which allowed comparison of the planned and actual implant positions. Parameters measured and compared included lateral deviation, global 3-D distance, depth deviation and angular deviation.

Results: 2 of 25 patients had computer-aided, template-guided implant placement in both dental arches. A total of 108 implants were planned, but just 104 were finally inserted because of buccal cortex loss during the planned osteotomy or dehiscence defects. The mean number of guided implants in each arch was 4. Four implants failed to osseointegrate. Eleven of the implants placed were shorter than those planned because of limited oral opening and fear of injuring vital structures. No nerve injuries, sinus pathologies, or excessive bleeding episodes occurred. Mean lateral deviations of implants between planned and actual were 1.4 and 1.6 mm at coronal and apical ends, respectively. Mean depth variation was 1.1 mm and mean angular deviation was 7.9 degrees.

Conclusions: Computer-aided implant placement had a 96% implant survival rate, but significant deviations from planned implant positions occurred. Deviations could result from errors during image acquisition, during surgical template construction or positioning, due to mechanical error because of gaps in the guided bur slots, and because the large size of the surgical template and the long instrumentation needed can be compromising during surgery due to limited oral opening.

Reviewer's Comments: All of the compromising factors identified and discussed in this paper have made errors commonplace using this technique, especially if immediate loading with fixed prostheses is contemplated. Using this technique, implant survival is likely to be high, but deviations from planned implant positions are likely. (Reviewer-Sterling R. Schow, DMD).

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Keywords: Implants, Computer-Aided Surgery

Print Tag: Refer to original journal article

There Is a Trend Toward Shorter Hospital Stays in Orthognathic Surgery

A National Review of Mandibular Orthognathic Surgery Activity in the National Health Service in England Over a Nine Year Period: Part 1 -Service Factors.

Moles DR, Cunningham SJ:

Br J Oral Maxillofac Surg 2009; 47 (June): 268-273

In this U.K. study, there was a gradual increase in the number of surgeries per year with a trend toward shorter hospital stays. High-volume centers had the shortest hospital stays.

Objective: To determine the changes in the provisions of care associated with orthognathic surgery.

Design: Retrospective investigation.

Participants: 8941 patients.

Methods: All patients were presenting for surgical correction of a mandibular anomaly and underwent a mandibular osteotomy over the 9-year study period. All data were extracted from the Hospital Episode Statistics (HES) database. Data extracted for the database included the following: number of cases performed, geographical variations, hospital stay, and the activity of various provider units or centers. Centers were designated as high volume units if they performed 90 procedures over the 9-year study period.

Results: 9080 procedures were performed over 9 years. There was a gradual increase in numbers of cases per year--855 during the first year and 1237 during the ninth year. There were 153 units or centers identified and 18% were classified as high-volume centers. Eight (5%) of 153 centers performed almost 30% of the total number of surgeries during the study period. The mean duration of stay was 3.2 days, with high-volume centers showing shorter hospital stays by 0.31 days. Over the time of the study, there was a significant reduction in length of hospital stay.

Conclusions: Overall, there was a gradual increase in the total number of cases per year over the study period with a trend toward shorter hospital stays. Centers with the highest volumes had the shortest hospital stay.

Reviewer's Comments: Since this study was performed in the United Kingdom, I think that we would see some differences. Depending on the years studied in the United States, I think that we would see a trend toward fewer cases being performed secondary to our insurance issues. But we would be in accordance with a decrease in hospital stay. (Reviewer-David M. Grogan, DMD).

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Keywords: Orthognathic Surgery, Provisions of Care

Print Tag: Refer to original journal article

Who Is Having Orthognathic Surgery in the UK?

A National Review of Mandibular Orthognathic Surgery Activity in the National Health Service in England Over a Nine Year Period: Part 2 -Patient Factors.

Cunningham SJ, Moles DR:

Br J Oral Maxillofac Surg 2009; 47 (June): 274-278

The majority of patients seeking orthognathic surgery in this U.K. study were female and lived in relatively affluent regions. The mean waiting time for surgery was 78 days.

Objective: To determine the demographics of who is undergoing mandibular orthognathic surgery in the United Kingdom.

Design: Retrospective investigation.

Participants: 8941 patients.

Methods: All patients were presenting for surgical correction of a mandibular anomaly and underwent a mandibular osteotomy over the 9-year study period. All data were extracted from the Hospital Episode Statistics (HES) database and included the following: diagnosis, gender, age at time of surgery, medical comorbidities, and socioeconomic status of the patient. Socioeconomic status was determined by the patient's area of residence.

Results: 9080 procedures were performed on the 8941 patients. The majority of patients had a single mandibular procedure, but 137 patients underwent 2 procedures and 1 patient underwent 3 mandibular procedures. Overall, 63% of patients were female and 37% were male. The mean age at time of surgery was 24 years. The majority of patients were from least deprived regions and the waiting time to surgery was 78.2 days. There was no difference in waiting times as related to socioeconomic status. The 2 medical comorbidities were asthma and allergies; 0.5% had mental or behavioral problems. One patient died while in the hospital.

Conclusions: The majority of patients seeking mandibular orthognathic surgery lived in relatively affluent areas and the ratio of females to males was 1.7-to-1.0. The most common coexisting medical conditions were asthma and allergies, which reflects the prevalence of these disease entities in the general population.

Reviewer's Comments: The demographics in this U.K. population appear to be similar to our patient population. The one finding in this study that does not hold true in the U.S. is the 78-day wait for surgery. Even in large metropolitan hospitals, one can get a case scheduled within a couple of weeks. (Reviewer-David M. Grogan, DMD).

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Keywords: Orthognathic Surgery, Demographics

Print Tag: Refer to original journal article

Screening Diabetics for CAD Does Not Decrease Cardiac Events

Cardiac Outcomes After Screening for Asymptomatic Coronary Artery Disease in Patients With Type 2 Diabetes.

Young LH, Wackers FJ, et al:

JAMA 2009; 301 (April 15): 1547-1555

Screening for CAD in type 2 diabetics has no significant effect on reducing the incidence of cardiac events. Type 2 diabetics receiving contemporary medical treatment should have a relatively favorable outcome.

Objective: To determine if routine testing for coronary artery disease (CAD) in asymptomatic type 2 diabetics affects long-term cardiac outcomes.

Design: Randomized controlled investigation.

Participants: 1123 patients.

Methods: All patients were recruited from the Detection of Ischemia in Asymptomatic Diabetics study. Patients were included if they were between the ages of 50 and 75 years and had an onset of type 2 diabetes at age ≥ 30 years. All patients were asymptomatic for CAD and had no previous history of CAD. Testing was performed at multiple sites throughout the United States, and patients were randomly assigned to one of the following groups: participants who were screened for CAD with adenosine Tc-99m sestamibi MPI and the control groups that underwent no screening procedures. All participants were followed for 5-years and the end points studied included both nonfatal myocardial infarction (MI) and cardiac death.

Results: During the follow-up period, there were 32 cardiac events in the entire study population; 15 events in the screened population and 17 in the unscreened controls. In the screened group, there were 7 nonfatal MIs and 8 cardiac deaths versus 10 nonfatal MIs and 7 cardiac deaths in the controls. Routine screening did not appear to affect the overall outcomes.

Conclusions: Routine cardiac imaging of type 2 diabetics asymptomatic for coronary artery disease does not appear to significantly reduce the incidence of cardiac events. Routine medical management of their overall health and screening when symptomatic appears to be associated with the most favorable outcomes.

Reviewer's Comments: Diabetes is known to be a significant risk factor for coronary artery disease, and cardiac-related death is a major cause of death for diabetic patients. One would have assumed that early screening would have had an impact on long-term cardiac events. (Reviewer-David M. Grogan, DMD).

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Keywords: Coronary Artery Disease, Diabetes, Cardiac Outcomes

Print Tag: Refer to original journal article

Bronchoscopy Can Affect Tx Course in Early Tumor Stages

Bronchoscopy Screening in Primary Oral Squamous Cell Carcinoma: A 10-Year Experience.

Kesting MR, Robitzky L, et al:

Br J Oral Maxillofac Surg 2009; 47 (June): 279-283

In this study, synchronous lung malignancies were found in 2% of patients presenting with a primary oral SCC. COPD was also a common (29%) diagnosis.

Objective: To determine the incidence of pulmonary disease and/or malignancies in patients with primary oral squamous cell carcinoma (SCC).

Design: Retrospective clinical investigation.

Participants: 570 patients.

Methods: The medical records of all patients presenting with primary SCC of the oral cavity over a 10-year period were retrospectively reviewed. Part of the routine work-up for a new oral primary lesion included bronchoscopy. All biopsy specimens were examined histologically. These histological specimens were reviewed and classified into benign or malignant lesions.

Results: A diagnosis of chronic obstructive pulmonary disease (COPD) was made in 166 (29%) patients. Synchronous lung malignancies were diagnosed in 9 (2%) of the patients. Statistical analysis revealed a correlation between synchronous lung malignancy and the tumor stage at the time of presentation. No correlation was found to relate to age, sex, or site of oral lesion.

Conclusions: Bronchoscopy is an important diagnostic intervention for the detection of synchronous pulmonary disease or malignancy in patients presenting with a primary oral SCC. The incidence of synchronous pulmonary malignancies was statistically correlated to tumor stage.

Reviewer's Comments: It was not a surprise to see such a high incidence of COPD in this patient population. The diagnosis of pulmonary disease and/or malignancy can ultimately assess degree of risk associated with planned therapies. (Reviewer-David M. Grogan, DMD).

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Keywords: Oral Squamous Cell Carcinoma, Bronchoscopy, COPD

Print Tag: Refer to original journal article

Measuring Patient Satisfaction Harder Than We Thought

A Systematic Review of Patient-Reported Outcome Measures after Facial Cosmetic Surgery and/or Nonsurgical Facial Rejuvenation.

Kosowski TR, McCarthy C, et al:

Plast Reconstr Surg 2009; 123 (June): 1819-1827

Valid measures of patient satisfaction and quality-of-life issues following facial aesthetic procedures are lacking. Many questionnaires lack validation and adequate psychometric analysis.

Objective: To assess the validity of questionnaires utilized to determine patient satisfaction following facial cosmetic surgery.

Design: Literature review.

Participants: 442 patient outcome articles.

Methods: An electronic literature search was performed to identify patient-reported outcome measures to determine satisfaction and quality-of-life issues following surgical and nonsurgical facial cosmetic procedures. All outcome measures identified were researched to determine their development and validity. The outcome measures were also evaluated for their adherence to established international guidelines.

Results: 442 articles were identified, but only 47 achieved potential relevance and only 9 met scientific criteria regarding facial aesthetic surgery. Outcomes measured from the 9 questionnaires included aspects of rhinoplasty, skin rejuvenation, blepharoplasty, face lifts, and general appearance following facial cosmetic surgery. Eight of 9 outcomes measured lacked appropriate development and validation criteria. Only one measure had appropriate development and validity, demonstrated adequate psychometric analysis, and dealt with facial line treatment satisfaction.

Conclusions: Reliable and valid measures of patient satisfaction following surgical and nonsurgical facial procedures are lacking. In this day of evidence-based medicine, it is extremely important that validated and reliable outcome measures be developed.

Reviewer's Comments: We have all reviewed many articles that deal with patient satisfaction and quality-of-life issues following orthognathic procedures. Many of the questionnaires utilized in those studies were found invalid in this paper. (Reviewer-David M. Grogan, DMD).

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Keywords: Cosmetic Surgery, Patient Satisfaction

Print Tag: Refer to original journal article