Objective: To examine the national impact of the Accreditation Council for Graduate Medical Education (ACGME)-mandated work-hour restrictions on the quality and quantity of surgery resident operative experience.

Design: Review of the publically available national case log data maintained on the ACGME website that keeps case logs for every surgery resident in training at accredited programs.

Participants: The total number of major cases and subtotals for different categories of ACGME-defined surgical types (eg, alimentary tract, head and neck, vascular, etc) were collected for programs and residents. The number of surgery training programs and the total number of residents were also determined for each year. The mean number and types of cases per resident were calculated for the years between 1999 and 2003, before implementation of the ACGME work-hour restrictions, and for years 2003 to 2008 after standards enforcement. The results were then compared.

Results: The total U.S. number of residents in surgical training did not change significantly, whereas the total number of accredited programs decreased from 253 to 249. The average total of major cases per resident decreased from 949 to 911 after implementation of the work-hour limitations. Per resident, there was little or no change in the number of breast, abdomen, thoracic, orthopedic, transplant, and trauma cases. There was a small overall increase per resident in the number of alimentary tract, skin, and endocrine procedures. However, the mean number of endoscopy, vascular, head and neck, pediatric, genitourinary, gynecologic, and plastic surgery procedures were markedly and significantly decreased.

Conclusions: 7 years after house staff duty-hour restrictions were implemented, it is obvious that resident operative experience has changed. The authors believe their findings are indicative of the end of truly broad-based general surgery training.

Reviewer’s Comments: The best part of this interesting paper is the excellent discussion and literature review, both of which point out the many recent (last 6 years) changes in resident training and hospital function. More physician extenders are now needed, attending recruitment has been affected, and many residents (when they graduate) are not confident about operating independently; therefore, many seek additional fellowship training. In 2008, graduating surgery residents had performed under the guidelines of the 80-hour work week for their entire residency program. The full effects of duty-hour restrictions are not yet fully evident. (Reviewer-Sterling R. Schow, DMD).
Which Anesthetic Solutions Are Associated With Paresthesia?

Occurrence of Paresthesia After Dental Local Anesthetic Administration in the United States.
Garisto GA, Gaffen AS, et al:

J Am Dent Assoc 2010; 141 (July): 836-844

Inferior alveolar nerve blocks with prilocaine or articaine exhibit a higher risk of neurosensory deficit than anesthetics of lower concentration.

**Objective:** To determine the relationship between local anesthetic type and paresthesias as voluntarily reported to the U.S. Food and Drug Administration (FDA).

**Design:** Retrospective review of adverse events through self-reporting.

**Methods:** All reports were reviewed of neurosensory disturbance, submitted between November 1997 and August 2008 through the FDA Adverse Event Reporting System (AERS), that involved nonsurgical dental procedures and cartridge-delivered local anesthetic available in the United States. Anesthetics studied were articaine, bupivacaine, lidocaine, mepivacaine, and prilocaine.

**Interventions:** Inclusion and exclusion criteria were established to include all cases of neurosensory deficits unrelated to surgical insult. All soft- and hard-tissue oral surgical procedures involving the periodontium and bone were, therefore, excluded. The data from the AERS were queried for the generic name of the anesthetic used and the route of administration, age and sex of the patient, year of the event, anatomic distribution of the deficit, injection events such as pain, electric shock, or aspiration of blood, vasoconstrictor content, and resolution of symptoms. Anesthetic sales data in the United States during the study period were also obtained and evaluated. All data were evaluated using SPSS statistical software that examined the frequencies of paresthesias as related to sales data and self-reports to AERS of neurosensory problems. The null hypothesis was simple, stating that each local anesthetic had no effect on the frequency of reported paresthesias.

**Results:** The mean age of those affected was 41.9 years, and 61% were female; 94.5% received an inferior alveolar block, and 11,003 adverse events were reported to the AERS over the 129-month study period. After review of summary listings of each event, 533 detailed reports were requested, and 248 satisfied both the inclusion and exclusion criteria. Single agents were utilized in 226 of the 248 cases, and 22 cases reported multiple agents that included either articaine or prilocaine. The majority of adverse events before 2000 were related to prilocaine; thereafter, the majority of adverse neurosensory reports involved articaine. Statistically, these 2 drugs were the only ones with a higher-than-expected frequency of paresthesias based on sales and market share.

**Conclusions:** Prilocaine paresthesias were 7.3 times higher than expected, and articaine paresthesias were 3.6 times higher than expected; each demonstrated statistically significant differences ($P < 0.00000001$) when comparing expected versus observed adverse outcomes. The lingual nerve is most often affected (89%).

**Reviewer's Comments:** This United States study of paresthesias associated with local anesthetics confirms previous U.S. regional and international studies. Higher concentrations (4%) of local anesthetics used for mandibular blocks are burdened with a higher incidence of neurosensory deficit. This article presents nicely demonstrative charts and graphs of both market share and adverse event frequencies. Reporting bias must be considered secondary to increased reporting due to literature attention of specific drugs and adverse events. (Reviewer-Michael L. Ellis, DDS).

© 2010, Oakstone Medical Publishing

Keywords: Paresthesia, Local Anesthetics, Prilocaine, Articaine, Nerve Block

Print Tag: Refer to original journal article
Consider Locking Plates, Screws for Orthodontic Anchorage in Thin Maxillary Bone

Stability of a Locking Plate and Self-Drilling Screws as Orthodontic Skeletal Anchorage in the Maxilla: A Retrospective Study.

Hibi H, Sakai K, et al:

J Oral Maxillofac Surg 2010; 68 (August): 1783-1787

L-shaped locking plate and self-drilling screws can be used for orthodontic anchorage, even in thin maxillary bone.

**Objective:** To examine the success rate of using an L-shaped locking plate and 2 self-drilling screws for orthodontic anchorage in the thin bone of the maxilla.

**Design:** A retrospective study of the records of patients requiring the intrusion of molars to treat an open bite using an L-shaped locking plate and 2 self-drilling screws for anchorage.

**Participants/Methods:** 32 patients requiring the intrusion of maxillary molars to treat an anterior open bite were treated orthodontically using an L-shaped locking plate and 2 self-drilling screws in the thin bone of the maxilla for anchorage. The plates were inserted supraperiosteally through a small incision, with the L part of the plate protruding through the mucosa. Success was measured by the plate remaining in place, free of pathology, for the duration of the orthodontic treatment. Thickness of the bone was measured using cone beam tomography. The thickness of bone in cases in which the plates failed was compared with the thickness of bone in the successful cases.

**Results:** The overall success rate was 93.4%. There were 4 failures in the 61 plates that were placed. Two unilateral plates failed in 2 patients, and one case had a bilateral plate failure. The thickness of the bone in the failed cases was significantly thinner than in the successful cases.

**Conclusions:** There is a high rate of success with the use of a locking L plate and self-drilling screws for orthodontic anchorage for the intrusion of posterior maxillary teeth. A significant difference was noted in the thickness of bone between the successfully treated patients and 4 plate failures.

**Reviewer’s Comments:** This paper describes a successful management for a difficult orthodontic situation in which posterior teeth will require intrusion for the closure of an anterior open bite. This technique is simple, is relatively atraumatic, and has a high degree of success in this group of patients. (Reviewer-Edwin D. Joy, Jr, DDS).

© 2010, Oakstone Medical Publishing

Keywords: Locking Plate, Self-Drilling Screws, Orthodontic Anchorage

Print Tag: Refer to original journal article
Objective: To retrospectively compare 2 orthodontic approaches for the treatment of low-angle Class II malocclusion patients with deep bites and prominent chins.

Design/Participants: Retrospective record review and cephalometric evaluation involving 37 patients.

Methods: All patients, after orthodontic preparation, had mandibular advancement surgery with sagittal split ramus osteotomies. For 24 of the patients, orthodontic presurgical treatment maintained the deep anterior bite and strong curve of Spee. At surgery, the mandibles in this group were advanced to incisor-to-cingulum anterior contact and second molar contact, leaving interocclusal space in the bicuspid to first molar region to be subsequently closed by orthodontic extrusion. In 13 patients, orthodontic presurgical treatment leveled the lower arch, eliminating the deep overbite. At surgery, the mandible was advanced to a fully occluded Class I dental relationship. Cephalometric radiographs taken an average of 18 months after surgery in the deep-bite group and 11.6 months after surgery in the level group were compared to pretreatment and postorthodontic cephalometric films.

Results: Presurgical orthodontic leveling of the lower occlusal plane resulted in a more anterior movement of the soft-tissue pogonion at surgery than when the deep bite was retained before surgery. This increased the prominence of an already prominent chin. When the deep-bite relationship and accentuated curve of Spee were retained in preparation for surgery, mandibular advancement increased lower anterior facial height and the cranial base-mandibular plane angle, while slightly minimizing chin prominence.

Conclusions: Maintaining a deep bite, accentuated curve-of-Spee mandibular occlusal plane before mandibular advancement ultimately results in an opening mandibular rotation. This reduces chin prominence and increases lower anterior facial height.

Reviewer's Comments: This is a common treatment strategy for low-angle Class II patients in our area. The result is a significant improvement in lower face esthetic proportions. (Reviewer-Sterling R. Schow, DMD).

© 2010, Oakstone Medical Publishing

Keywords: Deep Bite, Mandibular Advancement

Print Tag: Refer to original journal article
Objective: To describe the authors’ technique of sagittal fracture reduction aided by a temporary screw, and then to evaluate treatment results.

Design: All patients with sagittal condyle fractures treated by the authors between April 2006 and November 2007 were considered for open reduction and internal fixation with the “temporary and lateral screw technique.”

Participants: 18 patients with sagittal mandibular condyle fractures were considered, and 6 met the adult inclusion criteria including a unilateral sagittal fracture exhibiting >5 mm of condylar height shortening as shown on orthopantomograms. The remainder of the participants were excluded due to age <18 years (n=7), bilateral fractures of the condyles (n=1), refusal of open treatment (n=2), and minimal loss of condylar height (n=2).

Methods: After placement of arch bars and preauricular exposure of the fracture, a 1.5-mm hole was drilled and a 2 mm by 10 mm temporary screw was placed 6 mm into the medial fragment on the posterior surface to assist in reduction and initial stabilization, followed by placement of a lag screw through both fracture segments after intermaxillary fixation was accomplished. A positional screw was placed before removal of the temporary screw. Arch bars were then removed. Mandibular movements were obtained and recorded both preoperatively and postoperatively. Orthopantomograms and helical CT scans were obtained preoperatively, immediately postoperatively, and at 3 months’ postoperatively. Preoperative and postoperative measurements of condylar heights were reviewed and compared, along with mandibular movement data. The patients were followed up for an average of 18 months.

Results: No cranial nerve VII injuries were noted, and all patients enjoyed restoration of occlusion. Surgical procedures averaged 87 minutes. Immediate restoration of condylar height and condyle position was noted on postoperative CT scans, and no significant differences in height were evident in subsequent radiographs. Mandibular movement was restored, and there were no noticeable scars after 6 months. All patients were satisfied with the procedures.

Conclusions: In this small sample size, there were no operative or postoperative complications during the follow-up. The positioning screw appears to aid in the efficient manipulation of the medial fragment, thereby minimizing muscle stripping and potential vascular disruption. It also decreases operating time due to immediate stabilization and reduction.

Reviewer’s Comments: This technique article should be considered a pilot study at best, due to the lack of statistical power evidenced by the small sample size and the absence of a control population. The use of a temporary positioning screw for control of fracture segments is common, and this technique has largely replaced temporary wiring to control segments due to its simplicity and efficiency. This appears to be a nice technique of stabilization and reduction that should be validated in a larger, controlled study. (Reviewer-Michael L. Ellis, DDS).

© 2010, Oakstone Medical Publishing

Keywords: Mandible Condyle, Sagittal Fracture, Anatomical Reduction, Rigid Internal Fixation, Screw

Print Tag: Refer to original journal article
A new suturing technique can successfully reposition a displaced TMJ disc, and the result can be verified with MRI.

**Objective:** To evaluate the use of MRI to evaluate arthroscopic disc repositioning and the efficacy of suturing in a large number of patients with anterior disc displacement.

**Design:** A retrospective review of the records was performed. Patients had anterior disc displacement that was treated with a new suturing technique to reposition the disc into a normal position, and the results were verified with MRI.

**Participants/Methods:** 764 joints in 639 patients were treated with arthroscopic surgery using a new suturing technique. All patients had preoperative and postoperative MRI evaluation. On the postoperative MRI, success was determined using the position of the disc in 3 different sagittal planes. If the disc was in the normal position in all 3 planes, the evaluation was determined to be excellent. If it was in position in 2 planes, it was determined to be good. Any other position was evaluated as poor. The postoperative films were taken within 7 days after surgery.

**Results:** MRIs of all 764 joints confirmed that 95.4% of the discs were evaluated as excellent, and 24 discs were evaluated as good; therefore, the failure rate was only 1.44%. This represented 11 of 764 joints that underwent surgery.

**Conclusions:** The arthroscopic evaluation of these joints showed that this suturing technique was effective in repositioning the disc in the TMJ into a normal position.

**Reviewer’s Comments:** The data in this study tell only half the story since the position of the disc 7 days after surgery does not designate success. There was no long-term follow-up in this study, and I can assume only that this operation is successful if the disc remains in its anatomic position over a long time. (Reviewer-Edwin D. Joy, Jr, DDS).

© 2010, Oakstone Medical Publishing

Keywords: Arthroscopic Disc Repositioning, Internal Derangement, MRI

Print Tag: Refer to original journal article
There is no good scientific evidence to support the use of hyperbaric oxygen for the treatment of osteoradionecrosis of the jaws.

**Objective:** To analyze existing experimental and clinical research on the use of hyperbaric oxygen (HBO) for the treatment of osteoradionecrosis of the jaws.

**Design/Methods:** The current English language literature was reviewed using a computer database from January 1990 to June 2009. The authors reviewed the experimental and clinical studies on the use of HBO for the treatment of radiation-induced injury in the head and neck region. Fourteen experimental studies and 20 clinical studies were reviewed.

**Results:** There are few experimental studies on this subject that show a beneficial effect from HBO. The clinical studies are not of good quality, and few are prospective and randomized with a control group. Although some studies suggest a beneficial effect of HBO, this conclusion is not based on good scientific prospective data.

**Conclusions:** Good quality scientific data are lacking to support the benefits of HBO in the treatment of osteoradionecrosis in the head and neck region.

**Reviewer's Comments:** This excellent paper shows that, even though HBO is used regularly in the treatment of osteoradionecrosis of the jaw, this practice is not based on high-quality clinical or experimental research, and the therapy is expensive and time-consuming. (Reviewer-Edwin D. Joy, Jr, DDS).

© 2010, Oakstone Medical Publishing

Keywords: Hyperbaric Oxygen Therapy, Osteoradionecrosis, Jaw

Print Tag: Refer to original journal article
The Value of Second Opinions From Oral Pathologists

Patterns of Second-Opinion Diagnosis in Oral and Maxillofacial Pathology.

Jones K, Jordan RCK:


In the maxillofacial complex, many lesions are not familiar to physician pathologists. In this instance, second opinions are often sought from oral pathologists avoiding diagnostic and treatment errors.

**Objective:** To study the referral patterns and determine the value of physician pathologist referrals to oral and maxillofacial pathologists for second opinions on head and neck pathology.

**Design:** Retrospective review of pathology consultation requests over a 2-year period from 81 separate pathologists.

**Participants:** 146 physician pathologists and 2 oral and maxillofacial pathologists.

**Interventions:** From 225 consecutively received consultation requests for second opinions, 79 were from physician pathologists in the authors' institution and were not included. The remaining 146 cases were second-opinion requests from physician pathologists outside the authors' institution. Of these, 4 cases were excluded, leaving 142 cases that formed the basis of the study. The cases were reviewed to extract demographic, clinical, and pathologic data. Each case was then subsequently reviewed to determine if there was agreement or disagreement with the physician pathologist's diagnosis. Minor disagreements were differences in diagnostic opinion that would have no significant effect on treatment or prognosis. Major disagreements in diagnoses were those that would significantly change the evaluation, treatment, and prognosis for the patient.

**Results:** 91% of the cases referred for a second opinion were sent by physician pathologists in community hospitals. Less than 10% of the cases came from pathologists in academic medical centers. A total of 177 biopsy specimens were reviewed for the 142 consultation requests. Biopsy sites included the mandible, maxilla, tongue, gingivae, buccal mucosa, lip, larynx, palate, nasal cavity, and other areas. Radiographic studies were sent along with 19.4% of the cases, and new imaging was ultimately recommended by the consulting oral and maxillofacial pathologist in 7.1% of these cases. The oral pathologist consultant's recommendations included additional follow-ups in 7.7% of the referred cases for clinical or radiographic correlation, for immunofluorescence, or for repeat biopsy or other studies. Thirty-four percent of the cases resulted in differences in diagnostic opinion, half of which were minor and did not affect treatment; however, half of these were major and did affect treatment and outcomes. Nine cases originally diagnosed as malignant were changed to benign, while 7 cases initially called benign by the physician pathologist had malignancy confirmed by the oral pathologists.

**Conclusions:** Interaction between physician pathologists and oral and maxillofacial pathologists can be very helpful in making a definitive diagnosis for unusual head and neck pathology.

**Reviewer's Comments:** How true! The cooperation between these 2 groups in our institution is on display on a regular basis. We all benefit from this kind of professionalism. (Reviewer-Sterling R. Schow, DMD).

© 2010, Oakstone Medical Publishing

Keywords: Second Opinions, Pathologist Referrals

Print Tag: Refer to original journal article
Hypotensive anesthesia does not reduce operating time; however, it does significantly reduce blood loss.

**Objective:** To measure operating time and duration of hospital stay for orthognathic surgery patients with the intent to lend a national standard with regard to health care planning and costs.

**Design:** Retrospective review of hospital records from 6 centers providing orthognathic surgery with simultaneous oral and maxillofacial surgery training.

**Participants:** 411 patients receiving single- or double-jaw surgery between 2005 and 2008.

**Methods:** Data collection included age and sex, procedure type, operating time, ancillary procedures (including concomitant removal of wisdom teeth, genioplasty, lip lengthening, etc), number or nights in the hospital, the use of hypotensive anesthesia, head-up positioning, and the use of transexamic acid. Operating time was represented as solely surgical time, not including length of anesthesia. The duration of stay was simply the difference between the operation date and the discharge date.

**Results:** 121 patients received bilateral sagittal split osteotomy, 111 received a Le Fort 1 osteotomy, and the remaining 210 patients underwent bimaxillary surgery. The overall mean operating time was similar to the 270 minutes previously reported by Dhariwal et al in the *British Journal of Oral and Maxillofacial Surgery*, although different centers displayed significant variation. Hypotensive anesthesia did not reduce operating time; however, it did significantly reduce blood loss. Fourteen percent of patients had ancillary procedures; when this population was removed from consideration, the mean difference in operating time was insignificant.

**Conclusions:** A single jaw procedure in the United Kingdom takes about 2 hours and results in a hospital stay of 1 or 2 nights postoperatively. Bimaxillary procedures are accomplished in an average of 3.5 hours, and patients remain in the hospital from 1 to 3 days postoperatively. Complications and difficult procedures skew the data, and surgery length may be affected by multiple factors, including the experience of the surgeon, trainee, and auxiliary staff (scrub technicians and nurses). The statements in the results section of this paper are broad, likely secondary to wide variations of tabular data from multiple centers.

**Reviewer's Comments:** Counseling the orthognathic surgery patient and preauthorizing medical benefits regarding the expected length of hospital stay and duration of surgery is an important step toward success in building patient rapport and decreasing anxiety. In the United States, it has been reported (as mentioned in the introduction of this paper) that between 46% and 84% of patients go home the same day of surgery after an orthognathic procedure. It is rare in our hospital for an orthognathic surgery patient stay to extend beyond the first postoperative day following a 3.5-hour bimaxillary surgery. This 6-center United Kingdom study is a nice review of current practice and does serve to "benchmark" procedural time and hospital stay data for orthognathic procedures. (Reviewer-Michael L. Ellis, DDS).

© 2010, Oakstone Medical Publishing

Keywords: Operating Time, Inpatient, Hospital Stay, Orthognathic Surgery, Osteotomy

Print Tag: Refer to original journal article
The majority of patients contemplating oral surgery desire detailed information on complications and expected results before their surgery.

**Objective:** To determine the amount and type of information that the majority of patients desire, along with the timing of providing this information before surgery.

**Design:** A questionnaire-based prospective study was performed involving patients about to undergo surgery to determine how much information patients desire on the results of the surgery and possible complications.

**Participants/Methods:** 212 patients reporting to an emergency clinic for oral surgery were asked to complete a 12-item questionnaire asking them how much information they would like about general and specific risks associated with the procedure. Participants were categorized by age and gender.

**Results:** 57% of patients wanted to know about all the possible complications associated with their surgery; 33% wanted to know only about the most common complications; and 10% did not want to know anything about complications. Of the respondents, 78% would like to have written as well as verbal information, and the majority of patients wanted this information before undergoing surgery. More men than women wanted information about nerve injury and information on the likelihood of the surgery relieving their chief complaint.

**Conclusions:** The majority of patients desire information on likely complications resulting from their surgery and the likely outcome of the surgery itself. More men than women want information on specific complications such as nerve injury.

**Reviewer’s Comments:** According to this interesting study, the opinion that most patients do not want information on complications and that this exercise is done only for medicolegal purposes is not valid. Patients desire information, and the information should be given before their surgical appointment. (Reviewer-E Edwin D. Joy, Jr, DDS).

© 2010, Oakstone Medical Publishing

Keywords: Informed Consent

Print Tag: Refer to original journal article
Osteotome sinus floor elevation with immediate implant placement, with or without grafting, usually results in new sinus floor bone formation.

**Objective:** To determine the clinical success of dental implants placed in the posterior maxilla using the osteotome sinus floor elevation technique (OSFE) with or without grafting.

**Design:** Prospective clinical evaluation.

**Participants:** 202 patients in whom 280 posterior maxillary implants were placed using OSFE.

**Methods:** Pretreatment evaluations included panoramic radiographs on which residual alveolar height below the sinus floor could be measured. CT scans were also utilized when needed. Implant site preparation began with a 2.2-mm pilot drill taken to a depth approximately 1 mm shy of the sinus floor. The site was progressively widened to 3.5 mm for 4.1-mm diameter implants or to 4.2 mm for 4.8-mm diameter implants. Elevation of the sinus floor and membrane was accomplished using a 2.8-mm osteotome with light malleting to up-fracture the floor, followed by osteotomes of increasing width. Some sites were grafted with mixtures of autologous bone chips and β-tricalcium phosphate pushed to preparation depth by osteotomes. In other sites, no graft was placed. Implants were placed using a hand ratchet without tapping in a non-submerged, one-stage procedure. Radiographs were taken immediately thereafter and again at 1, 2, 3, 4, and 5 years after prosthesis attachment. Before loading, grafted implants were allowed to heal 6 to 8 months and non-grafted implants for 3 to 4 months.

**Results:** In all, 280 Straumann implants were placed using OSFE; 191 in non-grafted sites and 77 in sites where grafts were placed. Of the 280 implants, 268 (95.7%) were successful. Residual bone height was $5.6 \pm 2.5$ mm in non-grafted sites and $4.7 \pm 2.1$ mm in the grafted areas. The sinus membrane perforation rate was just 4.29%. There were no significant differences between grafted and non-grafted groups in residual bone height, membrane perforation rate, or implant survival. New bone formation at the sinus floor was $2.26 \pm 0.92$ mm when no grafts were placed and $2.66 \pm 0.87$ mm at 3 and 9 months postoperative. Crestal bone loss was approximately 1.2 mm at 9 months. Residual bone height did not significantly affect implant survival.

**Conclusions:** When using OSFE while placing implants, uneventful osseointegration may be predictable with or without grafting. Spontaneous new bone formation occurred in this study around the apical portion of the implants.

**Reviewer’s Comments:** We have to assume there was enough residual bone in each of the presented fixtures to allow stable implant placement. The paper indicates that about 5 mm ± residual bone were available in both groups. (Reviewer-Sterling R. Schow, DMD).

© 2010, Oakstone Medical Publishing

Keywords: Implants, Technique, Grafting

Print Tag: Refer to original journal article
Using a periodontal probe for evaluating gingival biotype is an objective and reliable method valuable in devising esthetic zone treatment plans.

**Objective:** To compare visual assessment of the facial gingival biotype of maxillary anterior teeth with direct measurements.

**Design:** Clinical comparative study.

**Participants:** 48 patients with 48 failing maxillary anterior teeth.

**Methods:** All of the patients had complete diagnostic work-ups and a comprehensive treatment plan developed. Three different methods to evaluate the gingival biotype of the failing tooth were compared—visual, periodontal probing, and direct measurement. All examinations were performed by one of 2 calibrated clinicians. Visually, the gingival biotype was considered thick if it was dense and fibrotic in appearance and thin if was delicate, friable, or translucent. The probe evaluation was conducted by sulcus probing on the midfacial surface of the failing tooth, and the biotype judged thick or thin depending on visibility or non-visibility of the underlying probe through the gingiva. Finally, after tooth removal, a caliper was used to directly measure gingival thickness 2 mm apical to the free gingival margin on the midfacial portion of the extraction site. The biotype was considered thin if this measurement was ≤1 mm and thick if >1 mm.

**Results:** Mean patient age was 51.8 years. The failing teeth include central and lateral incisors and canines in the maxilla. The mean gingival thickness from direct measurement after extraction was 1.06 mm. When a periodontal probe probing the sulcus was studied, there was no statistical difference noted between the evaluations with the probe or evaluations by direct measurement. Visual assessment of the gingival biotype was, by itself, not reliable for thick or thin determination when compared to the other 2 methods.

**Conclusions:** Gingival biotype identification with gingival sulcus probing using a periodontal probe is an adequate and reliable objective method for evaluation. Visual biotype assessment is not adequate as a predictor of post-treatment esthetic results.

**Reviewer’s Comments:** For good esthetic results, the gingival tissues should be able to conceal underlying restorative materials. Thicker gingival biotypes are important when planning treatment in esthetic areas. (Reviewer-Sterling R. Schow, DMD).

© 2010, Oakstone Medical Publishing

Keywords: Implants

Print Tag: Refer to original journal article
Is Empiric Treatment for MRSA of Value?

The Benefit of Empiric Treatment for Methicillin-Resistant Staphylococcus aureus.
Chuck EA, Frazee BW, et al:

J Emerg Med 2010; 38 (June): 567-571

Treating community-acquired methicillin-resistant Staphylococcus aureus (MRSA) soft-tissue infections with an algorithm that recommends using antibiotics active in vitro against MRSA improves clinical outcomes.

Objective: To evaluate the effectiveness of an empiric treatment algorithm for skin and soft-tissue infections (SSTIs) directed against community-acquired methicillin-resistant Staphylococcus aureus (CA-MRSA).

Design: Retrospective chart review.

Participants: 50 consecutive emergency department outpatients treated for MRSA SSTI.

Methods: The author's institution, because of a concern against CA-MRSA, as well as incision and drainage, adopted an SSTI treatment algorithm that promoted use of antibiotics active in vitro against CA-MRSA as well as incision and drainage. Records of patients consecutively identified with MRSA isolates and treated and discharged the same day were reviewed retrospectively. The reviews extended to the date the infection resolved or resulted in a complication. The protocol called for use of Keflex and/or trimethoprim-sulfamethoxazole (TMP/SMX) for cellulitic lesions, doxycycline and/or TMP/SMX alone for uncomplicated abscesses in addition to incision and drainage, and Keflex plus TMP/SMX, clindamycin, clindamycin plus vancomycin or Zosyn plus vancomycin for complicated abscesses in addition to incision and drainage. If the antibiotic protocol regimens were not followed, if incision and drainage were not done, or if the subject did not take the antibiotics, patients were compared to those in whom the protocol was followed.

Results: For 29 of the 50 patients, treatment conformed to the algorithm. Treatment failure rates, where a patient's condition worsened, occurred in just 3% of those treated according to protocol. In comparison, 62% of the patients with CA-MRSA SSTIs not treated according to the algorithm became worse. Thirty-seven of the 50 patients who had immediate incision and drainage and were treated with the proposed antibiotic regimen had improved clinical findings.

Conclusions: Empiric treatment of CA-MRSA SSTI, using a protocol that recommends use of antibiotics effective against MRSA in vitro, results in improved clinical outcomes.

Reviewer's Comments: I do not know why anyone would be surprised by these results. It is obvious that only 1 of the 29 patients treated according to the protocol became worse, which is not a bad result, especially if we do not know if the incision and drainage were adequate or if the cause of the infection was eliminated. (Reviewer-Sterling R. Schow, DMD).

© 2010, Oakstone Medical Publishing

Keywords: Methicillin-Resistant Staphylococcus aureus, Treatment

Print Tag: Refer to original journal article
Immediate and Delayed Loading Can Result in Excellent Implant Success

Five-Year Follow-up of Wide-Diameter Implants Placed in Fresh Molar Extraction Sockets in the Mandible: Immediate Versus Delayed Loading.

Prosper L, Crespi R, et al:


Wide-diameter implants immediately placed in mandibular molar extraction sites and restored immediately or after a 3-month delay perform equally well over a 5-year follow-up period.

Objective: To look at the long-term success rates of wide-diameter implants placed in mandibular molar extraction sites and loaded immediately or 3 months later.

Design: Prospective, comparative, randomized clinical and radiographic study.

Participants: 71 patients needing removal of a mandibular first or second molar.

Methods: The patients were randomly assigned to one of 2 groups. Sixty implants were placed in the fresh molar extraction sites and loaded immediately. Sixty other implants were placed in fresh molar extraction sites but were not loaded until 3 months later. All of the patients were in good health and all implant sites had all osseous walls of the sites intact and an alveolar ridge at least 10 mm high. None of the implant sites had fenestration or dehiscence defects in the socket walls. All implants had a sandblasted, commercially pure, bioactive titanium self-threading surface. Implant lengths were 9, 11 or 13 mm, and widths were 6.5 or 7.5 mm. Any residual defect between the socket walls and the implant, after its placement, were filled with a collagen sponge. Immediate restorations for the 60 loaded implants were temporarily cemented acrylic resin crowns. All implants in both groups were restored with single porcelain metal crowns 3 months after insertion. Implants were followed clinically and radiographically annually for 5 years. A blinded radiologist evaluated changes in crestal bone over this time.

Results: Only 2 immediately loaded implants and 2 implants loaded after 3 months were lost, resulting in a 96.7% survival rate! Healing for both groups was uneventful. There were no significant differences between the 2 groups over the 5-year period for mean marginal bone loss. At 1 year, crestal bone loss for the immediately loaded implants was 0.24 mm and 0.17 mm for the fixtures loaded after 3 months. At 5 years, the mean crestal bone loss was 1.31 and 1.01 mm for the respective groups. In their discussion, the authors emphasize the importance of primary implant stability in a good restorative position when employing this technique.

Conclusions: With stable, well-placed, wide-diameter implants in fresh mandibular molar extraction sites, both immediate and delayed loading can result in excellent implant success with no significant alteration of crestal bone.

Reviewer’s Comments: This well-written, informative paper nicely describes the authors’ surgical and restorative techniques. The discussion cites a number of references with equivalent findings. (Reviewer-Sterling R. Schow, DMD).

© 2010, Oakstone Medical Publishing

Keywords: Wide-Diameter Implants, Immediate vs Delayed Loading, Extraction Sockets

Print Tag: Refer to original journal article
If there is adequate residual maxillary alveolar bone to allow primary implant stability, 1-stage implants may be inserted simultaneously with sinus subantral bone regeneration.

**Objective:** To evaluate placement of nonsubmerged implants in the posterior maxilla placed simultaneous with sinus augmentation.

**Design:** Retrospective long-term follow-up study.

**Participants:** 40 patients having sinus lifts and posterior maxillary implants.

**Methods:** All of the patients evaluated in the study were retrospectively selected by the authors for a follow-up study. Sinus augmentations had been done for the patients who had <6 mm of remaining subantral alveolar bone height. The decision to place implants simultaneously with the sinus lift was made by the operating surgeon and not based on a specific minimal residual bone height. Two surgeons did all procedures. Sinus grafting was accomplished using BioOss particles hydrated in a doxycycline solution using a lateral wall approach. All implants were at least 10 mm in length. Transmucosal healing caps were placed at surgery to provide for nonsubmerged healing. Three months later, patients had prostheses placed and were followed annually thereafter for up to 6 years.

**Results:** For the 40 patients, 50 sinus lifts were completed with BioOss grafts, and 102 posterior maxillary implants were simultaneously placed. Initial residual alveolar bone heights ranged from 3 to 8 mm. The mean healing time before prosthetic loading was 7.9 months. Only 2 of the 102 implants were lost and were both in the same patient. There were sinus membrane perforations in 18% of the procedures. The tears were covered with a collagen membrane, and the surgery continued. In the 2- to 6-year follow-up, no marginal bone loss exceeding the second implant thread was found. Just 1 of the implants, at placement, was felt by the surgeon to be insufficiently stable. This implant was submerged and second-stage surgery was done later. All other implants were treated using the described 1-stage procedure.

**Conclusions:** BioOss sinus floor elevation combined with immediate implant placement using a 1-stage, nonsubmerged implant can be considered for posterior maxillary implants, even when there is <6 mm residual alveolar bone height.

**Reviewer’s Comments:** The primary emphasis in this paper is the importance of primary implant stability. The mostly complication-free, high success rates reported by the authors are impressive. (Reviewer-Sterling R. Schow, DMD).

© 2010, Oakstone Medical Publishing

Keywords: Implant Placement, Subantral Bone Regeneration, Bovine Hydroxyapatite

Print Tag: Refer to original journal article
Objective: To compare a classic nasal cinch suturing technique with a modified cinch suturing technique in order to reduce nasal flaring following Le Fort I osteotomy.

Design: Prospective, randomized clinical study.

Participants: 40 class III skeletal deformity patients operated on with bimaxillary surgery to include at least Le Fort I osteotomy. All patients were operated on by a single surgeon over a 12-month period. Excluded were any patients who had previous midfacial nasal surgery to include cleft lip patients.

Methods: The patients were randomized into 2 groups. Group 1 had a classic alar cinch suture, and group 2 received the modified technique. For the classic alar cinch, a 3/0 nonabsorbable suture anchors bilateral fibroareolar tissues in the correct position, which has been determined by applying pressure on the ala of the nose extraorally and observing tissue movement intraorally through the vestibular incision. The correct anchoring of the tissue is confirmed by applying tension on the cinch sutures to ensure medial movement of both alae is similar. The two free ends of the suture are then tied through a hole fashioned through the nasal spine. The modified cinch suture utilizes an 18-gauge needle passed through skin points R and L (described below) through the fibroareolar tissue. A 3/0 nonabsorbable suture is then attached to the needle from the oral side, and the needle is only partially withdrawn prior to reinsertion into the oral cavity. This is repeated on the contralateral side, and the 2 free ends of suture are then tied through a hole in the nasal spine. Three landmarks were utilized to record measurements preoperatively and at 6 months postoperatively. The landmarks were the nasofacial skin fold at the left (point L) and right (point R) alar base and the midpoint (point M) at the base of the columella. L-M and M-R were recorded and examined in both groups.

Results: There were no differences in measurements based on the magnitude of the skeletal movements. Seventeen of the 20 patients in group 1 experienced postoperative nasal widening. Only 6 patients in group 2 exhibited postoperative nasal widening.

Conclusions: The modified technique described in this study reduced the incidence of nasal widening following Le Fort I maxillary osteotomies. The fibroareolar tissue must be engaged with appropriate tension to adequately restore the nasal width following maxillary degloving.

Reviewer's Comments: The authors attribute the decreased incidence of nasal widening to the amount of tissue procured by the needle utilized to present the alar suture. They point out that a larger amount of fibroareolar tissue could be anchored with the transcutaneous straight needle over that of the curved needle as used in the classic technique. It is my opinion that a correctly placed needle of any sort can stabilize the alar base at the time of surgery, and careful attention should be directed at restoring the intended alar width near the conclusion of maxillary surgery. (Reviewer-Michael L. Ellis, DDS).

© 2010, Oakstone Medical Publishing
Patients with moderate to severe obstructive sleep apnea syndrome benefit from maxillomandibular advancement, with or without a pre-existing skeletal deformity.

**Objective:** To evaluate “…the effectiveness of maxillo-mandibular advancement (MMA) in patients with obstructive sleep apnea syndrome (OSAS), even those without skeletal anomalies, indicating the possibility of extending this procedure to more patients.”

**Design:** Retrospective study.

**Participants:** 22 patients diagnosed with OSAS were divided into 2 groups of 11 each following an inability to tolerate nasal continuous positive airway pressure (N-CPAP) treatment. Both groups presented with an apnea-hypopnea index (AHI) >20 and an Epworth sleepiness scale (ESS) >10. Group I consisted of those with either maxillary hypoplasia or normal maxillary projection coupled with mandibular hypoplasia. Group II was composed of patients with normal cephalometric, esthetic, and occlusal values.

**Methods:** Body mass index (BMI) was evaluated on all patients. Preoperative and postoperative (multiple time points) polysomnography, helical CT (selective), and lateral cephalometric radiographs were obtained and reviewed for data collection. MMA of 10 mm, measured at the mandibular incisors, was accomplished on all participants. Eight patients in group I underwent preoperative orthodontics, and removable partial dentures were fabricated for 3 patients to enhance occlusal stability perioperatively. Group II patients were all maintained in their original class 1 occlusion following MMA. Nine patients in each group received genioplasty. Septoplasty was provided where indicated in each group, as was turbinectomy. Advancement gaps in 2 patients in group II were autografted with corticocancellous bone from the iliac crest. All participants received microplating in the maxilla and monocortical miniplating in the mandible. N-CPAP stopped at postoperative day 1 on all participants.

**Results:** Posterior airway space increased from 4.4 to 11.1 mm (252%) in group I and from 3.7 to 10.9 mm (294%) in group II. Complete resolution of daytime somnolence (per ESS) occurred in both groups. Oxygen desaturation events decreased significantly in both groups, with AHI decreasing markedly from the 50s down to around 7. All 11 patients in group I reported improvement in esthetics, as did 6 patients in group II, with the remaining 5 reporting “unchanged.” Symptoms decreased quickly, no temporomandibular joint disorders occurred, and all patients were satisfied esthetically and functionally. BMIs remained statistically insignificant postoperatively, and therefore could not be used to explain improvements to include decrease in clinical symptoms.

**Conclusions:** MMA should be considered as a first-line treatment for OSAS in both the skeletal deformity patient and those presenting with normal cephalometric values, esthetics, and class 1 occlusion.

**Reviewer’s Comments:** MMA is a great tool for the treatment of moderate to severe OSAS. The functional results, as evidenced here, are efficacious for both aforementioned populations of OSAS sufferers. This is a nice study of a small population that portends success in the treatment of OSAS patients otherwise devoid of skeletal anomaly utilizing MMA. (Reviewer-Michael L. Ellis, DDS).

© 2010, Oakstone Medical Publishing

Keywords: OSAS, Maxillo-Mandibular Advancement, Skeletal Anomalies

Print Tag: Refer to original journal article
When Should Elective Neck Dissection Be Considered for SCC?

Squamous Cell Carcinoma of the Maxillary Gingiva, Alveolus, and Hard Palate: Is There a Need for Elective Neck Dissection?

Mourouzis C, Pratt C, Brennan PA:


Elective neck dissection may be considered when the risk of occult metastasis exceeds 20%, as is seen with squamous cell carcinoma of the tongue and floor of mouth.

**Objective:** To discern if early, selective neck dissection is justified with squamous cell carcinoma (SCC) of the maxillary gingiva, alveolus, and hard palate.

**Design:** Retrospective records review.

**Participants:** The data on 17 patients (11 men and 6 women), with a mean age of 68 years and a history of treatment for SCC of the maxillary gingiva, alveolus, and hard palate, were reviewed.

**Methods:** Clinical data were procured to include site of the primary tumor, nodal status, treatment, staging via the TNM system, recurrence, metastasis, and outcome. A CT or MRI was obtained for all patients. Those with suspicious nodes received ultrasound-guided fine needle aspiration.

**Results:** 9 patients had SCC involving at least the alveolus, 7 involved the palate, and only 1 involved the gingiva. Sixteen patients had the tumor resected, and 1 had radiotherapy for bulk reduction. Three patients with metastatic disease and 1 patient with a T4 lesion received neck dissection. The metastatic neck disease patients received postoperative radiotherapy in the primary site and the ipsilateral neck. Two of the 13 patients originally devoid of neck metastasis later developed metastases 3 and 17 months after initial treatment. All 4 patients initially presenting with metastatic neck disease developed recurrences in the first 13 months after surgery; 2 died with local recurrence and 2 were receiving palliative treatment at the time of paper submission. Seven of the 12 patients followed for 5 years or until death from disease survived the 5-year mark, representing a 58% survival rate.

**Conclusions:** In this study, the patients with metastatic neck disease were treated appropriately with not only primary tumor resection but also neck dissection or radiotherapy, and they nevertheless experienced locoregional recurrence. Occult disease is suggested when nodal metastasis presents after initial treatment, so the authors suggest that early, elective neck dissection may be indicated for the maxillary SCC entities described herein.

**Reviewer's Comments:** Current management of maxillary alveolar, gingival, and hard palate SCC includes "watch and wait" in the absence of palpable nodes. When considering a 15% to 20% risk of occult metastasis with oral SCC, a more aggressive approach, including elective neck dissection, may be indicated for this rare maxillary neoplastic presentation. This is a very nice case series, albeit small, reporting the outcomes of 17 patients with maxillary SCC of the gingiva, hard palate, and alveolus. (Reviewer-Michael L. Ellis, DDS).

© 2010, Oakstone Medical Publishing

Keywords: Neck Dissection, Squamous Cell Carcinoma, Maxillary Alveolus, Hard Palate

Print Tag: Refer to original journal article
Successful implants enjoy 50% to 80% bone–implant contact following remodeling and return to a state of equilibrium with osseointegration.

**Objective:** To evaluate the effect of different percentages of bone–implant contact on bone remodeling using a 2-dimensional (2D) finite element model.

**Design:** Construct of a new bone remodeling algorithm.

**Methods:** Multiple computer simulations were utilized in an effort to improve on prior bone remodeling theories. CT image-based virtual models were used to assume characteristics of a 4.5- x 11-mm implant complete with a screw-retained implant-supported crown. Both cortical bone and cancellous bone are considered in virtual model with 2D strain elements and sensors. Differing numbers of "elements" are assigned to all constituents of the simulated analysis to include the crown, abutment, abutment screw, implant, cortical and cancellous bone, and connective tissue. An occlusal load of 100 N at an angle of 11° is applied and the modelling process is allowed to run mathematically. Four scenarios were studied, representing 25%, 50%, 75%, and 100% of initial bone–implant contact. The contact percentages were adjusted by reassigning bony "elements" as soft tissue "elements" in the appropriate ratios. Density of cortical bone, in these modelling scenarios, was unchanged.

**Results:** The predicted final densities of all 4 scenarios were nearly identical.

**Conclusions:** Density redistribution by bone, represented here as remodeling in a 2D finite element model, results in a final 58% to 60% bone–implant contact no matter the initial percentage of bone–implant contact.

**Reviewer's Comments:** Wolff's law rules! Healthy and functional bone seeks a state of equilibrium secondary to forces and influences of load. Resulting bone density around implants, measured as bone–implant contact, is one measure of successful osseointegration, and this physiologic adaptation enables our success. This paper demonstrates some elegant math, illustrating algorithms for bone remodeling that I found difficult to follow as a clinician. A future 3D analysis is planned that is touted to be a more sophisticated simulation. Stay tuned! (Reviewer-Michael L. Ellis, DDS).

© 2010, Oakstone Medical Publishing

Keywords: Bone-Implant Contact, Bone Remodeling, Finite Element Analysis

Print Tag: Refer to original journal article
HPV Infection Has Role in Tongue SCC Oncogenesis

Relevance of Human Papilloma Virus (HPV) Infection to Carcinogenesis of Oral Tongue Cancer.

Lee SY, Cho NH, et al:


HPV-16 may be associated with less depth of invasion of squamous cell carcinoma of the tongue.

Objective: To evaluate the relationship between human papillomavirus (HPV) and the carcinogenesis and behavior of squamous cell carcinoma (SCC) of the tongue utilizing newer technologies.

Design: Bench top, controlled, prospective study of archival tissues that included 36 SCC tongue tissue samples of T-1 and T-2 lesions and 25 nonpathologic normal tongue tissue samples.

Methods: All samples were prepared in a standard fashion prior to isolation, DNA extraction, and optical density measurement. HPV genotyping was performed with a DNA chip and oligonucleotide probes for 26 HPV types using a fluorescence scanner. Polymerase chain reaction (PCR) assays were completed. Clinicopathologic parameters including survival, TNM stage, depth of invasion, recurrence, and HPV prevalence were reviewed for each specimen. HPV status and case parameters were subjected to appropriate statistical analyses.

Results: HPV was present in 36% of SCC tissue samples. In those tumors that were HPV positive, 84.8% presented with HPV-16. Normal control tongue tissue presented with a 4% HPV infection rate (1 of 25). Approximately 67% of HPV-positive cancers presented as less infiltrative, whereas 57% of HPV-negative cancers were infiltrative. No association was appreciated between TNM stage and recurrence and HPV infection.

Conclusions: HPV-16 is commonly associated with early SCC of the tongue and exhibits a statistically significant shallower infiltration. HPV infection appears to have a role in tongue SCC oncogenesis.

Reviewer’s Comments: This is a very well-orchestrated study of HPV prevalence in early SCC of the tongue and utilizes very sensitive and specific state-of-the-art technology to detect all HPV genotypes. HPV appears to be somewhat protective in nature, with HPV-positive cancers exhibiting better survival rates than those without HPV. (Reviewer-Michael L. Ellis, DDS).

© 2010, Oakstone Medical Publishing

Keywords: HPV, Integration, Squamous Cell Carcinoma, Tongue Cancer

Print Tag: Refer to original journal article