

Hemisect and Restore Molars or Extract and Place Implants?

Mandibular Molar Root Resection Versus Implant Therapy: A Retrospective Nonrandomized Study.

Zafiroopoulos G-G, Hoffmann O, et al:

J Oral Implantol; 35 (April): 52-62

Hemisected and restored mandibular molar teeth have higher complication rates and failure rates than do implant replacements of similar teeth.

Objective: To compare long-term complication and success rates of root resected mandibular molars to those of dental implants replacing mandibular molars.

Design: Private practice-based retrospective study.

Participants: 32 patients with 56 mandibular first or second molars treated by hemisection, and 28 patients who received 36 mandibular implants to replace first or second molars.

Methods: Each of the patients had a history of chronic periodontal disease with clinical attachment level loss of at least 4 mm, alveolar bone loss, and bleeding on probing. Preparatory periodontal treatment was completed 6 months before those molars selected for root resective surgery were operated on. Root resection patients were sent to their general dentist for endodontic treatment prior to surgery. The coronal portions of the roots to be salvaged had custom-made gold posts inserted and were restored when appropriate. All root resections were completed by the same surgeon. The condemned root was removed and its socket filled with a composite of BioOSS and autologous bone. For molars that were removed in preparation for implant placement, sockets were preserved using non-resorbable dPTFE membranes without any grafting materials. Eight months after molar removal, cylindrical, screw-type implants with an SLA surface were placed using a 1-stage approach. All restorations on both hemisected roots and implants were done by the same restorative dentist. Follow-up appointments were completed twice monthly for 2 months, then monthly for another 10 months. All patients were then followed up with routine maintenance visits for a minimum of 4 years.

Results: Post-treatment complications occurred in 32.1% of the hemisected root cases, only a third of which were salvageable. Complications that were not salvageable included root caries, apical abscesses, and root fracture. Only 11.1% of the areas where molar teeth were removed and replaced with implants experienced complications, and all but one of these were salvageable. Thus, the overall risk of complications was much higher with root resection, and the risk for non-salvageable complications was almost 10 times higher than when implants were used.

Conclusions: Implants replacing periodontally involved mandibular molars have fewer complications, salvageable and non-salvageable, than do hemisected mandibular molars.

Reviewer's Comments: Our endodontic colleagues may burn this paper! Of interest, a well-funded prospective study comparing endodontic salvage of mandibular molars to implant replacement is now underway in at least one institution. The results will be interesting.

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BRONJ Can Be Treated Surgically

Outcome of Surgical Management of Bisphosphonate-Related Osteonecrosis of the Jaws: Review of 33 Surgical Cases.

Stanton DC, Balasanian E:

J Oral Maxillofac Surg; 67 (May): 943-950

Surgical debridement of dead bone in bisphosphonate-related osteonecrosis of the jaws can result in complete healing.

Objective: To describe the results of surgical management of bisphosphonate-related osteonecrosis of the jaws (BRONJ).

Design: Retrospective chart review of patients treated surgically for BRONJ.

Participants/Methods: The records of 51 patients with BRONJ were reviewed. Data evaluated included gender, age, primary diagnosis, specific bisphosphonate used, site of osteonecrosis, treatment rendered, postoperative course, and overall outcome. Of the 51 patients, 33 (24 women, 9 men) were treated surgically. The underlying diagnoses in these 33 patients was breast cancer in 18, multiple myeloma in 5, prostate cancer in 3, non-Hodgkin's lymphoma in 1, multiple myeloma and prostate cancer in 1, osteoporosis and hypercalcemia secondary to sarcoidosis in 1, and osteoporosis in 4. Three patients had been exposed to an oral bisphosphonate. Patients were taken to the operating room for complete debridement of all necrotic bone and closure of the soft-tissue wound with advancement bone flaps without tension. Twenty-eight patients healed completely with complete mucosal coverage and elimination of pain. Four patients developed a second occurrence and were treated successfully. Thirty-two of 37 BRONJ occurrences healed completely with the surgical protocol.

Conclusions: Surgical debridement and closure of soft-tissue wound without tension has resulted in a high degree of healing over a long follow-up.

Reviewer's Comments: This excellent review of cases treated surgically shows that the debridement of dead bone and closure of the wounds in BRONJ can result in a very high rate of permanent healing.

Additional Keywords: Bisphosphonate

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Informed Consent--What Do Our Patients Really Remember?

"Informed" Consent in Adult Patients: Can We Achieve a Gold Standard?

Brosnam T, Perry M:

Br J Oral Maxillofac Surg; 47 (186-190):

The majority of patients (95%) in this study thought they had received the "right amount" of information for informed consent, but many had no recall for specific risks such as nerve damage or damage to adjacent structures.

Objective: To determine the gold standard for informed consent as it relates to the removal of third molars, and to determine patients' understanding and recall of the informed consent process.

Design: Retrospective clinical investigation.

Participants: 75 patients.

Methods: All patients were presenting for the removal of mandibular third molars. The components of the "gold standard" informed consent consisted of the following: pain, trismus, swelling, bleeding, infection, nerve damage, and damage to adjacent teeth. Patients were given the option of removal with local or general anesthesia. All patients received appropriate informed consent at the initial appointment and were given 3 pamphlets to read at home regarding the proposed procedures. When patients presented for their procedures, they were once again presented with the potential side effects of the procedure. At the end of the second consenting process, patients were then asked to complete a questionnaire that surveyed their understanding of the informed consent.

Results: Not all patients were aware of all complications. Only 36% stated that they were aware of all complications; 87% said they were aware of some of the complications, and 1 patient said he did not know the risks of any of the complications. Seven percent of patients said the informed consent process made them very anxious. Ninety-two percent of patients were specifically aware of the possibility of sensory changes to the lower lip, and 85% were aware of potential sensory changes to the tongue. The complication that was least likely to be remembered was the potential for damage to adjacent teeth (32% recalled the risk). Ninety-five percent of patients thought they had received the right amount of information to make an informed consent.

Conclusions: Achieving informed consent for the removal of third molars is a difficult process. Even though 95% of patients thought they had received the right amount of information, only 87% were aware of some or all of the risks.

Reviewer's Comments: The results of this study highlight the problem with informed consent. We tend to think our patients are well informed of the potential risks. The 2 points that seem to always get through to the patient are pain and swelling. Damage to adjacent teeth, trismus, bleeding, and infection seem to be the risks that most patients have difficulty recalling.

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All ZMC Fractures Need Ophthalmic Exam

Ophthalmic Injuries in Patients With Zygomaticomaxillary Complex Fractures Requiring Surgical Repair.

Jamal BT, Pfahler SM, et al:

J Oral Maxillofac Surg; 67 (May): 986-989

The incidence of eye injuries with zygomaticomaxillary fractures makes an ophthalmic examination prior to surgery obligatory.

Objective: To assess the spectrum and incidence of ophthalmic involvement in patients presenting with zygomaticomaxillary complex (ZMC) fractures.

Design: A retrospective analysis of the records of patients treated for ZMC fractures to examine the incidence and types of ophthalmic injuries.

Participants/Methods: 96 patients with ZMC fractures treated surgically underwent a retrospective analysis of their treatment records. All patients had a thorough ophthalmologic examination prior to treatment of their fractures. Variables studied included age, gender, mechanism of injury, visual acuity, pupillary reactivity, extraocular motility, and presence or absence of diplopia, ocular, and orbital findings. Injuries were classified as either minor (unlikely to cause visual problems) or major (likely to cause permanent visual damage). Sixty-six percent of patients received minor damage to the eye, with 55% having subconjunctival hemorrhage. Ten percent of patients, however, received major injuries to the eye likely to cause permanent visual problems. Six percent of patients suffered traumatic optic neuropathy.

Conclusions: Since 10% of patients with ZMC fractures suffered injuries that were likely to cause permanent visual problems, an ophthalmic examination prior to repair of the fractures seems mandatory.

Reviewer's Comments: This excellent article supports the concept of getting an eye examination on all patients with a ZMC fracture prior to repair. If an injury is sustained during the accident, it is mandatory to have it diagnosed before treatment so that the treatment itself is not blamed for the eye involvement.

Additional Keywords: Surgery

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How Does Odontogenic Disease Affect Maxillary Sinusitis?

Frequency of a Dental Source for Acute Maxillary Sinusitis.

Bomeli SR, Branstetter BF IV, Ferguson BJ:

Laryngoscope; 119 (March): 580-584

Odontogenic diseases that might lead to acute maxillary sinusitis include periapical abscesses.

Objective: To associate radiographic features of acute maxillary sinusitis caused by odontogenic pathology, and to determine the frequency of this problem.

Design: Retrospective review of sinus CT scans of 101 patients with a CT radiographic diagnosis of acute maxillary sinusitis.

Methods: Archival CT scans in the authors' institution were reviewed to identify radiology reports that included "acute maxillary sinusitis" in the impression. Scans were included if at least one maxillary sinus had fluid density material within and the maxillary teeth were also imaged. The study did not include PET or MRI, only conventional CT. In all, 101 scans of 202 maxillary sinuses were reviewed in axial and coronal planes using both bone and soft-tissue algorithms. For each sinus, the reviewing radiologist looked for evidence of previous sinus surgery, teeth adjacent to the sinus floor, and dental or periodontal disease of teeth adjacent to the sinus floor. The radiographic severity of the sinus disease was graded. Radiographically identifiable dental sources of infection on the scans were also noted and included tooth roots projecting into the sinus, periapical abscesses, and oroantral fistulae with a radiolucency extending from a tooth socket directly to the sinus with no intervening bone. These areas of dental pathology were identified if they were adjacent to sinuses with radiographic evidence of acute sinusitis.

Results: 202 sinuses in 101 adult patients were evaluated; 61% of patients had sinuses partially or totally opacified by fluid, either unilaterally or bilaterally. Eighteen percent of patients had no premolar or molar teeth adjacent to the maxillary sinuses; however, 82% had at least one adjacent tooth. A total of 63% of the sinuses had adjacent teeth with either periapical or periodontal pathology. These teeth were not independent predictors of sinus disease except for teeth that projected into the sinus floor with major periodontal disease or periapical abscess. The likelihood of a contributing dental source of sinus infection increased when large volumes of sinus fluid accumulation were noted. Sinus mucosal thickening was also associated with an increased possibility of a dental source of infection.

Conclusions: Odontogenic infections are often the source of maxillary sinusitis with rates up to 86% when sinus radiographs indicate severe disease.

Reviewer's Comments: Odontogenic infection should always be considered a possible cause of acute sinus disease in the initial evaluation of patients with sinusitis symptoms. It is too bad the authors did not review patient records to correlate clinical findings with radiographic impressions.

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Dental Impaction--Choosing Best Drug for Pain

A Randomized, Double-Blind, Placebo-Controlled Study Comparing the Efficacy and Safety of Paracetamol, Serratiopeptidase, Ibuprofen and Betamethasone Using the Dental Impaction Pain Mode.

Chopra D, Rehan H et al:

Int J Oral Maxillofac Surg; 38 (350-355):

In this study, betamethasone showed the greatest efficacy in reducing postoperative pain and improving the degree of trismus. Ibuprofen and betamethasone were the most effective in reducing swelling.

Objective: To compare the efficacy of multiple pharmaceutical agents in reducing pain and swelling following the removal of third molars.

Design/Participants: Randomized, double-blind, placebo-controlled investigation involving 150 patients.

Methods: All patients were presenting for surgical removal of a unilateral impacted mandibular third molar. Patients with significant systemic disease were excluded. All patients underwent a radiographic examination and had the following preoperative lab work: hemoglobin and hematocrit, complete blood count, blood urea nitrogen, and electrocardiogram. All patients were randomly assigned to 1 of 5 groups receiving a specific agent 3 times a day postoperatively: ibuprofen 600 mg, betamethasone 0.5 mg, paracetamol 1 g, serratiopeptidase 20 mg, or placebo. All teeth were surgically removed under local anesthesia. The following postoperative parameters were measured: pain, swelling, trismus, wound healing, bleeding, and local temperature of the oral cavity on the side of the extraction. Rescue medication was also provided (tramadol 100 mg).

Results: Paracetamol, placebo, and serratiopeptidase were found to have a minimal effect on swelling for the entire 7-day period, and the placebo group was found to have the greatest degree of swelling on all follow-up appointments. Betamethasone was found to have an effect on swelling starting on day 3, and ibuprofen's effect was seen on day 5. The greatest pain was seen on the day of surgery. A significant reduction in pain was seen on day 3 with placebo, day 4 in the serratiopeptidase group, and day 5 in the paracetamol group. Betamethasone was found to have the greatest and earliest effect on resolution of trismus. Wound healing and the incidence of bleeding were the same in all groups. Thirteen percent of patients experienced adverse drug reactions, with the most common being vomiting, followed by sleepiness, dizziness, and headache.

Conclusions: Betamethasone showed the most significant analgesic activity and was associated with the earliest reduction in the degree of trismus. Ibuprofen and betamethasone were the most effective in reducing swelling. Serratiopeptidase did not show any significant analgesic or anti-inflammatory activity. Paracetamol was found to have less analgesic efficacy than placebo.

Reviewer's Comments: The results are not surprising considering the mechanism of action of the various medications. It is interesting to note that acetaminophen had less analgesic efficacy than the lactose placebo.

Additional Keywords: Pain Control

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Infected Mandibular Fractures Can Be Treated With Open Reduction

Rigid Internal Fixation of Infected Mandibular Fractures.

Mebra P, Van Heukelom E, Cottrell DA:

J Oral Maxillofac Surg; 67 (May): 1046-1051

Infected mandibular fractures treated with a surgical protocol including debridement and antibiotics can heal successfully.

Objective: To describe the treatment outcomes of the management of infected mandibular fractures with open reduction and rigid fixation.

Design: A retrospective evaluation of the medical records of patients with infected mandibular fractures treated with antibiotics and open reduction with internal fixation.

Participants/Methods: 44 patients with infected mandibular fractures were divided into 2 groups. The first group had soft-tissue infections, and group 2 had bone infections including osteomyelitis. Both groups were treated with a surgical protocol that included antibiotics, debridement of any dead bone or sequestra, removal of infected teeth in the fracture site, insertion of a bone plate with 2 screws on each side of the fracture at least 1 cm away from the fracture line, and insertion of an irrigating drain. Patients were hospitalized from 2 to 5 days, and antibiotics were continued for 1 week postoperatively. Patients were followed up at 1, 2, 4, and 6 weeks and then for the longest point after surgery.

Results: The average follow-up was 18 months (range, 3 to 48 months) after surgery. For soft-tissue infections, the rate of healing was 100% versus 92% for bone infections. The overall success rate was 95% with this protocol.

Conclusions: Using a surgical protocol of rigid fixation, antibiotics, and careful debridement, infected mandibular fractures can be treated with a high rate of success.

Reviewer's Comments: This is an excellent article showing that, with proper treatment and antibiotics, surgical management with open reduction of infected fractures of the mandible can be highly successful.

Additional Keywords: Rigid Fixation

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Consider Dentoalveolar Development in Treatment Planning

Dentoalveolar Development in Subjects With Normal Occlusion. A Longitudinal Study Between the Ages of 5 and 31 Years.

Thilander B:

Eur J Orthod; 31 (April): 109-120

Continuous increases in palatal depth continue through early adulthood, as does biological tooth migration. This has implications for treatment planning in orthodontics and implant dentistry.

Objective: To examine dentoalveolar development in individuals with an ideal or normal occlusion between the age of 5 and 31 years with no history of orthodontic treatment.

Design: Retrospective study of dental models.

Participants: 189 male and 247 female patients.

Methods: Study materials for this investigation consisted of 436 study models from patients followed up from age 5 through 31 years. None of the subjects had a history of orthodontic treatment, and all had what was considered a normal or ideal occlusion. For each subject, models were taken at 5, 7, 10, 13, 16, and 31 years of age. On each of the casts, tooth width, arch length, width and depth, and palatal height were measured. Intercanine widths, interpremolar widths, and intermolar widths were also measured at each interval.

Results: No significant differences were noted between the right and left sides. Dental arches at given ages were consistently larger in males. Arch length decreased between 7 and 13 years approximately 1 mm in the maxilla and 3 mm in the mandible. After age 13, arch lengths continued to decrease about 2 mm in both the maxilla and mandible up to age 31 years. Arch circumference in anterior and posterior regions of both jaws increased up to age 10 years. This was followed by a continuous decrease of arch circumference, especially in the mandible where it amounted to approximately 4 mm at age 31 years mesial to the first molars. Intercanine width increased about 4 mm between age 5 and 16 years in the maxilla and the same distance in the mandible by age 10, followed by a decrease between age 16 and 31 years. Alveolar depth increased approximately 5 mm in the maxilla and 3 mm in the mandible between 7 and 13 years because of anterior tooth eruption. A continued slow decrease of 1 to 2 mm was then seen in both jaws, indicating anterior tooth migration. Finally, a continuous increase in palatal depth totaling 7.1 mm in females and 8.2 mm in males was noted between age 5 and 31 years. After age 16 until age 31 years, an additional increase of palatal depth of 1.5 mm in females and 1.9 mm in males was noted, probably the result of slow, continued tooth eruption.

Conclusions: Growth of the facial skeleton and changes in the occlusion are dynamic processes that must be considered in treatment planning and assessment of treatment stability. These findings are significant in orthodontic relapse and in explaining infraposition of implant-supported crowns placed in early adulthood.

Reviewer's Comments: This is a very nice study with excellent illustrations and is a good read for those of us who are considering implant placement in patients in their late teens or early 20s.

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Does Flumazenil Reverse Sublingual Triazolam?

Flumazenil Reversal of Sublingual Triazolam: A Randomized Controlled Clinical Trial.

Hosaka K, Jackson D, et al:

J Am Dent Assoc; 140 (May): 559-566

Submucosal administration of flumazenil was found to incompletely reverse the sedative effects of incremental dosing of sublingual triazolam.

Objective: To present the outcome regarding the efficacy of intraoral flumazenil in reversing the sedative effects of sublingually administered incremental dosing of triazolam.

Design/Participants: Randomized, controlled, clinical trial involving 14 patients.

Methods: All patients were ASA I, were currently taking no systemic medications, and had a body mass index <30 kg/m². Appropriate monitoring was utilized. Patients were administered 0.25 mg triazolam sublingually, and subsequent doses were administered every 30 minutes for a total dose of 0.75 mg. Patients were randomly assigned to 1 of 2 groups: those receiving 0.2 mg flumazenil submucosally or an equal volume (2 cc) of 0.9% saline. The injections were given submucosally in the mucobuccal fold. The reversal agent or placebo was administered 30 minutes after the last dose of triazolam. Patients were evaluated for the level of sedation utilizing the Observer's Assessment of Alertness/Sedation Scale (OAA/S) and bispectral index (BIS) monitoring. Assessments were performed 30 minutes after the first dose of triazolam and continued for the next 6 hours.

Results: BIS and OAA/S assessments revealed that all subjects obtained significant time-dependent central nervous system depression. The submucosal administration at the 120-minute interval produced a transient increase in the BIS score at the 150-minute evaluation point. However, this increase lasted for only one 30-minute assessment interval before the patients returned to a hypnotic state similar to that at the 120-minute interval. OAA/S scores increased significantly following the flumazenil injection but, again, the increases were sustained for only one 30-minute assessment period. No significant differences were noted between the flumazenil and placebo groups as determined by the OAA/S scores or BIS monitoring. No soft-tissue damage was evident following the submucosal injections.

Conclusions: Deeper levels of sedation resulting from incremental dosing of sublingual triazolam were incompletely reversed by the submucosal administration of flumazenil. A rescue strategy needs to be formulated for the dentist performing this sedation technique.

Reviewer's Comments: Although we do not utilize this sedation technique, we do need to disseminate this information to our restorative colleagues who utilize sublingual incremental dosing. Flumazenil administered IV has been shown to be <100% effective in reversing benzodiazepine-induced respiratory depression, so one should not be totally alarmed when it has been found to be ineffective after its route of administration is altered.

Additional Keywords: Flumazenil Reversal

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Centric Relation--No Consensus Between Oral Surgeons and Orthodontists

Centric Relation: A Survey Study to Determine Whether a Consensus Exists Between Oral and Maxillofacial Surgeons and Orthodontists.

Truitt J, Strauss RA, Best A:

J Oral Maxillofac Surg; 67 (May): 1058-1061

Oral surgeons and orthodontists working together do not agree on the definition of centric relation.

Objective: To determine whether there is agreement among oral and maxillofacial surgeons and orthodontists on the definition of centric relation.

Design: A survey study was performed based on a questionnaire sent to chairmen of orthodontic and oral and maxillofacial surgery departments. The survey was based on the definition of centric relation, centric occlusion, how condyles are seated following orthognathic surgery by oral and maxillofacial surgeons, and in what direction a condyle moves if there is a discrepancy between centric relation and centric occlusion in a particular patient.

Methods: Questionnaires were sent to 115 oral and maxillofacial surgery program directors and 95 orthodontic program directors. There were 73 responses from oral and maxillofacial surgery program directors and 64 responses from orthodontic program directors.

Results: There was a marked difference in the concept of centric relation between orthodontists and oral and maxillofacial surgeons; 78% of oral surgeons believed that centric relation meant the condyle was in the most posterior superior position, and only 34% of orthodontists agreed. Only 3% of oral surgeons and 14% of orthodontists agreed with the current published definition of centric relation. There was a significant agreement in the definition of centric occlusion between oral surgeons and orthodontists. When asked how oral surgeons would seat condyles during a sagittal split osteotomy, the majority of surgeons said they would seat the condyle either vertically or posteriorly. None would seat it in the most anterior superior position, which is the published definition of centric relation.

Conclusions: Although orthodontists and oral surgeons agree that records should be mounted into centric relation and that condyles should be seated in centric relation at the time of surgery, there is no agreement between the 2 groups that are the decision makers in an orthognathic case on where centric relation actually is.

Reviewer's Comments: This is not a surprising finding, but it is incredible that, after 100 years of dental practice, there is no agreement on the concept of centric relation among individual dentists, dental schools, and dental specialists.

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FNAC Is Effective Diagnostic Procedure for Pediatric Plunging Ranulas

Management of the Pediatric Plunging Ranula: Results of 15 Years' Clinical Experience.

Zhi K, Wen Y, et al:

Oral Surg Oral Med Oral Path Oral Radiol Endod; 107 (April): 499-502

Intraoral excision of the involved sublingual salivary gland is predictable treatment for plunging ranula, with few complications and virtually no recurrences.

Objective: To review the diagnosis and treatment of plunging ranula in children.

Design: Retrospective study.

Participants: 129 children with a diagnosis of plunging ranula were included.

Methods: Diagnosis of the patients included clinical assessment, followed by fine needle aspiration cytology (FNAC) via an extraoral approach. Analysis of the aspirated mucoid saliva revealed high amylase and protein concentrations that would be expected from the sublingual salivary gland. Different adjunctive evaluations, such as ultrasonography, CT, and MRI were not done for every patient. Treatment for all of the patients consisted of removal of the involved ipsilateral sublingual salivary gland through an intraoral approach. The associated pseudocystic areas were not removed from the floor of the mouth and neck, but the area was kept under continuous bandage pressure for a week after gland removal to prevent blood collection. Drains were also placed for a short time.

Results: Mean patient age in this group was 12 years, and 63.57% of the 129 patients were males. Less than 10% of the patients had a history of trauma to the area, and >33% of the patients had previous attempts to treat the ranula, including incision and drainage, surgery for presumed dermoid cysts, and incomplete excision of the sublingual gland. None of the patients were subjected to attempted removal of the pseudocyst. Only 3 patients developed a postoperative hematoma. The minimum follow up period ranged from 30 to 48 months, with no long-term complications or recurrences.

Conclusions: Pediatric ranulas are rare, seldom resolve spontaneously, and generally recur after inadequate treatment. FNAC is an effective diagnostic procedure and intraoral removal of the affected sublingual gland is a straightforward, effective treatment modality with little morbidity and recurrence.

Reviewer's Comments: This is a very nice review paper. The large number of patients treated and reviewed by the authors is unusual for such a rare condition. Ranulas, including plunging ranula, can obviously be found in all age groups, but seem to be more common in younger individuals.

Additional Keywords: Pediatric Plunging Ranula

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Appropriate Dental Care Needed Before Starting Bisphosphonate Tx

Incidence of Bisphosphonate-Associated Osteonecrosis of the Jaws in Breast Cancer Patients.

Walter C, Al-Nawas B, et al:
Cancer; 115 (April 15): 1631-1637

In breast cancer patients for whom bisphosphonate therapy is going to be used for extended periods, the incidence of bisphosphonate-associated osteonecrosis of the jaw is likely to exceed 5%.

Objective: To determine the prevalence of bisphosphonate-associated osteonecrosis of the jaw (BP-ONJ) in breast cancer patients with bony metastasis and receiving bisphosphonate treatment.

Design: Retrospective study.

Participants: 117 breast cancer patients met the inclusion criteria, but only data on the 75 still living patients were included.

Methods: All breast cancer patients with osseous metastasis under bisphosphonate treatment in the authors' institution over a 6-year study period were identified. Living patients were contacted and examined. The information from all medical records was reviewed. Information was also gathered from the family dentists and physicians. Collected data included patient age, breast cancer characteristics, bisphosphonate medications used and their duration, comorbidities, other medications used, history of head and neck radiation therapy, and the frequency of consultation with their dentist.

Results: Of the 117 patients identified, 88 were still living. Thirteen of the living patients either could not be located or refused participation in the study. The median age of the 75 included patients was 60 years, and the median age at the time of breast cancer diagnosis was 58 years. The median duration of bisphosphonate therapy was 28 months, given either orally or by IV infusion every 3 to 4 weeks. Zoledronate was used exclusively for 26 patients and in combination with other bisphosphonates for 7 other patients. Clodronate was used exclusively for 24 patients, ibandronate for 7, and pamidronate for 3. The other 8 patients had various bisphosphonate combinations, but no zoledronate. Just 4 patients (5.3%) developed BP-ONJ. In each of these cases, zoledronate had been used and the mean duration of bisphosphonate treatment was 42 months. All of the affected patients had also received prior chemotherapy. All patients with BP-ONJ had received sequential tamoxifen and aromatase inhibitors in addition to bisphosphonates. None of the patients who developed BP-ONJ had prior head/neck radiation treatment. A tooth extraction preceded development of BP-ONJ in 2 cases.

Conclusions: Appropriate dental care is needed before starting bisphosphonate treatment. BP-ONJ in cancer patients taking bisphosphonates is a relevant disease that should be discussed with patients and hopefully prevented by attention to detail.

Reviewer's Comments: Recognition of BP-ONJ as a potential complication of bisphosphonate therapy is now, surely, universal. It is disappointing that we continue to see patients in trouble who claim they were not directed to have a dental evaluation prior to starting bisphosphonates. Equally disappointing are the dental professionals who have not familiarized themselves with the bisphosphonates and the management of patients who receive these drugs.

Additional Keywords: BP-ONJ

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Pillar Palatal Implants Improve Snoring for the Short Term

Effectiveness of Pillar Palatal Implants for Snoring Management.

Gillespie MB, Smith JE, et al:

Otolaryngol Head Neck Surg; 140 (March): 363-368

The initial apnea hypopnea indices value and tongue position are good predictors of success for palatal implants in reducing snoring.

Objective: To determine patient characteristics that help predict success and complications when planning to use Pillar palatal implants for snoring management.

Design: Retrospective chart audit.

Participants: 79 consecutive adult patients in whom palatal implants were placed for snoring reduction.

Methods: Each of the patients was evaluated through a comprehensive sleep history and physical examination that included supine upper airway endoscopy. Formal overnight polysomnography was mandatory prior to implant placement for those patients with a history of witnessed apnea, daytime somnolence, or a body mass index 30, an Epworth sleepiness scale score 10, or any cardiovascular risk factors. For each patient, tonsil size, occlusal status, and Friedman tongue position (FTP) were assessed in addition to collecting the usual demographic data. Pillar palatal implants were placed either with local or general anesthesia. Three months later, bed partners of patients were questioned about the results. For patients whose snoring improvement was not satisfactory, additional procedures were considered. Complications were also recorded.

Results: 65% of the patients had polysomnographic findings indicative of some degree of obstructive sleep apnea (OSA); 56 patients had the implants placed in an office using local anesthesia, while the other 23 patients received implants in the operating room where they also had other procedures, including septoplasty, turbinate reduction, or nasal valve stenosis repair. After 3 months, 81% of the patients' bed partners noted an improvement in snoring. However, only 39% were satisfied that the reduction was adequate; 68% of the patients with bed partners who were not satisfied, had additional procedures, such as more implants, uvulectomy, radiofrequency soft palate ablation, or uvulopalatopharyngoplasty. Five patients were placed on continuous positive airway pressure and 9 received no further treatment. Twenty percent of patients had complications (no implant extrusion or pain). Women had a higher complication rate than did men. Implant complications were also higher when implants had been placed with the patient under general anesthesia. Patients with low FTP scores and whose soft palate was well visualized when the mouth was open, had better treatment results.

Conclusions: Pillar palatal implants improve snoring, at least in the short term, for many patients, but often not enough to satisfy bed partners. Patients with low Friedman tongue position scores and low initial apnea hypopnea indices tend to get better results with the pillar implants.

Reviewer's Comments: We continue to see a lot of clinical evaluation studies on these devices. Unfortunately, we do not see a group of papers presenting long-term results. Is there a reason?

Additional Keywords: Pillar Palatal Implants

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Causes of Facial Fx in Children Change With Increasing Age

Changing Trends in Causes and Patterns of Facial Fractures in Children.

Thoren H, Iso-Kungas P, et al:

Oral Surg Oral Med Oral Path Oral Radiol Endod; 107 (March): 318-324

Because standard radiographs do not lend themselves to diagnosis of pediatric midface fractures, the threshold for using CT scans for trauma evaluation in kids should be low.

Objective: To identify the causes and types of pediatric facial fractures and to see if the injury patterns have changed over time.

Design: Retrospective study of two 10-year time periods (1980-1989 and 1993-2002).

Participants: 378 children aged <15 years who had been diagnosed with maxillofacial fractures during the two 10-year time frames.

Methods: Patient records were reviewed. Data recorded included gender, age, date of injury, mechanism of injury, fracture site, and type of fracture. Mandibular fractures were classified as condyle, ramus, angle, body, or symphysis locales. Midface fractures were classified by LeFort level, zygomatic or orbital, and frontobasal if in the upper third of the face. Dentoalveolar injuries were all classified as 1 group. Fractures were classified based on the distribution of injuries in the facial thirds. Injury causes were grouped in relation to age at the time of injury and age according to stage of dental development (ie, deciduous, mixed, or permanent). The various factors were analyzed separately for the 2 time periods and then compared to each other.

Results: 61.6% of the pediatric injury patients in both time periods were boys. Just 11.6% of the patients were 5 years of age, but 44.9% were 13 to 15 years of age. Patients 6 to 9 years old and 10 to 12 years old made up 19.3% and 24.1%, respectively, of the facial fractures. Most injuries (60.8%) occurred during the summer and early fall months. The most common causative factors were bicycle accidents, motor vehicle accidents, sport injuries, falls, assaults, and other factors in that order. In younger children, the common causes of injuries were falls and bike accidents. As they became older, the proportion of motor vehicle accidents, assault, and sports injuries became much higher. Overall, 73.9% of the fractures were mandibular, the condyle being the most common area. The most common fracture in the midface was a zygomatico-orbital fracture. The proportion of patients with exclusively dentoalveolar injuries decreased with increasing age being 22.7% in the younger groups and declining to 5.3% in the oldest. In the latest 10-year period (1993-2002), the percentage of patients with exclusive mandible fractures declined from 75.4% to 61.8% and patients with exclusive midface injuries increased from 7.0% to 25.7%. The probable reason for the increase in midface fracture diagnosis is the increased use of CT scans with associated improvement in diagnostic accuracy and identification of fractures that would probably be missed without CT scans. Therefore, the threshold for use of CT should be low in children.

Conclusions: The incidence of pediatric facial fractures has not changed with time. However, different causative factors and fracture patterns are noted.

Reviewer's Comments: This paper covered 2 different 10-year time frames when diagnostic capabilities for facial fractures improved dramatically with almost universal use of CT scans.

Additional Keywords: Causes & Patterns

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BAS Helps to Control Iliac Donor Pain

Bupivacaine Administration and Postoperative Pain Following Anterior Iliac Crest Bone Graft for Alveolar Cleft Repair.

Dashow JE, Lewis CW, et al:

Cleft Palate Craniofac J; 46 (March): 173-178

Postoperative pain, medication needs, and time to ambulation after AIC donor procedures are all reduced by placement of a BAS in the donor site.

Objective: To evaluate potential donor site pain reduction using placement of a bupivacaine-soaked absorbable sponge (BAS) in the donor defect in addition to bupivacaine infiltration at the anterior iliac crest (AIC).

Design: Retrospective cohort study with chart audit by one blinded investigator.

Participants: 182 patients who underwent 207 AIC bone harvests for alveolar bone grafting (ABG).

Interventions: All patients included in the study were children who had AIC bone harvests for treatment of cleft lip with/without cleft palate (CL P) defects. All surgeons involved in treating the patients used a similar technique for harvesting iliac cancellous bone. In 118 donor sites, a Gelfoam sponge soaked with 0.25% bupivacaine containing epinephrine 1:200,000 was placed into the cavity of the harvest site. In both of the patients who received the anesthetic soaked Gelfoam and the 89 other donor sites, the skin and bony iliac cortex were infiltrated with bupivacaine prior to incision. After completion of the bone harvest, the sites that did not receive a bupivacaine soaked Gelfoam had 8.25% bupivacaine infiltrated into the site just before incision closure. Total bupivacaine dose for patients in both groups was 1 cc/kg body weight. Outcome measures were mean postoperative pain scores, total postoperative analgesic requirements, time to initial ambulation, and length of hospital stay.

Results: There were no significant differences in mean patient age, weight, gender, or type of cleft between the 2 groups. Mean pain scores were lower when a bupivacaine saturated Gelfoam was placed into the harvest defect when compared to those having no sponge placed. The patients with the soaked sponge also required significantly less pain medication. Similarly, the patients in whom the sponges were used ambulated sooner and had significantly shorter lengths of hospital stay. No serious donor site complications occurred and minor complications were noted in 4.5% to 5.1% of the patients, with no differences between groups. All outcome variables studied improved over the control subjects when the anesthetic-soaked sponge was placed in the donor site, with no additional risks identified.

Conclusions: Use of a BAS (Gelfoam) placed in AIC cancellous bone donor sites reduces postoperative pain, analgesic requirements, time to ambulation, and hospital length of stay when compared to sites that are only infiltrated with a similar amount of bupivacaine.

Reviewer's Comments: Too bad this study was not done prospectively. However, the authors' documentation is excellent and the paper is worth reading.

Additional Keywords: Bupivacaine

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Simultaneous DO and Gap Arthroplasty Are Viable Tx Option for TMJ Ankylosis

Gap Arthroplasty Combined With Distraction Osteogenesis in the Treatment of Unilateral Ankylosis of the Temporomandibular Joint and Micrognathia.

Yu H, Shen G, et al:

Br J Oral Maxillofac Surg; 47 (April): 200-204

The simultaneous performance of gap arthroplasty and DO appears to be an appropriate modality of treatment for TMJ ankylosis, with good functional and aesthetic outcomes.

Objective: To present the outcomes following simultaneous gap arthroplasty and distraction osteogenesis (DO) for the treatment of TMJ ankylosis.

Design: Retrospective clinical investigation.

Participants: 11 children and young adults.

Methods: All participants presented with unilateral ankylosis of the TMJ. CTs were taken and imported into a software program for 3-dimensional planning and simulation. The gap arthroplasty was performed through a preauricular incision and a 15 to 20 mm section of bone was removed. A temporalis musculofascial flap was rotated and stabilized in the glenoid fossa. From an intraoral approach, a uniaxial double pin distractor was placed and an osteotomy was created to facilitate the distraction. Mouth opening exercises were started on the first postoperative day and distraction was initiated on the fifth postoperative day. Distraction was completed when there was a 2- to 3-mm overcorrection of the mandibular midline.

Results: Participants ages ranged from 5 to 17 years, and the primary etiology for the ankylosis was a traumatic event. There was 1 postoperative complication that consisted of a hematoma that resolved without further incident. Interincisal opening ranged from 1 to 5 mm preoperatively and from 28 to 35 mm postoperatively. The length of distraction ranged from 7 to 15 mm. Follow-up was between 13 and 58 months during which time, 2 patients underwent orthognathic surgery to correct a canted maxilla. There were no cases of re-ankylosis during the follow-up period.

Conclusions: It appears that simultaneous DO and gap arthroplasty is a viable treatment option for children with TMJ ankylosis. Some authors would prefer to perform the distraction following successful resolution of the ankylosis. Resolving the ankylosis would allow the mandible to undergo its normal growth. Any deficiencies noted after that growth could be treated with distraction osteogenesis or orthognathic procedures.

Reviewer's Comments: One glaring concern is the lack of follow-up with these patients. To really determine the success of these procedures, one is going to need an extensive follow-up period to truly determine the functional and skeletal outcomes of the procedures.

Additional Keywords: Gap Arthroplasty/Distraction Osteogenesis

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Are Female Orthognathic Surgery Patients Really Different?

Psychological Characteristics of Women Who Require Orthognathic Surgery: Comparison With Untreated Controls.

Williams DM, Bentley R, et al:

Br J Oral Maxillofac Surg; 47 (April): 191-195

Female orthognathic surgery patients are psychologically normal, but more dissatisfied with their facial appearance.

Objective: To determine if female patients who seek orthognathic surgery have a different personality type.

Design: A controlled-questionnaire investigation.

Participants: 60 women.

Methods: 30 women who were in the process of presurgical orthodontics or had completed their presurgical orthodontics were recruited from a specific orthodontic department. The control group consisted of women solicited from King's College in London; these women were not screened for facial abnormalities. Both the experimental and control groups completed a multitude of questionnaires regarding personality traits. These consisted of the following questionnaires: the Body Satisfaction Scale, the Physical Appearance Comparison Scale, the Sociocultural Attitudes Towards Appearance Questionnaire, and several other questionnaires to determine anxiety and depression.

Results: The only significant difference noted between the 2 groups was their satisfaction of facial appearance. The orthognathic surgery patients showed more dissatisfaction with their facial appearance. All other personality parameters were statistically insignificant.

Conclusions: Female orthognathic surgery patients had a normal psychological state and self-perception, but a lower satisfaction level with their facial appearance. It appears that those seeking surgical correction had a true facial abnormality, not a psychological problem with aesthetics.

Reviewer's Comments: The results of this study appear rather self-evident; the majority of our female patients are psychologically normal they just have a specific concern regarding facial aesthetics or function. But, one must be aware of the body dysmorphic patients who do have a psychological obsession with their physical appearance.

Additional Keywords: Psychological Characteristics

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Simultaneous Procedures Improve Facial Form, Function, and Joint, Facial Pain

Maxillo-Mandibular Counter-Clockwise Rotation and Mandibular Advancement With TMJ Concepts Total Joint Prostheses. Part III - Pain and Dysfunction Outcomes.

Pinto LO, Wolford LM, et al:

Int J Oral Maxillofac Surg; 38 (April): 326-331

Simultaneous TMJ reconstruction in conjunction with counter-clockwise rotation of the maxillo-mandibular complex results in decreased pain and improves both function and diet.

Objective: To present pain and functional changes following counter-clockwise rotation of the maxillo-mandibular complex.

Design: A retrospective clinical investigation.

Participants: 47 female patients

Methods: All patients underwent TMJ reconstruction and mandibular advancement with total joint prostheses. All patients also underwent a posterior down grafting of the maxilla or anterior superior repositioning, resulting in a counter-clockwise rotation of the maxillo-mandibular complex. Forty-three patients had bilateral TMJ prostheses placed and the 4 that had a unilateral joint prostheses placed underwent a sagittal split osteotomy on the contralateral side. Patients were divided into 2 groups; Group 1 patients had 0 to 1 prior failed TMJ surgery and Group 2 had 2 failed TMJ surgeries. During their postoperative period all patients were clinically examined, and patients rated themselves in 5 specific categories (facial pain/headache, TMJ pain, jaw function, diet and disability). Objective functional assessments were also performed.

Results: Group 1 patients had a better outcome than Group 2 patients. For the group as a whole, the average number of prior open joint procedures was 2, with a range of 0 to 16 prior procedures. The average follow-up was 3.4 years (range, 1 to 11.9 years). Subjective pain changes were expressed as an improvement percentage. Facial pain and the incidence of headaches decreased by 43%, and TMJ pain saw an improvement percentage change of 52%. Jaw function and diet improved 37% and 39%, respectively. Objective measurements revealed that maximum interincisal opening increased 14%, but lateral excursive movements decreased by 60%.

Conclusions: Counter-clockwise rotation of the maxillo-mandibular complex and simultaneous TMJ reconstruction with a custom-made prostheses decreases pain and improves both function and diet. Patients who have had <2 previous open joint procedures have a greater degree of improvement than patients who had 2 open joint procedures.

Reviewer's Comments: Another very good paper showing the benefits of the simultaneous procedures in improving facial form, function, and significantly improving joint and facial pain.

Additional Keywords: Counter-Clockwise Rotation/Pain

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How Well Does the Nose Work After Maxillary Surgery?

Changes in Acoustic Airway Profiles and Nasal Airway Resistance After Le Fort I Osteotomy and functional rhinosurgery: A Prospective Study.

Haarmann S, Budihardja AS, et al:
Int J Oral Maxillofac Surg; 38 (April): 321-325

Improvement of nasal airflow is seen in all patients no matter what direction the maxilla is moved. Impaction of the maxilla in conjunction with functional rhinosurgery does not result in increased resistance to nasal breathing.

Objective: To present the changes in the nasal airway following Le Fort I osteotomies utilizing rhinomanometry and acoustic rhinometry.

Design: A prospective clinical investigation.

Participants/Methods: 49 patients underwent a Le Fort I osteotomy and were divided into 1 of the following 3 groups: Group I, maxillary impaction; Group II, inferior positioning of the maxilla; and Group III, no vertical changes, only anterior sagittal movements. In all cases, functional rhinosurgery was performed; resection of inferior concha, contouring the pyriform aperture, correction of the nasal septum or shortening of the nasal septum. Preoperative and postoperative (5 months) rhinomanometry was performed to determine nasal airflow and resistance to airflow. Changes in intranasal geometry were also recorded utilizing acoustic rhinometry.

Results: Rhinomanometric measurements revealed a significant improvement in nasal breathing in each group and in the group as a whole. Acoustic rhinometry showed a significant increase in the cross-sectional intranasal area. These significant changes were seen in all patients regardless of the movement of the maxilla.

Conclusions: No matter what the direction of the maxillary movement, patients' nasal airway movement showed significant objective improvement. Impaction of the maxilla did not result in increased resistance to nasal breathing.

Reviewer's Comments: In all cases, the authors performed some form of functional rhinosurgery, therefore one should expect increased airflow no matter which direction the maxilla was moved. It is important to remember to perform a good rhinological examination on all patients undergoing maxillary surgery; especially when the maxilla is going to be impacted.

Additional Keywords: Nasal Airway Changes

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What's Better; Tooth or Bone?

Stability, Tipping and Relapse of Bone-Borne Versus Tooth-Borne Surgically Assisted Rapid Maxillary Expansion: A Prospective Randomized Patient Trial.

Koudstaal MJ, Wolvius EB, et al:

Int J Oral Maxillofac Surg; 38 (April): 308-315

There are no statistically significant differences noted between the 2 devices related to segment tipping, relapse, or stability.

Objective: To present the outcomes of tooth borne versus bone borne distraction devices in patients undergoing surgically assisted rapid maxillary expansion (SARME).

Design: Prospective clinical investigation.

Participants/Methods: 46 patients presenting for correction of maxillary transverse hypoplasia by SARME were included. All patients were randomized to a tooth-borne or bone-borne distraction device. In all cases, buccal corticotomies were performed without pterygoid disjunction. Lateral nasal wall corticotomies were also performed as well as a median osteotomy between the maxillary central incisors. Distractors were placed following the surgery and activated 1 week postoperatively. Study models and cephalometric films were taken preoperatively, following the distraction phase and at 1 year post-distraction to evaluate stability.

Results: Analysis of the study models revealed that the expansion in the region of the cuspid, premolar, and molar regions was similar in both groups. Relapse in the region of the premolar in the bone-borne group was 0.1 mm (not significant). Relapse in the region of the molar was 0.6 mm in the bone-borne group and 0.5 mm in the tooth-borne group; neither was significant. Analysis of the PA cephalometric films revealed a significant widening in both groups. Maxillary segment tipping was 0.7 mm in the bone-borne group and 0.5 mm in the tooth-borne group (not significantly different). There were 2 complications of asymmetric expansion in the bone-borne group.

Conclusions: No significant differences were noted between the 2 groups as it relates to relapse, segment tipping, or stability. The bone-borne distraction devices do not appear to produce a more stable result or decreased maxillary segment tipping.

Reviewer's Comments: Interesting to see that there was no difference in any of the parameters studied in this investigation. The distraction in this study was performed on skeletally mature nonsyndromic patients. Previous investigations have shown the bone-borne devices to produce a more stable outcome with less tooth tipping, but I cannot remember if the procedures were performed on children or adults. If there is really no difference, then a tooth-borne device would be preferred since it can be applied so much easier than the bone-borne device.

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