



## Antibiotic Therapy in Facial Fracture Management

Pushkar Mehra, BDS, DMD and Emily Van Heukelom, DDS

### Purpose:

To evaluate outcomes of a specific protocol for antibiotic therapy in management of maxillofacial fractures by oral and maxillofacial surgeons at an urban, Level-I trauma center.

### Patients and Methods:

Ambispective study evaluating antibiotic therapy and infection rates in maxillofacial trauma patients at Boston Medical Center from 2002-2012. Criteria for inclusion: 1) minimum of one maxillofacial fracture, 2) management by the OMFS service, 3) minimum two months follow-up, and, 4) complete records available. Antibiotic therapy for patients in the prospective cohort (2007-12) was instituted with a specific protocol while the retrospective group (2002-07) included patients receiving antibiotic therapy randomly at the discretion of treating surgeon(s).

### Results:

There were a total of 215 patients with midface fractures and 845 mandible fractures included in the study. The prospective group included 212 midface fracture patients (106 managed surgically) and 390 mandible fractures (352 surgically treated). Mandibular fracture infection rates were 2.3% after CR/MMF and 8.8% after ORIF. All patients with postoperative infections had compound mandible fractures. In contrast, infection rates in the retrospective control group were 2% after CR/MMF and 6.1% after ORIF (all compound mandible fractures). No patients with midface fractures developed an infection in either group.

### Conclusions:

Unless a specific protocol for antibiotic usage is mandated, board-certified oral and maxillofacial surgeons tend to randomly use antibiotics based on anecdotal preferences. Use of antibiotics with a protocol developed based with evidence-based literature standardizes and minimizes antibiotic therapy duration, has potential to decrease health care costs and antibiotic resistance without having a significant impact on postoperative infection rates.

## Pressure Necrosis and the Cervical Collar

Mark E. K. Wong, DDS

Pressure necrosis secondary to prolonged cervical collar therapy is rarely reported in the oral and maxillofacial literature, but should be addressed to aid in management and prevention to minimize morbidity. The authors present a case of a male with polytrauma including operable mandibular fractures as well as cervical and thoracic spine fractures requiring conservative therapy with long term immobilization. A brief history, clinical presentation, management and prevention as well as review of literature will be discussed.

## Burnout Among American Oral and Maxillofacial Surgeons

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### Objective:

To evaluate career burnout in American OMS and identify groups within the specialty having higher or lower burnout rates.

### Methods:

Study was approved by UMDNJ IRB. Data on burnout is available for variety of professions (Annu. Rev. Psychol. 2001; 52: 397) including surgery (Surgery 2001; 130: 696), Otolaryngology residents (Acad Med. 2007; 82: 596), and general dentists (Eur J Oral Sci 2000; 108: 261). A questionnaire was sent to 4700 oral surgeons listed in the 2011 AAOMS directory. 1013 oral surgeons completed the 34 question survey. 21 scaled questions were related to burnout using the Maslach Burnout Inventory (MBI) which scores burnout in the categories of emotional exhaustion (EE), depersonalization (DP), and personal accomplishment (PA). High scores in EE and DP or a low score in PA indicate burnout. 13 questions were related to demographics. The results went through a SAS program identifying overall burnout in the specialty as well as indicating groups within the field with scores showing burnout.

### Results:

Overall burnout in the OMS field relating to EE (majority 58.9% show low burnout with low emotional exhaustion), DP

(majority 52.2% show low burnout with low depersonalization), and PA (majority 66.6% show low burnout with high sense of personal accomplishment). Burnout amongst academic OMS relating to EE (56.2% low), DP (57.5% low), and PA (76.2% high). Burnout amongst private practice OMS relating to EE (52.5% low), DP (49.9% low), and PA (65.7% high). Burnout amongst surgeons working in both academic and private practice relating to EE (59.4% low), DP (60.1% low), and PA (67.4% high). Burnout amongst surgeons taking call relating to EE (53% low), DP (50.7% low), and PA (67.5% high). Burnout amongst surgeons not taking call relating to EE (56% low), DP (56% low), and PA (64.5% high).

#### **Conclusion:**

Overall, the academic OMS is least likely to experience burnout. The academic OMS also has the greatest sense of personal accomplishment. Emotional exhaustion is the greatest concern for burnout with those in private practice. Depersonalization is a burnout threat for those in private practice and those that take call.

## The Utility of Hybrid Promotion and Tenure Tracks for Oral and Maxillofacial Surgeon Faculty

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#### **Abstract:**

The promotion and tenure process is, by design, varied for disciplines, departments, and institutions. For many faculty members the process may appear nebulous and difficult to navigate. In this presentation, we will review the history, forces of change, and some of the mechanisms utilized for promotion and tenure of faculty in the health sciences, particularly clinician-educators. Hybrid tracks for clinician-educators have been successfully created by some institutions. These tracks are designed to develop and recognize scholarly activity. Hybrid tracks empower faculty to successfully perform scholarly activities that realistically reflect institutional missions. Data is presented from a survey of major centers of dental education highlighting the variability of tracks and metrics utilized for promotion. We conclude with a number of practical suggestions to enhance development and retention of faculty using the hybrid promotion and tenure mechanism. These include providing congruence of institutional mission, faculty activities, and promotion and tenure guidelines; developing scholarly activity for clinician educators that can be measured in the promotion and tenure process; rewarding scholarly achievement for clinician-educators utilizing the promotion and tenure mechanism; and developing an evaluation system that accounts for changes in mission and faculty activities.

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## A Report on the OMS Residency Matching Program: 1985-2013

**John P.W. Kelly, DMD, MD, FACS**

The National Dental Matching Program for selection of residency candidates in OMS was initiated in 1985. Since that time, there have been changes in the numbers of applicants, the numbers of programs participating and the distribution of double-degree and single-degree programs. Statistics from the initial 15 years of the program will be examined and will be compared and contrasted with the most recent experience to evaluate changes in the applicant pool, changes in desirability of different types of programs, changes in competitiveness for positions and the relative success of the program from the points of view of both program directors and applicants.

## The Next Accreditation System - Has the Train Left the Station for Oral and Maxillofacial Surgery?

Steven M. Roser, DMD, MD, FACS

The Accreditation Council for Graduate Medical Education, (ACGME), began implementing its restructured accreditation process called the Next Accreditation System, (NAS), in June this year. NAS replaces the current accreditation system that has been in place since 1981. The motivations for change have come from a variety of areas including the Public seeking more accountability in the training programs, the challenges of training the next generation in the changing health care delivery system and the increasing burden that the current system of accreditation is imposing on the institutions and their training programs.

The introduction of the six domains of clinical competency by the ACGME in 1999 and the resident Duty Hours Standards implemented in 2003 and revised in 2011, have become a source of frustration for program directors, faculty and trainees trying to structure their education and training processes to meet accreditation standards. The NAS in part is in response to this frustration by replacing the current process based accreditation process which looks at the program at a snapshot in time, with a continuous accreditation model which is annually updated. Scheduled site visits every one to three years are replaced with a ten year Self Study visit. Site visits may be scheduled if a problem is determined based on the data being reported continuously. In addition to reducing the burden of accreditation, the ACGME hopes the NAS will allow the good programs freedom to innovate.

Since 2009, Phase I specialties have been working on developing the Milestones that are the basis for measuring outcome in the training process in the NAS. Phase I specialties will be implementing NAS in June 2013 and the rest of the specialties in June 2014. The Milestones Project is a project of the ACGME. The specialties are required to develop specialty specific milestones to be used to assess resident competency as they move through the training program much like the pediatrician uses milestones to assess the development of the infant. To develop milestones, the specialty must have a standard curriculum. Specialty working groups which included Specialty Boards, Program Director Associations, Specialty Colleges, ACGME Review Committees, and residents, have spent 18-24 months developing the milestones in preparation for the 2013 or 2014 implementation dates.

What impact will the NAS have on the training of oral and maxillofacial surgeons? Historically OMS programs have incorporated aspects of the ACGME standards on a local basis for example, duty hour standards. The NAS has the potential to distance OMS from the medial/surgical subspecialties in the eyes of the Public and others. Educators in OMS have been talking about a national curriculum and valid outcome based competency assessment for years. Although the NAS is not a panacea for all the challenges OMS educators are facing, it does offer OMS an opportunity for the accreditation system to be supportive of the programs as they try to meet the challenges of preparing the next generation of OMS practitioners. Has the train left the station?

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The Next GME Accreditation System — Rationale and Benefits N Engl J Med 2012; 366:1051-1056
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3. The Next Accreditation System [www.acgme.org](http://www.acgme.org)

## Preliminary Review of a Retrospective Case Series Using Fat Injections in the Management of Velopharyngeal Insufficiency in the Cleft Palate Population

Sean P Edwards, DDS, MD, Paul Kloostra, DDS, MD, and Mary Berger CCC, SLP

### Problem:

Velopharyngeal insufficiency is a disabling problem encountered in approximately 25% of cleft palate patients in spite of optimal care. The resulting communication impairment hampers a child's socialization, a student's performance in school and an individual's employment opportunities. Several surgical procedures have evolved to treat velopharyngeal insufficiency. These procedure are by and large effective at treating a patient's resonance issues but have many undesirable side effects. These include nasal secretion retention, nasal airway obstruction and the risk of developing of sleep disordered breathing. Because of these untoward effects a more customizable option for the management of VPI has been sought that might avoid these side effects. Fat injections have received renewed attention in reconstructive surgery in a variety of regions. This is chiefly due to an evolution of the technique permitting more stable fat transfers of fat in terms of volume. This is a retrospective case review of a single surgeons early experience with Coleman lipostructure fat injections for the management of VPI in the cleft palate population.

### Methods:

IRB sanctioned chart review of all cases of VPI managed with fat injection at the University of Michigan by a single surgeon (SPE). All patients underwent a standard preoperative evaluation including examination by the surgeon, perceptual speech examination by a senior speech pathologist experienced in the management of children with clefts and craniofacial anomalies, nasometry and nasendoscopy. Patients deemed to be candidates for fat injection were judged to have optimal palatal function and anatomy and a small to moderate sized gap on endoscopy. Under general anesthesia, fat was harvested from the upper thigh and flank region with a 10cc syringe with gentle suction. Fat was then centrifuged. The oil and blood fractions were discarded and 3 cc syringes were loaded with the viable fat cells for injection. Fat was injected in small parcels in anatomical locations identified on preoperative nasendoscopy.

Postoperative evaluations were recorded by the same speech pathologist and were compared to the preoperative state. Charts were reviewed for donor and recipient site complications.

### Results:

Three patients were identified in the past 2 years with follow data for examination. There were no intra or postoperative complications in this series. All patients tolerated the procedure well performed on an outpatient basis. Injected fat volumes were all less than 5cc and were guided by preoperative nasendoscopy. No patient developed signs or symptoms of sleep disordered breathing. All patients experienced significant improvement in perceptual examination findings and parental subjective impression of their child's speech. Nasometry confirmed the improvement in nasality. One patient remains intermittently min-mild hypernasal and will undergo an additional fat injection.

### Conclusions:

Fat injections seem to have promise in the management of VPI in the cleft palate population as a procedure with little morbidity and good early results that can be performed with little down time for the patient.

## Implications of the Lower Lateral Cartilage in Cleft Lip-Nose Repair

James Bertz, MD, DDS, FACS

The lower lateral cartilage in a unilateral cleft lip nose patient plays a critical role in a an acceptable repair of the congenital condition. This report will discuss the relationship of the upper and lower lateral cartilage in the cleft patient versus the non cleft relationship. In addition, techniques will be discussed to help correct the relationship of the upper and lower lateral cartilage. The severity of the lower lateral cartilage deformity appears to be related to the unilateral cleft lip deformity. Long term follow up pictures of this approach of unilateral cleft lip nose repairs will be demonstrated.

## Clinical, Radiographic And Magnetic Resonance Findings Associated With Active Temporomandibular Joint Synovitis In Children With Juvenile Idiopathic Arthritis

Abramowicz S, Susarla HK, Kim S, Kaban LB

### Statement Of The Problem:

The gold standard for diagnosis of temporomandibular joint (TMJ) synovitis in children with Juvenile Idiopathic Arthritis (JIA) is magnetic resonance imaging (MRI).<sup>1,2</sup> MRIs can be costly, time consuming and may require general anesthesia. Therefore, it would be beneficial to recognize specific clinical and radiographic findings that consistently reflect the presence of TMJ synovitis. The purpose of this study was to identify findings associated with TMJ synovitis in children with JIA.

### Materials And Methods:

The sample included children with JIA who were evaluated by Oral and Maxillofacial Surgery and Rheumatology at Boston Children's Hospital and who had an MRI with contrast of TMJs. Data collected included: (1) demographics (gender, age), (2) clinical examination (jaw pain, facial asymmetry, joint noises, maximal incisal opening (MIO), deviation on mouth opening, maxillary occlusal cant), (3) MRI findings (presence or absence of synovitis), and (4) panoramic findings (accentuated antegonial notch, abnormal condyle morphology, erosion, decreased vertical or anterior-posterior dimensions, short ramus/condyle unit (RCU) length). Cases were defined as patients with JIA and TMJ synovitis on MRI; controls were patients with JIA without synovitis. Statistical analysis was used to identify associations between clinical/radiographic findings and TMJ synovitis. P-value<0.05 was considered significant.

### Results:

There were 30 subjects (21 females) with a mean age of 11.4 years (range 3-16 years) who met inclusion criteria. Of these, 15 cases had MRI findings consistent with TMJ synovitis. Frequencies of abnormal clinical findings in patients with synovitis were: limited MIO (N=12, 80%), facial asymmetry (N=7, 47%), deviation on mouth opening, (N=6, 40%), maxillary cant (N=4, 27%), joint noises (N=3, 20%), and jaw pain (N=2, 13%). Abnormal panoramic findings were: abnormal condyle morphology (13 patients, 18 joints), accentuated antegonial notch (7 patients, 9 joints), and short RCU length (5 patients, 5 joints).

In patients without synovitis the frequencies of abnormal clinical findings were: limited MIO (N=6, 40%), facial asymmetry (N=5, 33%), pain (N=5, 33%), joint noises (N=4, 26%), maxillary cant (N=3, 20%), and deviation on mouth opening, (N=1, 6%). Abnormal panoramic findings included: abnormal condyle morphology (9 patients, 12 joints), accentuated antegonial notch (5 patients, 6 joints) and short RCU length (4 patients, 4 joints).

Of all predictor variables tested with univariate analysis, limited MIO, deviation on opening, abnormal condyle morphology, and accentuated antegonial notching were significantly associated with synovitis on MRI (p=0.004, 0.007, 0.0005 and .044, respectively).

In a multiple regression model, subjects with limited MIO were 6.7 times more likely to have synovitis (95% CI 1.44-31.20, p=0.02). Joints exhibiting both abnormal condyle morphology and accentuated antegonial notching were 7.5 times as likely to have synovitis (OR 7.55, 95% CI: 1.66-34.4, p=.009).

### Discussion:

Results of this study demonstrate that among children with JIA, The combination of limited MIO and deviation on opening are indicative of TMJ synovitis. Furthermore, abnormal condyle morphology and accentuated antegonial notching on a panoramic radiograph correlate with TMJ synovitis on MRI.

### References:

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2. Abramowicz S, Cheon JE, Kim S, Bacic J, Lee EY. Magnetic resonance imaging of temporomandibular joints in children with arthritis. *J Oral Maxillofac Surg.* 2011Sep;69(9):2321-8

## Surgically Assisted Palatal Expansion using a Bone Borne Self Retaining Palatal Distractor-Review of 50 Cases

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### Abstract

#### Purpose:

To evaluate the use of a bone borne self retaining palatal distractor to treat transverse maxillary hypoplasia in place of conventional tooth borne expanders in conjunction with surgically assisted palatal expansion

Materials and Methods: Fifty patients with transverse maxillary hypoplasia underwent surgically assisted palatal expansion with insertion of a bone borne self retaining palatal distractor from January 2006 to December 2011. Forty nine underwent bilateral transverse maxillary expansion, one required unilateral expansion.

#### Results:

46 of the 50 patients achieved adequate transverse expansion (correction of posterior crossbite) at the end of the distraction phase. Two patients of the 46 relapsed one year post expansion.

#### Conclusion:

Surgically assisted palatal expansion with a bone borne self retaining palatal distractor is a viable alternative to conventional tooth borne palatal expanders.

## Treatment of the Neonatal Airway Compromised by Micrognathia

**Vincent Carrao DDS, MD, FACS**

### Abstract:

The neonatal airway is anatomically different from the adult airway which lends itself to be easily compromised by any insult or embarrassment whether it is internal or external in nature. Micrognathia can be a major offender to this delicate anatomy. The most prominent diagnosis associated with micrognathia is Pierre Robin Sequence. This triad of glossoptosis, micrognathia and cleft palate produces a challenge for both the patient and the practitioner. These patients will often times have a craniofacial syndrome associated with Pierre Robin Sequence, which can present a variety of medical and surgical needs beyond airway compromise. When engaging a full work up on these patients it may reveal an alternate cause for respiratory distress. The team of providers' are then faced with making decisions to best manage the patient in the emergent setting, short term and long term care. The team is often lead by the neonatal intensivist, who incorporates the practitioners from the various specialties to provide insight into the neonate with respiratory distress.

Once the patient is diagnosed with respiratory distress secondary to an upper airway obstruction, the goal is to alleviate the obstruction, bypass the obstruction or correct it. This becomes the crossroads for decision making upon what the next intervention will provide the best outcome. Depending on the severity of the obstruction a nonsurgical approach may be appropriate, verses a surgical intervention. A nonsurgical approach may include simple positioning, nasopharyngeal airway, cpap, or intubation. The surgical choices may include tongue lip adhesion, tracheostomy, or mandibular distraction. The dilemma then becomes what to choose while taking into account the possible complications of each treatment modality. The aforementioned discussion, thought process and treatment choices will be reviewed during the presentation.

# Craniofacial Bone Regeneration Using a Novel Nano-structured Calcium Phosphate Carrier

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## **Abstract:**

There has been significant research in the development of polymer and ceramic cement based scaffolds for bone tissue engineering. However, most of these systems are not amenable for in situ incorporation of cells, growth factors and/or biological systems.

The objective of this study to determine the efficacy of novel nano-structured Calcium Phosphate (CaP) based cements containing nano-sized CaP nanoparticles (NanoCaPs), as carriers, with or without BMP-2 combined with an organic phase to enhance bone regeneration in an experimentally induced critical sized bone defect. A novel aspect of the cement is the generation of a moldable putty like structure that would set within minutes containing pore formers as well as nanosized particulates as delivery agents of proteins, growth factors and plasmids under physiological conditions.

## **Methods:**

Novel calcium phosphate cements were prepared containing nano-sized calcium phosphate (NanoCaP) particulates that serve as carriers of growth factors and proteins. The NanoCaP nanoparticulate solutions were pre-fabricated by mixing Ca precursors containing BMP-2 with phosphate precursors to form the nano-sized particles containing BMP-2 for in vivo use.

Twenty four skeletally mature adult New Zealand White rabbits were used. Following induction to general anesthesia, a critical sized defect was created in each rabbit by removing 15mm of full thickness calvarial bone. In the osteotomy space the following groups were implanted: Group 1: Commercially available cement (Norian). Group 2: CaP cement+BMP-2. Group 3: CaP cement alone. Group 4: empty Control. The periosteum was approximated and closed with interrupted 4-0 Vicryl (Ethicon, Somerville, NJ) suture. The skin was closed in a running fashion with 4-0 Vicryl suture. All animals received post-operative analgesics, three doses of antibiotic prophylaxis for infection and routine postoperative care. Eight weeks following surgery, all the rabbits were euthanatized. The skulls were removed, stripped of soft tissues, and prepared for analyses.

Animals were assessed at regular intervals at 2, 4, 6 and 8 weeks postoperatively with radiographs. At 8 weeks computed tomography (CT) analysis using a Scanco Medical AG  $\mu$ CT 40 system followed by histological assessment was carried out. The percentage areas of the calvarial critical sized bone defect occupied by newly formed bone were calculated. Non-parametric tests were used and the significant level was considered at  $p < 0.05$ .

## **Results:**

The CaP cements containing NanoCaPs were fabricated under neutral pH show the formation of nano-structured hydroxyapatite (HA). The cements also show excellent cell attachment and cellular migration. The microstructural changes occurring in the cement resulting in the formation of nano-sized HA is an added indication of the likely faster resorption kinetics of the cement when implanted. Our results of the radiographical, micro-CT and histological assessment of the new regenerative bone showed that the addition of BMP-2 to the CaP-cement yielded higher bone regeneration compared to other groups. Subsequently the CaP-cement group also yielded higher regeneration potential than the control of organic matrix alone.

## **Conclusions:**

Based on our results the incorporation of BMP-2 bound to NanoCaP carriers in the CaP-cements does yield bone healing enhancement compared to controls. Our current on-going research delves into the optimization of resorbable cements that are amenable to the addition of growth factors.



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**Virtual Surgical Planning for the Treatment of Isolated Suture Craniosynostosis****Michael Jaskolka, William Curtis, JH Schmidt, Sukhinder Bilkhu-Bhatia**

The recent commercialization of computer based virtual surgical planning has made this technology readily available to all surgeons. As with any new tool, early adopters are still working to define its use in the field of craniomaxillofacial surgery. The advantages include improved visualization of deformities and defects with three dimensional quantification, the opportunity to fine tune surgical treatment planning through multiple iterations, and the facilitation of the involvement and education of trainees. The goals are to reduce operative times, minimize morbidity, and improve the quality of surgical outcomes. The challenges revolve around the adoption of an unfamiliar modality of surgical planning, the transfer of virtual treatment plans to the operating room, additional expense, and in some cases the need for additional high resolution CT imaging.

The treatment of patients with isolated suture craniosynostosis traditionally involves the use of a standardized technique with multiple intra-operative alterations. When the orbital bandeau is involved, the achievement of ideal results can be challenging. These circumstances provide an ideal opportunity for the use of virtual surgical planning. One of the difficulties in applying this technology to growing patients is the need for an updated pre-operative CT scan; this is often in addition to the initial diagnostic CT scan obtained in the first few months of life. This leads to an increase in cost, possible morbidity due to sedation if required, and the potential for long-term effects of additional radiation exposure.

Through the use of case presentations, the technique and application of virtual surgical planning for the treatment of isolated suture craniosynostosis will be reviewed. As well, a simple but novel technique to facilitate the fabrication of surgical guides without the need for a second CT scan will be presented.

**Airway Changes Associated with the use of Palatal Expansion in the Mixed Dentition Stage.****Sean P Edwards, DDS, MD, Jashleen Bedi, DDS, MS, James McNamara, DDS, MS, PhD****Problem:**

Obstructive sleep apnea affects at least 2% of the pediatric population and is usually associated with adenotonsillar hypertrophy. Adenotonsillectomy is ineffective in resolving sleep apnea in as many as 20% of those children undergoing the procedure.

Rapid palatal expansion (RPE) has shown promise in the management of mild to moderate obstructive sleep apnea in the pediatric population. The mechanism of action for this therapeutic benefit has yet to be characterized. The aim of this study is to characterize the anatomical airway changes associated with palatal expansion using pre and post expansion cone beam CT (CBCT) scans in 30 normal adolescent patients.

**Methods:**

Records for 30 adolescent orthodontic patients, including pre and post expansion CBCTs were obtained and subjected to two and three dimensional cephalometric analysis which included measurements of the nasal and pharyngeal airways. Skeletal maturity was graded using the cervical vertebral maturation index.

**Results:**

There were statistically significant changes in the nasal airway volume and nasal width at the canines, second premolars and third molars. The greatest change was seen at the level of the canines, followed by the second premolars and third molars, respectively. There were no statistically significant changes in the naso-pharyngeal airway volume or linear anteroposterior measurements of the pharyngeal airway except at the level of palatal plane. There also was no statistically significant change in tongue position at completion of expansion. Skeletal maturation stage, age and gender did not significantly correlate with the results.

**Conclusions:**

Rapid palatal expansion induces a significant average increase in the nasal volume, widening of the nasal cavity and linear AP increase of the pharyngeal airway at the level of palatal plane. RPE did not, however, have a significant effect on naso-pharyngeal airway volume or tongue position at the completion of expansion.

## The Quest for a Buried, Automated, Continuous Distraction Device: An Update

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**Purpose:**

To assess whether continuous distraction osteogenesis (DO) at rates > 1 mm per day would result in bone formation and clinical union in a minipig model.

**Methods:**

An automated, continuous distraction device that opens with hydraulic pressure and senses position using an induction sensor with closed-loop control has been developed and evaluated. 10 Yucatan minipigs underwent automated, continuous DO of the right mandible to 12 mm. Groups (n=5) were distracted at 1.5 mm/day and 3 mm/day, respectively. One minipig underwent continuous distraction of the bilateral mandible at 2.5 mm/day to 20 mm.

Bone formation was assessed via clinical and histologic analysis. The DO wound was assessed on semiquantitative scale as follows: mobility of the distraction gap (3=no mobility, 2, 1=mobility in 1 or 2 anatomical planes respectively, 0=mobility in 3 dimensions); clinical appearance (3=osteotomy not visible, 2=<50% visible, 1=>50% visible, 0=clearly visible); and radiographic density (4=100% of gap opaque, 3=>75% of gap opaque, 2=50%-75% opacity, 1=<50% opacity, or 0=completely radiolucent. The percent surface area (PSA) occupied by bone, cartilage, fibrous tissue and hematoma were determined by computerized histomorphometric analysis. Comparisons were made to animals distracted discontinuously at 1, 2, and 4 mm/day (n=4).

**Results:**

Animals distracted continuously at 1.5 and 3 mm/day had similar bone formation as discontinuous DO at 1 mm/day. The continuous 3 mm/day group had significantly higher scores for appearance and radiographic density compared to discontinuous DO at 4 mm/day and greater stability than the discontinuous DO groups at 2 and 4 mm/day. The mean PSA occupied by bone for continuous 1.5 (PSA=64.36±5.87) and 3 mm/d (PSA=63.83±3.37) were nearly identical to discontinuous DO at 1 mm/day (PSA=64.89±0.56).

Bilateral continuous DO at 2.5 mm/day to 20 mm allowed clinical and radiographic bone fill (scores of 3 bilaterally for each category). This animal more closely matched clinical application of curvilinear DO.

**Conclusions:**

Results of this study validate a novel automated device for DO and demonstrate that continuous distraction allows bone fill at faster rates than discontinuous DO. Continuous distraction rates up to 3 mm/day allowed for stability, clinical, radiographic and histologic bone fill. This device and technique has the potential to shorten treatment time in management of craniofacial deformities.

## Craniofacial Fibrous Dysplasia: A Treatment Protocol

Timothy A. Turvey

Craniofacial fibrous dysplasia is a condition of variable expression and rarely (in this author's experience) is a monostotic. Typically, multiple cranial and facial bones as well as the cranial base are involved but the extent of the involvement is not uniform and the condition usually has asymmetrical expression. Sometimes the condition is part of the McCune Albright Syndrome with skin lesions and endocrinopathies being present.

The pathology is fibrous proliferation into the bone and replacement of normal bone with the fibrous dysplastic bone which overgrows, distorting facial and cranial appearance. The quality of the bone is not fragile but the cortex is thinned and replaced with vascular fibrous tissues. Involvement of the cranial base and orbit can result in compression of cranial nerves,

proptosis, blindness, reduction of intracranial volume, etc. Overgrowth of the bones distorts facial appearance and can displace teeth. The process is usually slow growing, deforming and is not curable except for resection.

Surgery is seldom absolutely required and is most often elected because of concerns of appearance changes. Optic canal narrowing, causing optic nerve compression is most concerning and when present will drive the need for optic nerve decompression. Papilledema, tortuous and dilated optic vessels, pale optic disc, and reduction of red discrimination are the ophthalmological concerns. Elective optic canal decompression is not suggested because of the concerns of blindness. Elective intracranial vault expansion is not indicated unless neurological symptoms of increased intracranial pressure are present. Exocranial, orbital and facial contouring are indicated to improve appearance. Resection and bone graft reconstruction should be undertaken only when hopes of cure are possible and the potential for loss of quality of living is minimal.

Orthodontic and orthognathic surgery can be and should be undertaken. Teeth can usually be moved easily through the fibrous dysplastic bone. Following orthognathic surgery, the bone heals rapidly likely because of its vascularity. Conventional plates and screws can be used but sometimes it is necessary to reinforce screw fixation with plate fixation because of the softness of the bone. Dental implants have also been placed and restored successfully.

Representative cases will be used to illustrate and highlight the condition and surgical guidelines.

## Outcomes of Cranial Vault Remodeling for Sagittal Suture Craniosynostosis

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### Abstract:

The current review presents outcomes of cranial vault reconstruction for sagittal suture craniosynostosis over a four year period using both endoscopic and conventional (posterior cranial vault reshaping) procedures. Age range at the time of surgery was 3 months to 8 yrs. 39 patients underwent conventional open cranial procedures and 14 had endoscopic suture removal and barrel stave osteotomies followed by treatment with a custom molding orthotic band/helmet. Data collected includes surgeon assessment, parental feedback, and morphometric analysis. Surgical outcomes, treatment protocols, and the rationale for specific timing and the application of an endoscopically assisted approach is presented.

## The Role of Computed Tomographic Angiography in Management of Patients with Temporomandibular Joint Ankylosis

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Presenter: Zachary Peacock, DMD, MD

### Abstract

Temporomandibular joint ankylosis, with resultant mandibular hypomobility, is a challenging clinical problem. Surgical correction is technically demanding and the incidence of recurrent ankylosis or persistent hypomobility is high. There is no universally accepted operative approach. However, it is generally agreed that aggressive resection of the ankylotic mass is required to achieve a successful outcome. This is potentially hazardous because of the numerous vascular structures contained within the anatomic region and severe hemorrhage is a well known complication. The purpose of the present report is to document the efficacy of pre-operative computed tomographic angiography (CTA) and selective embolization as an ancillary measure for management of patients with temporomandibular joint ankylosis. CTA can be used to identify vascular structures within and around the ankylotic mass and then selective embolization can be carried out to reduce intra-operative blood loss.

## Endoscopic Vertical Ramus Osteotomy: A Long-Term Prospective Study

Maria E Papadaki, MD, DDS, PhD; Leonard B Kaban, DMD, MD; Maria J Troulis, DDS, MSc

### Abstract:

The purpose of this prospective study was to evaluate the outcomes of endoscopic vertical ramus osteotomy (EVRO) with rigid fixation for the treatment of mandibular prognathism or asymmetry. Inclusion criteria were age greater than 15 years, adequate clinical and radiographic documentation and minimum post-operative follow up of 3 years. Exclusion criteria were refusal to consent, rheumatoid arthritis, steroid use, and smoking. Demographic data, pre-operative (T0), immediate postoperative (T1), and latest follow-up (T2) clinical examinations and cephalometric analysis, procedure data, complications and length of hospital stay were documented. Ten fulfilled the inclusion criteria. Diagnoses included mandibular hyperplasia (n=5), stable condylar hyperplasia (n=4) and mandibular asymmetry secondary to condylar resorption (n=1). In total, 17 EVROs were performed. Mean operative time was 33 minutes per side. Mean mandibular set back was 4.5 mm. Mean length of hospital stay was 1.9 days. Latest follow up ranged from 3 to 5 years. Skeletal stability was confirmed in 9 patients. One patient exhibited recurrence of mandibular prognathism at 5 years due to late growth. No VII nerve deficits were encountered. In 4 patients inferior alveolar nerve paresthesia was noted that resolved postoperatively. EVRO was fast and resulted in minimal blood loss, quick recovery and skeletal stability.

## The Quest for Rapid Repositioning of the Jaws and Teeth

William H. Bell, DDS

### Efficiency:

Ability To Accomplish A Job With A Minimum Expenditure Of Time, Effort And Cost.

In this golden era of surgical science and technology is the accelerating and deepening wave of change sweeping through medicine and dentistry.

Visionaries, creative thinkers and pioneers are moving our specialties to new heights. Practitioners will obtain the scientific knowledge, skill, and strategies to manage all orthognathic, reconstruction and orthodontic challenges efficiently and predictably. Technological advances continue to influence and improve outcomes for all patients with craniofacial deformities. Two great problems, however, remain to be adequately addressed: excessive cost of hospital surgery and excessive length of orthodontic treatment. A confluence of biological and technological understandings and applications is enhancing the efficiency, affordability and convenience of these protocols. The ongoing paradigm shift will continue via internet based interdisciplinary treatment planning, three dimensional imaging analysis, computer assisted surgery, and surgical facilitated orthodontics. Surgical simulation coupled with outpatient surgery will bring collaborative efforts of diverse experts together to solve complex craniofacial problems. The RAP phenomenon will continue to mature in finding its place in rapidly repositioning teeth and dento-osseous segments. The utilization and application of surgical and orthodontic procedures will begin to employ simulation methodology (ie Da Vinci) to shorten technical learning curves and thus shorten and improve patient care. Many facial deformities and malocclusions remain untreated, or are managed inefficiently over long periods of time contributing to excessive costs, patient discomfort, root resorption and periodontal injury. Sophisticated advancements in accelerated orthognathic and orthodontic techniques and technology offer surgeons and orthodontists the tools to achieve predictable outcomes with convenience, efficiency and affordability. The paradigm shift in orthognathic surgery and orthodontics is supported by technological achievements that enable practitioners to enhance the quality of life for their patients.

## Towards Characterizing the Tumor Microenvironment in Oral, Head and Neck Cancer: “Immunoscore” as a Prognostic Biomarker

R. Bryan Bell, MD, DDS, FACS<sup>1</sup>, Tarsem Moudgil<sup>2</sup>, Rieneke van de Ven, PhD<sup>2</sup>, Hong-Ming Hu, PhD<sup>2</sup>, Carlo B. Bifulco, MD<sup>3</sup>, Bernard A. Fox, PhD<sup>2</sup>,

- 1) Providence Oral, Head and Neck Cancer Program and Clinic, Providence Cancer Center
- 2) Robert W. Franz Cancer Research Center, Earle A. Chiles Research Institute.
- 3) Department of Pathology, Providence Cancer Center.

### Background and Statement of the Problem:

Recently, the delineation of tumor-infiltrating immune cells using standard immunohistochemistry (IHC) coupled with digital imaging and computer algorithms, termed “Immunoscore”, has proved to be a powerful prognostic biomarker, providing significantly ( $p < 0.001$ ) more prognostic power than TNM staging in patients with colon cancer.<sup>1</sup> Given these promising findings in colon cancer and a number of other cancers, we have started an objective assessment of immune cell numbers in biopsy specimens from patients with OHNSCC. We are comparing these results with a flow cytometric analysis of cells isolated by mechanical and enzymatic digestion of tumor specimens. The purpose of this preliminary investigation was to apply digital imaging and objective assessment techniques to characterize infiltrating immune cells and to coordinate these data with a flow cytometric analysis of the cells isolated from the tumor.

### Materials and methods:

41 subjects with biopsy proven OHNSCC from a variety of subsites underwent surgery with curative intent and were enrolled into this prospective, IRB approved trial. Samples of tumor specimen were obtained from either the primary tumor or from a metastatic lymph node and processed utilizing mechanical and enzymatic digestion to dissociate cell types contained in the tumor specimen. These cells are being analyzed for CD3, CD4, CD8, CD20 and FoxP3 using flow cytometry. Additional studies are evaluating dendritic cell numbers and function. In parallel, FFPE tissue from the same specimens are being stained for the specified markers, scanned and digital images are being assessed using the Definiens software platform.

### Results:

Preliminary results have documented consistent staining and potential of the IHC and FACS-based systems to identify infiltrating cells. Definiens software provides a consistent method to assess numbers of IHC stained cells in sections of tumor specimens.

### Conclusion

While still early, both methodologies can provide insights into the type, number, function or relative location of immune cells present in the tumor microenvironment. Planned studies will assess these markers using IHC in larger cohorts of patients with long-term follow-up. While we anticipate that a strong infiltration of immune cells (immunoscore positive) will be associated with better clinical outcomes, the value of the current study will be the availability of isolated and cryopreserved tumor and tumor-infiltrating immune cells for functional studies. Assessment of the tumor cells from immunoscore negative tumors may provide insights into the mechanisms responsible for the absence of infiltrating immune cells. These insights may be exploited to develop novel therapeutic strategies that will reverse the negative immunoscore and improve outcomes of patients with OHNSCC.

1. Pagès F, Berger A, Camus M, Sanchez-Cabo F, Costes A, Molidor R, Mlecnik B, Kirilovsky A, Nilsson M, Damotte D, Meatchi T, Bruneval P, Cugnenc PH, Trajanoski Z, Fridman WH, Galon. Effector memory T cells, early metastasis, and survival in colorectal cancer. *J. N Engl J Med.* 2005 Dec 22;353(25):2654-66.

## The Buccinator Flap: A Versatile Myomucosal Pedicled Axial Pattern Flap for Oral Reconstruction

Mark Wong, DDS

We present a technique of achieving mucosal soft tissue coverage in reconstructing the oral cavity using the buccinator myomucosal flap (BMMF). Coverage can be achieved for defects ranging from the alveolar ridge to tongue reconstruction. The BMMF is straightforward to harvest and has low morbidity. It can be used in place of more morbid and technically involved musculo-cutaneous flaps. We hope that this technique may add to the oral & maxillofacial surgeon’s armamentarium when it comes to reconstructing defects in the oral cavity.

## A Protocol for Decreasing the Ischemia Time for Fibula Microvascular Free Flap Reconstruction of Craniomaxillofacial Defects

Savannah Gelesko, DDS<sup>1</sup>, Eric J. Dierks, DMD, MD<sup>1,3,4</sup>, R. Bryan Bell, DDS, MD<sup>1,2,3,4</sup>, and Tuan G. Bui, MD, DMD<sup>1,2,3,4</sup> (1) Department of Oral and Maxillofacial Surgery, Oregon Health and Science University, Portland, OR, (2) Oral, Head and Neck Cancer Program, Providence Cancer Center, Portland, OR, (3) Trauma Service/Oral and Maxillofacial Surgery Service, Legacy Emanuel Medical Center, Portland, OR, (4) Head and Neck Surgical Associates, Portland, OR

### Purpose:

The ischemia time during microvascular free flap reconstructions is the time that expires from the moment that the pedicle is ligated to the moment that arterial inflow and venous outflow is re-established to the flap. Ischemia times for fibula free flap reconstructions for craniomaxillofacial defects have rarely been reported. Ischemia can cause permanent cellular injury, leading to irreversible reperfusion injury. The median ischemia time for fibula free flap reconstructions reported in the literature is 3.6 hours (range 1.0-3.6 hours). We describe a protocol that allows the reconstructive surgeon to decrease the ischemia times for fibular free flap reconstructions of the craniomaxillofacial defects.

### Materials and Methods:

A retrospective analysis of fibula free flap reconstructions for mandibular and maxillary defects performed at our institution between July 2011 and April 2013. Data analysis was limited to descriptive statistics obtained via chart review. Data was recorded regarding demographic variables; the nature of the mandibular or maxillary defects; ischemia times; the number of fibular segments in the reconstruction; mandibular vs. maxillary reconstruction; the use of computer presurgical planning; the use of a vein coupler device; the number of venous anastomoses; the success or failure of the fibula free flaps. We will also describe our protocol for the fibular free flap reconstructions.

### Results:

Thirty-four consecutive cases of fibula free flap reconstructions of mandibular and maxillary defects were included in the study. All cases had the ischemia times recorded intraoperatively, and all cases were performed using computer presurgical planning. Vein couplers were used in ?? cases. The median ischemia time was 80 minutes (range 33-180 minutes). There were no flap failures.

### Conclusion:

We have described a protocol that can decrease the ischemia time for fibula free flap reconstructions of mandibular and maxillary defects. This involves the use of computer-assisted presurgical planning and vein coupling devices. Further analysis needs to be performed to determine how this translates to overall intraoperative time, accuracy of the reconstructions, and patient outcomes.

### References:

1. Chang SY et al. Does Ischemia Time Affect the Outcome of Free Fibula Flaps for Head and Neck Reconstruction? A Review of 116 Cases. *Plast. Reconstr. Surg.* 126: 1988, 2010
2. Wallace CG et al. Harnessing the Potential of the Free Fibula Osteoseptocutaneous Flap in Mandible Reconstruction. *Plast. Reconstr. Surg.* 125: 305, 2010

## Extracapsular Dissection Parotidectomy: Our Initial Experience

Eric J. Dierks, MD, DMD, FACS

R. Bryan Bell, MD, DDS, FACS

Etern Park, MD, DMD

### Introduction:

Surgical techniques for parotid gland tumor excision have been evolved with the understanding of tumor location relative to the facial nerve, recurrence rate, and operative complications. Over ninety per cent of parotid tumors are located in the superficial lobe and lateral to the branches of the facial nerve. Superficial parotidectomy with facial nerve identification and exposure became the standard treatment for parotid tumors involving superficial lobe. Such comprehensive dissection can cause complications such as temporary or permanent facial nerve injury, Frye's syndrome, greater auricular nerve deficits and visible contour defects. This study reviews the surgical and clinical outcomes of parotid gland tumor excision utilizing the extracapsular dissection technique where the tumor is removed by meticulous dissection around the tumor capsule without formal identification of the facial nerve trunk and pes anserinus.

**Patients and Methods:**

Retrospective review of surgical outcome of 29 consecutive patients who underwent extracapsular dissection parotidectomy by members of the Head and Neck Surgical Associates.

**Results:**

All patients had imaging, fine needle aspiration or both that was compatible with a benign diagnosis. Final pathology of the parotid tumors consisted of 14 pleomorphic adenomas, 3 lymphoid hyperplasia, 3 Warthin's tumors, 2 monomorphic adenomas 2 mucoepidermoid carcinoma, 2 lymphomas, 2 acinic cell carcinomas, and 1 lipoma. All tumors were located within superficial lobe. Tumor size ranged from 0.9 to 5.0 cm (mean 2.9 cm). All surgical margins were negative. There is one suspected, but not as yet documented recurrence of a pleomorphic adenoma.

In twenty-three patients, facial nerve branches were identified. None had postoperative facial nerve paresis/paralysis, or subjective facial contour deficit. A ¼ inch penrose drain was placed in 27 patients. Drains were removed in 1 to 15 days (mean 5.1 day). None had sialocele. One patient developed hematoma.

**Conclusion:**

Extracapsular dissection parotidectomy demonstrated alternative surgical option for effective excision of benign parotid gland neoplasms by offering acceptable surgical and excellent cosmetic outcomes compared to the traditional superficial parotidectomy. The 2 unexpected malignant tumors were managed appropriately without recurrence

## New Name, New Directions, New Dimensions: Update on Anti-resorptive Osteonecrosis of the Jaws.

**Thomas Dodson, DMD, MPH**

The purpose of this presentation is to provide an update on anti-resorptive osteonecrosis of the jaws, including a review of the case definition and staging of the disease, provide estimates of the prevalence of the disease and risk factors, and examine new treatment alternatives.

**Upon completion of this activity, participants will be able to:**

1. apply the case definition of bisphosphonate-related osteonecrosis of the jaw (BRONJ)
2. identify the five stages of BRONJ
3. recall the frequency estimates of BRONJ based on indications for anti-resorptive therapy
4. summarize the therapeutic value of teriparatide and HBO to manage BRONJ

## Reconstruction of Acquired Maxillary Defects Using Zygomatic Implants: Lessons Learned

**Luis Vega DDS, Rui Fernandes DMD, MD. University of Florida, Jacksonville**

The reconstruction of acquired maxillary defects is among the most challenging areas in oral and maxillofacial reconstruction. Multiple algorithms and techniques have been described but the best reconstruction method remains controversial. Zygoma implants are a graftless solution to the lack of maxillary bony support for prosthetic rehabilitation in these patients. The purpose of this study was to evaluate indications, surgical problems and treatment outcomes related to the placement of zygoma implants and their prosthetic rehabilitation in patients with acquired maxillary defects.

Seventeen zygoma implants were placed in 5 consecutive patients (4 women, 1 men) between June 2009 and July 2011. The patient age range was 53 to 77 years with a mean age of 61 years. Three of the acquired defects were hemimaxillectomies due to cancer ablation, 1 was secondary to a gunshot wound, and 1 was a total maxillectomy secondary to a fungal infection. Four patients underwent additional microvascular reconstruction either with a radial forearm or fibula free flap. Additionally 6 conventional dental implants were placed in 3 patients. Outcomes measures were zygomatic and conventional implants survival rates, satisfaction with the prosthetic restoration as well as complications. Follow up ranged from 2 to 4 years.

No zygomatic implants were lost and minor complications occurred in all the patients. Complications reported included less than ideal implant position, oral-antral communication, sinusitis and peri-implantitis. Additionally 4 conventional implants

were lost in one patient before loading. There were no reported cases of infection, or nerve damage. All patients were successfully restored with either a fixed or removable prosthesis. All patient reported high level of satisfaction with the reconstruction.

Within the limitations of the present study, the results suggest that the reconstruction of acquired maxillary defects with zygomatic implants provides a viable and predictable option. Although complications are minor their incidence seemed higher than in the treatment of the severely atrophic maxilla.

## Mandibular Osteotomy for Expanded Transoral Robotic Surgery (MOTORS): A Novel Technique

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### Abstract

#### Background:

Transoral Robotic Surgery (TORS) has revolutionized the treatment of head and neck cancer. Recent studies have shown that this approach is a very safe procedure and can provide favorable clinical and functional outcomes with respect to traditional approaches. Many patients that present with lesions that may be resected via TORS may not be candidates. Patients with anatomic features such as a retrognathic mandible, macroglossia, and small oral aperture limit the ability to provide an adequate surgical port to introduce the endoscopic arm and two instrument arms. We propose a modified TORS approach in which transoral mandibular osteotomies are performed that can greatly improve exposure to oropharyngeal subsites and expand access to the larynx in selected patients.

#### Methods:

Five Cadavers were obtained. Relevant measurements were recorded including vertical and horizontal retractor opening. Lateral cephalography, acoustic pharyngometry and high-resolution photographs were taken prior to mandibular osteotomies and then repeated following the osteotomies.

#### Results:

There was an increase in retractor opening, oropharyngeal volume, and transoral exposure of the oral cavity/base of tongue was observed in all specimens.

#### Conclusions:

Mandibular osteotomies increase exposure to oral cavity and oropharyngeal lesions in the setting of Transoral Robotic Surgery.

Figure 4 Representative photographs of subject 4 with a very limited mouth opening. Plate A-1 captured image using the 0 degree telescope of patient 2 with the retractor in place prior to mandibulotomy, Plate A-2 is the captured image following mandibulotomy.

Plate B -1 is a image taken using a digital camera prior to mandibulotomy and B-2 is the picture taken following mandibulotomy.



## Evidence for Innate Immune Response Activation in the Epithelium with Oral Lichen Planus

Grant Stucki, Antonia Kolokythas, Joel Schwartz, Guy Adami

Oral Lichen planus (OLP) is a dermatologic keratotic disorder which has a clinical presentation in about 1% of the population. Lesions appear in the oral mucous membranes, on the epidermis, and on cutaneous surfaces of the genitals. The persistent immunologic description for OLP is of an acquired, “adaptive” immune dysfunction with a predominance of CD8+ lymphocytes that initiates “an autoimmune phenomenon”. However, previous studies and standard clinical diagnostic procedure for OLP has indicated several innate immune components are present. These include an accumulation and activation of mast cells, and presence of a type III hypersensitivity reaction with diverse granulocyte activation; deposition of autoantibody and complement and release of an array of chemokines: toll-like receptor factors, and interleukins. Furthermore, oral keratinocytes are modifiers of innate and acquired, immunology which is substantiated by examination of a dense inflammatory lymphocytic infiltrate that bands a hyperplastic, “saw tooth”, extension of epithelial rete pegs. Using oral brush cytology we are capable to largely dissociate oral epithelium RNA expression from a confounding inflammatory and stromal expression component. We observed expression of twelve genes but six genes were localized to epithelium in OLP patients: CD14, CXCL1, IL8, ANXA1, ALOX12, and TLR1. Not previously considered is this set of genes that are positive components of the innate immune response and possible targets for treatment. We suggest that OLP eruptions are a product of immune events that begin with innate immunity dysfunctions and become amplified in later acquired immune presentation that leads to a loss of tolerance and synthesis of autoantibody and autoimmune disease.

## Osteochondroma of the Mandibular Condyle: Conservative Vs Aggressive Treatment

Pushkar Mehra, BDS, DMD

### Statement of Problem:

Most of the literature related to Osteochondroma of the TMJ consists of isolated case reports. The aim of the present study was to retrospectively evaluate our experience with surgical management of this rare tumor.

### Materials and Methods:

Thirteen patients (8 females and 5 males) with an average age of 36.3 years (range 15 to 53 years) and with an osteochondroma of the mandibular condyle were treated with one of two methods: Group I (n = 6): conservative condylectomy and joint preservation, or, Group II (n = 7): complete condylectomy and joint reconstruction. In group I patients, the remaining condylar neck stump was recontoured, and the articular disc repositioned and stabilized over the “new” condyle. Group II patients underwent joint reconstruction with costochondral grafts (n = 2) or alloplastic total joints (n = 5). Any indicated orthognathic surgical procedures were then performed to optimize occlusion, function, and esthetics. Clinical and radiographic evaluation was performed before surgery (T1), immediately after surgery (T2), and at the longest follow-up (T3).

### Results:

Average follow-up for the patients was 36 months (range: 28 - 104 months). No recurrence of the tumor was encountered in any of the cases. No difference in clinical outcomes was reported between the two groups. Subjective and objective evaluations of postsurgical TMJ function and range of mandibular motion were unremarkable. Associated maxillary and/or mandibular orthognathic procedures were found to be stable.

### Conclusions:

The study is retrospective and has some limitations, especially as the surgeon chose the option based on two main factors: size of lesion, and patient preference. However, the results do demonstrate that both conservative and/or complete condylectomy are viable options for treatment of osteochondromas of the mandibular condyle. When indicated, a conservative approach may have some advantages including eliminating the need for autogenous or alloplastic TMJ reconstruction while allowing for effective removal of the tumor.

## The Maxillofacial Oncologic and Reconstructive Surgery Cooperative Oncology Group (MORCOG) Database

Brent Ward, MD, DDS

The incidence of head and neck cancer, particularly of the oral cavity subsite makes clinical scientific study of this disease difficult. Recent enthusiasm for a national database has resulted in the creation of the MORCOG consortium and database,

which is an up and running data collection tool available to Oral/Head and Neck Surgeons. This presentation will serve as an update to the current status of MORCOG and future plans for the cooperative oncology group.

## Transoral Robotic Surgery for Oropharyngeal Cancer: Preliminary Oncologic and Functional Outcomes

R. Bryan Bell, MD, DDS, FACS; Etern Park, MD, DMD; Eric J. Dierks, MD, DMD, FACS

### **Introduction:**

Transoral robotic surgery (TORS) has been advocated as a means to de-intensify adjuvant therapy and to improve functional treatment outcomes in advanced stage oropharynx cancer. The purpose of this retrospective investigation is to review our early experience with TORS in the definitive treatment setting and assess local disease control and functional outcomes.

### **Methods:**

All patients who underwent TORS and risk-adapted adjuvant radiation therapy or chemoradiotherapy for previously untreated oropharyngeal cancer at our comprehensive cancer center were identified. Demographic and staging information were recorded and outcomes assessed retrospectively by chart review.

### **Results:**

A total of 37 TORS oropharyngeal cancer cases among 32 patients were identified. The majority of tumor sites were either tonsillar fossa (n=15) or base of the tongue (n=17), and all but two patients treated presented with either T1 or T2 disease.

No patients had local recurrence at the time of last follow-up (Mean follow-up =447 days). One patient who refused adjuvant therapy had recurrence in ipsilateral neck. Four patients had PEG tube placed during radiation therapy, and one remains PEG dependent at 6 month follow up.

### **Conclusion:**

TORS combined with risk adapted adjuvant therapy for oropharyngeal cancer provided excellent loco-regional control and favorable functional outcomes.