Scientific abstracts from the ACOMS 34th Annual Scientific Conference and Exhibition, April 20-22, 2013

The American College of Oral and Maxillofacial Surgeons (ACOMS) 34th Annual Scientific Conference and Exhibition took place April 20-22, 2013, at The Phoenician Resort in Scottsdale, AZ, USA. Special thanks are owed to the scientific chair for the meeting, Kevin L. Rieck, DDS, MD, who, along with the Committee on Continuing Education, yet again prepared an outstanding scientific and social program. Eric J. Dierks, MD, DDS, FACS, was honored with the W. Harry Archer Award and delivered the Kurt H. Thoma Memorial Lecture on “Innovative and Just Plain Weird Implants in Cancer and Trauma Rehabilitation.”

The conference covered a wide range of topics over the course of 3 days of lectures. In addition, 23 outstanding scientific abstracts and case studies were presented by future leaders in the specialty. The scientific abstracts from the conference are included below.

**RETROSPECTIVE REVIEW OF PEDIATRIC CRANIO-MAXILLOFACIAL FRACTURES**

**Yash Kumar Singh, BDS, DMD, MD, Jason E. Portnof, DMD, MD, C. Anthony Lim, MD, Al Haitham Al Shetawi, DMD, MD, Stephen M. Blumberg, MD**

Residency Program: Beth Israel Medical Center/Jacobi Medical Center/Albert Einstein College of Medicine, Bronx, NY, USA

Program Director: Daniel Buchbinder, DMD, MD

**Purpose:** To review the epidemiology of maxillofacial fractures in a level 1 pediatric trauma center in Bronx, NY, USA. The aim of our study was to describe and analyze the mechanisms associated with pediatric maxillofacial injuries, types of fracture, associated injuries, and management decisions.

**Methods:** All children aged less than 18 years who presented between 2005 and 2010 to the Pediatric Emergency Department at Jacobi Medical Center and were diagnosed with a maxillofacial fracture were eligible for inclusion. Patients with isolated nasal bone fractures were excluded. Electronic and written medical records were retrospectively reviewed. Data regarding patient demographics, injury mechanisms, type of injuries, diagnostic modalities, treating surgical team, and disposition were collected. Frequencies were calculated, and bivariate and multivariate analyses were conducted to describe associations between injury and management patterns.

**Results:** A total of 156 patients with maxillofacial fractures were identified. The majority were boys (88.5%), and the mean age was 13.5 years (±4.9 standard deviation). The most common mechanism of injury was assault (48.1%). Other mechanisms were being struck as a pedestrian (20.5%), falls (10.9%), motor vehicle accidents (8.3%), and sports injury (5.1%). There was only 1 case of penetrating trauma with associated fracture due to a gunshot wound. The most common fracture was orbital fracture, including naso-orbital-ethmoid complex (44.2%), followed by mandible fracture (41.6%). Multiple facial fractures were present in 42 (26.9%) patients. Associated injuries were seen in 115 patients (73.7%), consisting of concussion (53.0%), intracranial hemorrhage (20.0%), and skull fracture (13.9%). Bivariate analysis of concurrent injuries revealed that intracranial hemorrhage was associated with panfacial \( (P = .005) \), frontal \( (P = .001) \), and orbital fractures \( (P = .04) \). The majority of the patients (91.7%) were admitted, but conservative management with no operative repair was undertaken in 57.1% of cases. Multivariate analysis revealed an independent association between surgical intervention and single or multiple mandibular fractures as compared with all other maxillofacial fractures. The oral and maxillofacial surgery team treated most (36.5%) of the patients, followed by the otorhinolaryngology team (32.1%) and the plastic surgery service (19.9%).

**Conclusions:** The results showed that interpersonal violence was the most common mechanism of injury, and that orbital fractures were the most common type of fracture in this urban pediatric population. The identification of fractures such as panfacial, frontal, and orbital should provoke evaluation for potentially more serious intracranial injuries. While most children will require hospitalization, those with multiple mandibular fractures may need to have resources for operative repair.

**NEUROENDOCRINE TUMOR OF THE MAXILLOFACIAL REGION: A CASE REPORT WITH REVIEW OF THE LITERATURE**

**Ahmad Yosif, DDS, Reza Movahed, DMD, Shawn McClure, MD, DMD**

Residency Program: Nova Southeastern University

Program Director: Steven Kalman, DMD

**Purpose:** To review the literature of neuroendocrine tumors (NET) in the maxillofacial region and implement the appropriate therapy.

**Methods:** A literature review was conducted with a methodical search of PubMed and Ovid using keywords such as neuroendocrine tumor, head, neck, and treatment. From these results, a systematic classification of the NETs of the maxillofacial region was based on age, gender, tumor site, histology, metastasis, recurrence, and treatment modalities. Case report: an 81-year-old female presented to our clinic with right mandibular bony expansion and neuropaxia. The computed tomogram demonstrated ill-defined honeycomb radiolucency of the right mandible. Incisional biopsy yielded poorly differentiated small cell carcinoma. No evidence of primary lesion was detected by positron emission tomography—computed tomography. Surgical resection with selective neck dissection was performed. The patient elected chemotherapy over radiotherapy. Local and distant metastasis was detected 9 months postoperatively in a follow-up PET-CT.

**Results:** Twenty-five publications on NETs of the maxillofacial region were found, with publication occurring between 1972 and 2012; there were 46 cases in total. Three histological types were identified: small cell carcinoma, Merkel cell carcinoma, and carcinoid tumor. Gender included 33 males and 13 females, with an age range from 14 to 90 years. Of the 46 cases found, 37 were treated with surgical resection, 5 were treated with radiation only, 2 were treated with neck dissection and radiation therapy, and 2 had no reported treatment. In 25 cases, regional or distant metastasis developed.
Conclusions: Current therapy is dictated by recommendations from the National Comprehensive Cancer Network. According to the network, the treatment for poorly differentiated NETs of unknown primary site is surgical resection followed by radiation and chemotherapy. In the case presented, surgical resection with neck dissection was followed by chemotherapy. Unfortunately, owing to the aggressive biologic behavior of the tumor, the patient developed local and distant metastasis.

IS THE MORBIDITY AND MORTALITY OF GUNSHOT WOUNDS INCREASED WITH INVOLVEMENT OF THE HEAD AND NECK? Kevin Wright, DDS, Din Lam, DMD, MD, Michael Aboutanos, MD, Stephanie Goldberg, MD, Charlie Boxx, BS

Residency Program: Virginia Commonwealth University
Program Director: Robert Strauss, DDS, MD

Purpose: Gunshot wounds comprise a significant portion of trauma patients seen in emergency departments each year. Many of these patients also present with wounds to the head and neck. The goal of this study was to compare and contrast the morbidity and mortality of head and neck gunshot wounds with those of non–head and neck gunshot wounds.

Methods: This retrospective study, approved by the Institutional Review Board, reviewed all adult patients with gunshot wounds who presented to the Virginia Commonwealth University (VCU) Health System between 2006 and 2010. Using the VCU trauma registry (courtesy of the VCU Division of Trauma), demographic information was collected, as well as data including location of injuries, Glasgow coma score, length of stay in the hospital and in the intensive care unit, abbreviated injury scale, injury severity score, and number and type of complications. Patients with injuries involving the face and neck were then compared with those without injuries involving the face and neck. Statistical analysis using Fisher’s test and chi-square test was completed.

Results: A total of 1027 patients with gunshot wounds between 2006 and 2010 were reviewed. Of the cases, 113 involved injury to the face and neck, while 914 did not involve the face and neck. There was no significant difference in overall length of stay in the hospital, intensive care unit stay, abbreviated injury scale, injury severity score, incidence of surgical error, or mortality rate (P > .05). Overall complications were not affected by facial involvement. However, further analysis of complication types showed a significantly higher incidence of infections in patients with face and neck injuries (21% for face/neck, 13% for non–face/neck) and of respiratory complications in those patients (7% for face/neck, 2% for non–face/neck) (P < .05).

Conclusions: Morbidity and mortality of gunshot wounds in adult patients do not appear to increase with face and neck involvement. However, an increased incidence of infections in injuries involving the head and neck was observed, and respiratory complications were expectedly increased by head and neck involvement. To reduce complications from head and neck gunshot wounds, proper management of head and neck injuries should include early airway control, as well as meticulous wound care.

COMBINED OPEN AND CLOSED ACCESS FOR FACIAL DIMPLE CREATION Hamad Al Harbi, BDS, Ahmed Al Yamani, BDS, DSc, FFDRCSI, Osborn Timothy, DDS, MD

Residency Program: Boston University
Program Director: Andrew Salama, MD, DDS

Purpose: The objective of this study was to demonstrate an easy technique for creating dimples that is associated with highly effective results for the patient, along with long-term stability and less morbidity and postoperative pain.

Methods: Over a 2-year period (2010 to 2012), dimple procedures were performed on 43 patients at the Department of Oral and Maxillofacial Surgery, King Abdul-Aziz University Hospital, Jeddah, Saudi Arabia. The patient group comprised 39 women and 4 men, ranging in age from 17 to 31 years. Among the 17 patients who wanted a unilateral dimple only, 11 dimples were created on the left and 6 on the right. The technique that was used is a combination of open and closed techniques. Our technique was based on 2 sutures to create a dimple: one is made by passing a hypodermic needle transbuccally, and the other is made by suturing the buccinator muscle to the dermis layer through an intraoral incision, after making an incision in the muscle. The study comprised the clinical analysis of all 43 patients by measuring the size of the dimples and taking pictures for comparison; this was done at several time points, as follows: T0, immediately postoperatively; T1, 6 weeks postoperatively; T2, 6 months postoperatively; T3, 1 year postoperatively; and T4, 2 years postoperatively.

Results: No complications occurred intraoperatively or immediately postoperatively that necessitated immediate surgical intervention. Three dimples disappeared within the first 2 weeks. Consequently, we performed the same surgical procedures again using the same technique, and the dimples remained. Dimple size remained substantially the same; although there was a slight reduction in the size of the dimples within the first 6 weeks, it was clinically insignificant. The success rate was 99%.

Conclusions: The combined open and closed technique described in this study for creating a facial dimple is simple and provides a predictable outcome with minimal morbidity and with long-term stability. These traits make it an excellent alternative to existing techniques.

EARLY RECOGNITION AND PREVENTION OF TOXIC EPIDERMAL NECROLYSIS: A CAUTIONARY REPORT OF TWO CASES AND LITERATURE REVIEW Eric W. Spencer, DDS, MSc, Charles J. Yowler, MD, Daniel J. Meara, MD, DMD, MSc, Michael Mueller, BSc

Residency Programs: Christiana Care Health System; Case Western Reserve University
Program Director: Daniel J. Meara, MD, DMD, MSc; Faisal Quereshy, MD, DDS

Purpose: Toxic epidermal necrolysis (TEN) is a rare and devastating side effect of medication use characterized by epidermal apoptosis associated with massive epidermal dissociation over more than 30% of the total body surface area; fever; bullae; and generalized rash. This reaction often initially presents in the form of oral facial rashes and erosions. It is regularly misdiagnosed as less extensive forms of pemphigoid conditions, erythema multiforme, and Stevens-Johnson syndrome. The early signs are initially seen by primary care physicians and dental care providers, especially oral and maxillofacial surgeons. Incidence of TEN is low, and presentation of the disease is rapid and distinguishable. The first-line treatment staple for TEN is immediate cessation of the offending drug; however, this is complicated by the prevalence with which TEN-causing drugs are prescribed. Among others, onset of TEN is associated with nonsteroidal anti-inflammatory drugs; sulfonamides; cephalosporins; aromatic anticonvulsants; and allopurinol, making early identification difficult. Furthermore, duration of TEN...
is associated with medication clearance, which can complicate treatment when TEN is caused by drugs with long half-lives.

**Methods:** This is a cautionary report and literature review of this rare occurrence.

**Results:** This reaction often initially presents in the form of oral facial rashes and erosions and is regularly misdiagnosed. In this report, 2 cases are described in which the early recognition and cessation of medication therapy could have prevented the patients’ deaths secondary to the development of extensive TEN complicated by gram-negative sepsis.

**Conclusions:** Health care providers should understand the differential diagnosis of these early signs, because recognizing and arresting TEN as soon as possible is critical to patient survival.

**DENTAL EXTRACTIONS IN THE THROMBOCYTOPENIC PATIENT**

W. Jonathan Fillmore, DMD, MD, Bryce D. Leavitt, DMD, MD, Kevin Arce, DMD, MD  
Residency Program: Mayo Clinic  
Program Director: Kevin Arce, DMD, MD

**Purpose:** This study evaluates complications that can occur when thrombocytopenic patients undergo dental extractions, as well as the efficacy of attempts to mitigate complications perioperatively. Specifically, in patients with platelet counts less than 100,000/µL, does dental extraction result in significant bleeding complications? In addition, what is the effect of platelet transfusion or application of local measures (fibrinolytic mouthrinses or absorbable hemostat) at the time of extraction? We hypothesized that thrombocytopenic patients undergoing dental extraction would have increased episodes of postoperative bleeding and that frequency of bleeding episodes would be associated with the degree of thrombocytopenia. Furthermore, we hypothesized that administration of either platelets or local measures would decrease postoperative bleeding episodes.

**Methods:** This observational study reports 68 subjects with hematologic disease and concomitant thrombocytopenia of less than 100,000/µL undergoing dental extractions in our department. The inclusion criterion was platelet count of 100,000/µL or less at the time of consultation or extraction. Subjects using anticoagulation therapy were excluded from the study pool. The study was approved by the Mayo Clinic Institutional Review Board. Predictors measured were age, gender, platelet count, platelet transfusion before or during surgery, local hemostatic measures at the time of surgery (not including sutures or primary closure), number of teeth extracted, diagnosis, and extraction type. The primary outcome measured was postoperative bleeding requiring intervention. A secondary outcome measured was surgical site infection.

**Results:** A total of 58 subjects underwent extraction of 200 teeth. Of these, 5 subjects (7.4%) had postoperative bleeding, which was always controlled with simple intervention. Mean platelet count was 44,647/µL. Bleeding was more frequent with lower platelet levels ($P = 0.048$). For treatment, 32 subjects received platelet transfusion, and 26 received local measures. Diagnosis of myeloid leukemia was associated with all 5 postoperative bleeds and 2 surgical site infections, all noted complications ($P = .002$). Platelet transfusion and local hemostatic measures had no effect on bleeding outcomes. No subjects receiving local measures suffered any postoperative infection.

**Conclusions:** Both surgical and simple extractions are safe procedures in patients with thrombocytopenia. Postoperative bleeding was infrequent and easily controlled with simple local measures. A prospective trial to evaluate both transfusion and local hemostatic measures in thrombocytopenic patients is underway to identify the utility of these measures. Our recommendation is to perform necessary extractions in thrombocytopenic patients with perioperative platelet transfusion to achieve levels at or above 50,000/µL. Local hemostatic measures may be used at the surgeon’s discretion, but we see no clear benefit or contraindication at this time.

**RISK FACTORS LEADING TO INCREASED LENGTH OF STAY IN PATIENTS TREATED FOR ODONTOGENIC INFECTIONS**

D. Cameron Braasch, DMD, Robert A. Strauss, DDS, MD  
Residency Program: Virginia Commonwealth University Health Systems  
Program Director: Robert A. Strauss, DDS, MD

**Purpose:** Every year thousands of patients require hospital admission for medical and surgical management of odontogenic infections. The management of these patients can be complex and lead to lengthy hospital stays, increased use of resources and health care costs. The goal of this study is to further examine the risk factors that are associated with increased length of stay in the patients who were admitted for the management of odontogenic infections at Virginia Commonwealth University Health Systems (VCUHS).

**Methods:** A retrospective chart review study was carried out to identify all patients admitted to the Oral and Maxillofacial Surgery service at VCUHS for management of odontogenic infections between July 2009 and January 2013. Patients under 18 years old and pregnant women were excluded. Length of stay (LOS) was measured as the number of days from date of admission to date of discharge. The factors evaluated included demographic information (age, sex, race), pre-admission factors (previous antibiotic and surgical treatment, length of swelling prior to admission), physical and laboratory findings (maximum vertical opening, number of fascial spaces involved, admission white blood cell count, admission temperature), surgical management (number of surgical interventions), medical management (antibiotic choice, change in antibiotic treatment) and post-operative management (exubation in the operating room, number of days in the ICU). Multiple regression statistical analysis was carried out to determine which risk factors were positive predictors of increased length of stay.

**Results:** A total of 82 patients were included in the study. Of the 82 patients, 37 males and 45 females with the mean age of 38 years. The multiple regression analysis indicated that the following factors were related to LOS: # of fascial spaces ($P < 0.001$), # of surgical interventions, # of days in the ICU, and changes in antibiotic treatment. The final model accounted for 87% of the variability of LOS.

**Conclusions:** Length of stay in patients with odontogenic infections is very difficult to predict. Based on our data, to potentially reduce length of stay, the surgeon should optimize treatment in the operating room and ensure adequate drainage of all involved spaces. A change in antibiotic treatment during hospital stay is associated with increased LOS that may suggest a developing resistance to clindamycin. Further studies are required to evaluate the potential failure of empiric treatment with clindamycin.