

## Scientific Abstracts from the Seventh Annual American College of Oral and Maxillofacial Surgeons ACOMS Residents Meeting November 10–11, 2018, Texas A&M College of Dentistry, Dallas, TX, USA

The Seventh Annual American College of Oral and Maxillofacial Surgeons (ACOMS) Residents Meeting convened November 10–11, 2018, at the Texas A&M College of Dentistry. Special thanks are owed to the scientific chair for the meeting, Dr. Robert Strauss, and the host advisor, Dr. Andrew Read-Fuller.

All attendees were invited to submit scientific abstracts for oral presentation at the meeting. All accepted abstracts were eligible for publication. The winner for Outstanding Scientific Abstract was awarded a travel scholarship to attend the ACOMS 40th Annual Scientific Conference and Exhibition to convene April 7–9, 2019 in Santa Fe, NM, USA. We are pleased to announce the winner of the Resident Abstract Competition:

### Outstanding Scientific Abstract

#### Hybrid arch bars reduce placement time and glove perforations compared to Erich arch bars during the application of maxillomandibular fixation: a randomized controlled trial

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#### EXPLORING TRAINING DENTAL IMPLANT PLACEMENT USING COMPUTER-GUIDED IMPLANT NAVIGATION SYSTEM

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**Purpose:** This prospective randomized study was designed to evaluate the learning progression, defined as accuracy in

placement of dental implants on a simulation model, when a computer-guided dynamic navigation was used to train senior dental students with no previous implant training. The study was designed to define the learning curve and the minimal number of attempts necessary in utilizing computer-guided implant navigation system to improve implant placement skill in a novice implant trainee.

**Methods:** A total of 5 implant placement attempts were assigned to each student. The first 4 attempts were randomly assigned for placing either 3 maxillary or 4 mandibular implants. A randomization schedule was generated in SAS EG v6.1 software (Opware Inc.) to assign all students to a random sequence of the first 4 jaws (2 for maxilla and 2 for mandible), as well as the implant sites within each jaw for all attempts. The spatial relationship between the JagTag on the stent installed on a plastic model and the DrillTag on handpiece was tracked by the stereoscopic camera. Repeated measures analysis of variance was used to evaluate discrepancies in the 2-dimensional (2D) lateral deviation, overall 3-dimensional (3D) apex deviation, 2D vertical apex deviation, and overall 3D angle deviation.

**Results:** Fourteen students participated, with a mean age of 26.1 years and equal males and females. Mean time for implant placement was associated with attempt number ( $P < .001$ ), implant site ( $P = .010$ ), and, marginally, related to gender ( $P = .061$ ). Students had a significant reduction in time from their first attempt to their second (10.6 vs 7.6 minutes; adjusted  $P < .001$ ) then plateaued. Overall 3D angulation ( $P < .001$ ) and 2D vertical apex deviation ( $P = .014$ ) improved with each attempt, but changes in lateral 2D ( $P = .513$ ) and overall 3D apex deviations ( $P = .784$ ) were not statistically significant. The site of implant placement was associated with lateral 2D, 2D vertical, and overall 3D apex deviations ( $P < .001$ ). Males were marginally faster than females, had slightly lower overall 3D angulation, and reported higher proficiency with video games. Novice operators improved significantly in speed and angulation deviation within the first 3 attempts of placing implants using dynamic navigation.

**Conclusions:** Novice operators learn the skill of placing implants with dynamic navigation within 3 attempts. The speed and angulation deviation improve significantly within the first 3 attempts and are sustained. Performance for males, on average, was marginally better in time and accuracy than females.

#### HYBRID ARCH BARS REDUCE PLACEMENT TIME AND GLOVE PERFORATIONS COMPARED TO ERICH ARCH BARS DURING THE APPLICATION OF MAXILLOMANDIBULAR FIXATION: A RANDOMIZED CONTROLLED TRIAL BRETT KING, DDS, AND BRIAN CHRISTENSEN, DDS, MD, LOUISIANA STATE UNIVERSITY HEALTH SCIENCES CENTER, NEW ORLEANS, LA, USA

**Purpose:** The use of a bone-fixed hybrid arch bar system provides an alternative method to Erich arch bars to apply maxillomandibular fixation (MMF) during the treatment for

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mandibular fractures. The purpose of the study is to compare the time for placement and removal, effect on the gingiva, and operator safety.

**Methods:** The authors designed a parallel-group, randomized controlled trial to compare the 2 types of arch bars. Patients with mandibular fractures presenting to the authors' institution were enrolled in the study and randomized into 2 groups: (1) the Erich arch bar group secured with circumdental stainless steel wires and (2) the Hybrid arch bar group secured with bone-borne self-drilling locking screws. The primary outcome variable was arch bar placement time. Secondary outcomes were glove tears or penetrations during application, gingival appearance score at removal, loose hardware at removal, removal time, and glove tears or penetrations at removal. The groups were compared by using the Student *t* test.

**Results:** A total of 90 patients were enrolled in the study. There were 43 patients randomized to the Erich arch bar group and 47 patients randomized to the Hybrid arch bar group. The mean time for application of Erich arch bars was 31.3 Å ± 9.3 minutes and 6.9 Å ± 3.1 for the Hybrid arch bars (*P* < 0.0001). There were significantly more glove tears or penetrations during application in the Erich Arch Bar group (0.56 Å ± 0.91 per application) compared with the Hybrid group (0.11 Å ± 0.32 per application) (*P* = .0025). At removal, there was no difference in overall gingival appearance or amount of loose hardware. The time for removal was significantly less for the Hybrid arch bar group (10.5 Å ± 5.1 minutes) than for the Erich arch bar group (17.9 Å ± 10.7 minutes) (*P* = .0007).

**Conclusions:** Hybrid arch bars with bone-borne locking screws offer a number of advantages, including faster placement, shorter removal time, and a greater margin of safety for the operating surgeons, as demonstrated by significantly fewer glove tears and penetrations.

#### SUBJECTIVE CHANGES IN MOOD AND CHRONIC PAIN STATUS-POST INTRAVENOUS KETAMINE FOR ORAL AND FACIAL

**SURGERY** QUEEN RALPH, BS, CHRISTOPHER PAOLINO, DMD, AND DANIEL MEARA, MS, MD, DMD, FACS, CHRISTIANA CARE HEALTH SYSTEM, NEWARK, DE, USA

**Purpose:** The aim of this study was to determine whether subjects who received intravenous ketamine for outpatient procedures, under intravenous sedation (IVS), show changes in mood and chronic pain.

**Methods:** Inclusion criteria were oral-maxillofacial surgery subjects age >18 years; presence of chronic pain and/or depression; eligibility for IVS. Exclusion criteria included age less than 18 years. Eligible subjects were educated about the purpose and potential risks and benefits of the study; consent was obtained if they chose to participate. Chronic pain was surveyed pre- and post-operatively. Beck's Depression Inventory (Modified) surveyed patient's mood postoperatively. Data was reviewed to determine correlation between IVS with ketamine and effects on chronic pain and mood.

**Results:** The total study population was 23 patients (average age 36 years; 57% males and 43% females). Average chronic pain score was lower postoperatively for subjects who received ketamine. Subjects who received ketamine used significantly less opioids postoperatively compared with those who did not. Subjects who received ketamine exhibited significant improvement in mood postoperatively compared with those who did not.

**Conclusions:** Ketamine appears to have value to patients beyond just its anesthetic properties. Chronic pain and mood appear to be positively altered by the use of ketamine in outpatient surgical procedures. Ketamine use should be considered as a first-line anesthetic agent, unless contraindicated, in patients with chronic pain and depression. However, the growing opioid and mental health epidemic may allow a secondary impact of ketamine. Future studies may derive appropriate ketamine dose regimens or titrations when aiding patients suffering with depression or chronic pain patients.

#### IMMEDIATE RECONSTRUCTION OF SEGMENTAL MANDIBULAR DEFECTS WITH NON-VASCULARIZED BONE GRAFTS

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**Purpose:** There is long-standing evidence that a segmental mandibular defect greater than 6cm needs to be reconstructed with a vascularized graft, which significantly increases patient morbidity. We challenge this notion. In this study, we determined maximum defect size that can be predictably reconstructed with nonvascularized bone grafts immediately after resection.

**Methods:** A retrospective chart review of 34 patients that had mandibular resections for benign pathologies that were immediately reconstructed with particulate marrow grafts were reviewed. The same senior surgeon at a university medical center oversaw all cases. Cohort demographic and descriptive data were obtained, resection size was determined, and statistics were calculated.

**Results:** The patient cohort had a mean age of 49 years (standard deviation [SD] = 12.2), and consisted of 16 males and 18 females. Mean follow-up time was 18 months. Diagnoses included 15 (44%) cases of osteomyelitis, 13 (38%) ameloblastomas, 5 (15%) ossifying fibromas, and 1 (3%) histiocytoma. Average resection size of all cases was 8.7 cm (SD = 4.1). Average resection size of successful grafts was 8.1 cm (SD = 3.2). Graft failures measured 12.1 cm (SD = 2.8). When comparing graft success versus failure there is statistical significance (*P* < .05) using 2-sample *t* test. Thirty of 34 (88%) patients went on to achieve mandibular bony union after 1 surgery.

**Conclusions:** Taken together, these data demonstrate that segmental mandibular resections for benign pathology can be predictably reconstructed using non-vascular grafts up to 8.1 Å ± 3.1cm. The morbidity and time of surgery of particulate marrow grafts is significantly less compared with free-flap reconstruction. Furthermore, the course of treatment in these patients is significantly decreased. This facilitates expedited convalescent care and an earlier return to normal form and function.

#### MANAGEMENT OF MANDIBLE FRACTURES BY THE ORAL MAXILLOFACIAL SURGERY DEPARTMENT AT UNIVERSITY OF MARYLAND: A QUALITY ASSESSMENT INITIATIVE

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**Purpose:** Repair of isolated mandibular trauma has been well documented in the literature. Outcomes based on methods