(CT) scans were examined for screw position relative to the adjacent tooth roots. Patients were excluded if they were fully edentulous, were incarcerated, or did not have arch bars applied to both arches. Variables examined were screw violation of the periodontal ligament, gross disruption of tooth root dentin, pulpal violation, and root fracture. The location of the tooth injured with regard to the maxilla versus the mandible and the anterior, premolar, or molar dentition was also examined. Statistical analysis was performed with unpaired *t* test and 1-wayanalysis of variance with Tukey's post hoc test.

Results: Fifty patients were analyzed, for a total of 507 screws in 100 arches with 1340 teeth present. Overall, 31.49% of teeth had contact or injury with the screws, with screw violation of the periodontal ligament (7.39%), dentin (19.78%), and pulp (3.81%) and root fracture (0.45%). There was a significantly higher incidence of root fracture in the mandible (N = 5) versus maxilla (N = 1) ($P < .05$). Maxillary teeth (mean 4.74 ± 1.64) ($P < .05$) were significantly more likely to experience contact or injury with screws compared with the mandibular teeth (mean 3.68 ± 1.63). The occurrence of screw contact or injury to the root, according to location, was as follows: anterior dentition, 13.66%; premolars, 7.99%; and molars, 9.78%. The anterior teeth were significantly more likely to be in contact or sustain injury from a screw compared with the premolar and molar teeth ($P < .05$).

Conclusions: Hybrid arch bars offer many benefits to the surgeon, but there is no risk of the screw contacting or violating the tooth structure. There is an increased risk to the anterior dentition and the maxillary dentition. The mandibular teeth are also more likely to experience root fracture compared with the maxillary teeth. The hybrid arch bars should be applied with consideration to patient anatomy and tooth position to prevent injury to the tooth roots.

MODIFIED ENDONASAL APPROACH FOR PREMAXILLARY REPOSITIONING IN THE PATIENT WITH BILATERAL CLEFT LIP - A REVIEW OF TECHNIQUE

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Objective: In patients with bilateral cleft lip, the management of the cleft premaxilla can be challenging, because it remains mobile throughout childhood until stabilized with grafting. A small group of patients may have grossly malpositioned premaxillae that cannot be managed with traditional techniques. Concerns about compromised perfusion and scarring have led to attempts to reposition the premaxilla before alveolar grafting while preserving the gingival periosteum. Reported methods include utilizing a lip-split incision (Rahpeyma et al., 2016), conservative transoral approaches (Koh et al., 2016; Steinhauser, 2014), and endonasal approaches (Sierra et al., 2018; Martinez-Plaza, et al., 2018). At our institution, we use a staged approach, in which endonasal osteotomies via a Killian incision are performed to mobilize the cleft premaxilla, and then it is repositioned into a more anatomic position by using orthodontic splinting. Our primary outcome evaluated any adverse vascular compromise.

Study Design: This retrospective analysis catalogs 6 cases of endonasal premaxillary repositioning in patients with bilateral cleft palate since 1999. A chart review identified gender, age, vascular issues, infection, and overall progress for the management of the cleft. Indications for staged repositioning were severe vertical, horizontal, or rotation/torsion malalignments of the premaxilla. We report here our modified technique using an endonasal approach for repositioning an infra-positioned premaxilla.

Results: All cases reviewed had improved anatomic location without any vascular compromise. No infections were noted. The study included 4 females and 2 males (age range was 4−10 years). Four of these patients went on to have alveolar grafting, with 2 currently planned for eventual grafting. Three of the patients have had or are undergoing workup for orthognathic surgery, 1 did not need surgery, and 2 were lost to follow-up.

Conclusions: Endonasal osteotomy is a predictable way to reposition the bilateral cleft premaxilla while maintaining blood supply and preventing gingival scarring. This technique is minimally invasive and aids in anatomic repositioning for the orthodontic management of patients with complex bilateral cleft lip/palate. Further studies are needed to evaluate the stability of this procedure and considerations of simultaneous bone grafting.

IS THERE AN INCREASED RISK OF POSTOPERATIVE ORAL INFECTIONS IN ANTICOAGULATED PATIENTS UNDERGOING DENTAL EXTRACTIONS?

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Objective: Postoperative oral infections in anticoagulated patients undergoing dental extractions are a concern for healthcare professionals because perioperative management often requires a multidisciplinary approach. Postoperative bleeding may lead to complications, such as hematoma formation, which can predispose patients to subsequent infection. To date, there is no analysis of large databases assessing the impact of anticoagulation on oral infection rates after dental extractions. Our objective was to explore the relationship between anticoagulation and oral infections in adults who have undergone dental extractions.

Study Design: The Nationwide Inpatient Sample (NIS) years 2001−2013 was queried for adult patients age 19 years and older undergoing dental extractions, based on *International Classification of Diseases, 9th revision (ICD-9)* procedural codes 23.01, 23.09, 23.11, and 23.19. Anticoagulant therapy was determined by ICD-9 code V58.61. Oral infection was determined by ICD-9 diagnostic code 528.3 (cellulitis and abscess of oral soft tissues). Cases were excluded if patients received antiplatelet therapy (ICD-9 code V58.63). Univariate analysis was conducted with Pearson's χ^2 test to determine if there was a relationship between anticoagulant therapy and oral infection. Multivariate analysis was conducted with binary logistic regression. Results were reported as odds ratio (OR) and 95% confidence interval (95% CI). Significance was defined as $P < .05$.

Results: A weighted total of 334,822 patients (59.7% males, 40.1% females, 0.2% missing information on gender) were included in this analysis after exclusion criteria were applied. Of all patients included in the study, 2.3% were undergoing anticoagulation therapy, and 10.5% of patients had developed an oral infection. A total of 306 patients (0.09%) were undergoing anticoagulation therapy and had developed oral infections. Pearson's χ^2 analysis determined a significant association between anticoagulation and cellulitis and abscess of oral soft tissues. Female patients had an increased likelihood of developing an oral infection (odds ratio [OR] = 1.407). Patients who were undergoing anticoagulation therapy had a decreased risk of developing an oral infection (OR = 0.426). African

American, Hispanic, and other non-Caucasians were all less likely to develop infections compared with Caucasian patients (OR = 0.936, 0.890, 0.827, respectively).

Conclusions: After accounting for race, gender, and ethnicity, it was determined that anticoagulation was negatively correlated with risk of oral infection compared with patients not undergoing anticoagulation therapy and had dental extractions. Limitations include lack of information regarding the nature of the oral infection with regard to granularity, restrictions on inpatient data, lack of information on the specificity of the anticoagulant, and unclear timeline between dental extractions and development of infection. Future studies should investigate this association in a prospective manner to establish a more definitive relationship.

FACTORS AFFECTING SUCCESS OF RECONSTRUCTION OF EXTREMITY INJURIES WITH MICROVASCULAR FREE FLAPS

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Objective: One of the most challenging aspects of restoring form and function to an extremity affected by a traumatic event is repairing the extensive soft tissue defect. Some methods of repair are use of microvascular free flaps, pedicled perforator flaps, and skin grafting.[1] The choice of reconstruction depends on many factors, including location/size, patient's comorbidities, and donor site limitations. The aim of this study was to review extremity soft tissue reconstructions that were performed by pedicled and free flap methods and to determine if any factors played a role in the outcome of treatment.

Methods: With institutional review board approval, a retrospective chart review was performed for cases in the Department of Oral and Maxillofacial Surgery involving extremity reconstruction procedures in the years 2010−2015. A data set was created in REDCap to record patient demographic characteristics, social habits, cause/site of injury, procedures performed, postoperative/post-discharge complications, and healing outcome. Statistical analysis was performed by using SPSS, SAS, and Excel software. A comparative analysis, by using Fisher's exact test, Pearson's χ^2 test, and independent *t* tests, was performed.

Results: We identified 71 patients, 20 of whom were excluded because of repetition and/or other reconstruction. Of the 51 patients identified, 38 (74.5%) were males and 13 (25.5%) were females (mean age 41 years). Accident-related injuries included motorcycle, 13 (26.5%); car, 14 (28.6%); falls, 8 (15.7%); pedestrian−automobile collision, 8 (15.7%); and other causes. Lower extremities were affected in 49 of 51 cases. Reconstructions included radial forearm free flap (17), anterior lateral thigh flap (7), latissimus dorsi free flap (3), gastrocnemius pedicled flap (9), and other rotational flaps (15). Of 51 patients, 15 required readmissions—9 for wound dehiscence and 11 for infection (6 had both). Of the patients with poor wound care, 60% developed an infection, 72% of whom required readmission. No significant correlation between patient comorbidities and the rate of flap failure/readmission was noted.

Conclusions: Extensive extremity injuries caused by traumatic events often lead to soft tissue defects that require tissue rearrangement/free tissue transfer for repair. In evaluating patients with free flap/rotational flap reconstruction of these defects, we determined that readmissions mainly resulted from infection, most of which were correlated with poor wound care. To further address our hypothesis, we plan to review patients from 2016 to 2019 to evaluate if any other factors (i.e., orthopedic hardware) may play a role in the rate of infections.