Visualization Modeling software. Velopharyngeal measurements were obtained on the midsagittal image.

RESULTS: All variables were compared to previously published normative data of velopharyngeal variables for individuals with noncleft anatomy who are of the same race, sex, and of similar age. Velar length and velar thickness were both greater in the individuals with the buccal flap repair, in comparison to the individuals with noncleft anatomy. Levator length and the distance from the PNS to PPW were both shorter in the individual with the buccal flap repair. Visually, the individual with the buccal flap presents with a thicker and longer velum.

CONCLUSIONS: This study is the first to demonstrate the velopharyngeal muscle and tissue arrangement following primary palatoplasty using the buccal flap approach. The individual presents with a longer and thicker velum in comparison to age- and sex-matched individuals with noncleft anatomy. This study highlights the utility of using MRI to quantify the changes that occur to the velopharyngeal anatomy following the buccal flap surgical approach. Future studies should assess how these anatomical changes impact speech and compare data to Z-Plasty without the use of the buccal flap repair and to individuals with noncleft anatomy. Our research team is currently investigating this line of research and specifically seeking to improve our understanding of the functional impact of this surgical method on speech.

REFERENCES:
1. Mann RJ, Fisher DM. Bilateral buccal flaps with double opposing Z-plasty for wider palatal clefts. Plast Reconstr Surg. 1997;100:1139–1143.
2. Mann RJ, Martin MD, Eichhorn MG, et al. The double-opposing Z-plasty plus or minus buccal flap approach for repair of cleft palate: a review of 505 consecutive cases. Plast Reconstr Surg. 2017;139:735e–744e.
3. Perry JL, Kollara L, Sutton BP, et al. Growth effects on velopharyngeal anatomy from childhood to adulthood. J Speech Lang Hear Res. 2019;62:682–692.

National Characteristics and Patterns of Facial Fractures in the Elderly Population

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BACKGROUND: Given the increasing elderly population in the United States, the number of people seeking care for trauma injuries is expected to rise. However, nationwide studies on the epidemiological profile of elderly facial fractures remain sparse. Our retrospective study presents the characteristics and patterns of elderly facial fractures on a national scale.

METHODS: Characteristics of facial fractures among nonelderly adults (64 years and younger) and elderly population (65 years and older) were examined using the 2016 American College of Surgeons—Trauma Quality Improvement Project (ACS—TQIP) database. All elderly patients were further subdivided into 3 age groups: 65–74 years old, 75–84 years old, and 85 years and older. This study examined types of facial fracture patterns, mechanisms of injury, and demographic data. Further subgroup analysis of the different fracture types was also conducted, examining the same variables.

RESULTS: Three thousand four hundred fifteen (3.3%) elderly patients presented with facial fractures out of 104,183 elderly trauma patients. The majority of facial fractures in the older 85 and over group (60.7%) were experienced by females, whereas only 19.5% of fractures in the younger adult group (<65 years old) were experienced by women. The most common mechanism of injury in the elderly was falls, with motor vehicle transport being the most common mechanism of injury in adults. The most common type of facial fractures among the elderly and nonelderly were nasal fractures ($P=0.04$). Elderly patients presented with significantly fewer zygoma and mandibular fractures when compared to nonelderly patients ($P=0.001$ and $P=0.001$, respectively), while showing significantly more maxillary/malar and orbital bone fractures. Fractures suffered by elderly patients were less severe compared to younger adults ($P=0.001$) as reflected by the Injury Severity Score. Elderly patients experienced less operative management (4.3%–8.2%) compared to younger adults (15.6%), with the rate of operative management decreasing with increasing age of patients. In addition, mortality rates were higher in the elderly patients when compared to their younger counterparts ($P=0.001$). Elderly patients were also less likely to present with associated skull fractures, but more likely to present with TBI.

CONCLUSIONS: Elderly patients presented with different causes of injury, distribution of fractures, comorbidities,
and rates of operative management as well as mortality compared to their younger adult counterparts.

REFERENCES:
1. Baidwan NK, Naranje SM. Epidemiology and recent trends of geriatric fractures presenting to the emergency department for United States population from year 2004-2014. Public Health. 2017;142:64–69.
2. Shumate R, Portnof J, Anundson M, et al. Recommendations for care of geriatric maxillofacial trauma patients following a retrospective 10-year multicenter review. J Oral Maxillofac Surg. 2018;76:1931–1936.

Presurgical Maxillary Orthopedics and Primary Alveolar Closure: Protocol and Long-term Effects on Midfacial Growth in Patients With Complete Unilateral and Bilateral Clefts

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BACKGROUND: In a complete cleft lip and palate, a defect exists in the alveolar segment of the maxilla. In order to achieve successful restoration of the maxillary arch, several techniques have been employed with the ultimate goal of achieving continuity and adequate bone stock across the alveolus. Passive orthodontic appliances (POA) and gingivoperiosteoplasty (GPP) are adjuncts utilized by some surgeons with primary cleft lip repair. POA aligns the alveolar segments prior to cleft lip repair, and GPP is utilized to achieve bony union across the cleft at the time of primary lip repair. The use of these treatments remains controversial. Along with the surgical technique of the cleft lip and palate repair, they have the possibility of impacting midface growth. Here, we present our protocol for cleft lip and palate repair utilizing GPP and POA for complete unilateral and bilateral cleft lip and palate patients. We also report preliminary treatment results in complete unilateral and bilateral cleft patients, evaluating midface growth at mixed dentition.

METHODS: Ten consecutive complete unilateral and 10 consecutive complete bilateral cleft lip and palate patients were recruited. All presurgical molding was performed by a single individual, and all surgical treatments were performed by the senior author. Patients underwent POA treatment (initiated at 7 days) for 35 weeks. The nasal component was incorporated after 6 weeks. GPP was performed by elevating flaps in the subperiosteal or supraperiosteal plane and closing the alveolar defect. Unilateral cleft patients underwent rotation advancement repair at approximately 6 months, whereas bilateral cleft patients underwent staged repair with a similar technique at approximately 6 and 9 months of age. Cephalometric analysis of lateral radiographs of patients at mixed dentition was performed to evaluate maxillary and mandibular growth (SNA, SNB, ANB) and facial growth relative to the facial axis (facial axis angle).

RESULTS: Twenty patients underwent POA, cleft lip closure with GPP and cephalometric analysis. Mean age at time of surgery for all patients was 6.8 months ± 2.6 months of GE with a range of 5–14 months of age. Mean cephalometric values were within age-specific normal values for SNA (80° ± 3.7°), SNB (74° ± 3.4°), ANB (4° ± 1.4°), and the facial axis angle (90° ± 3.5°). One unilateral patient and zero bilateral patients exhibited skeletal Class III malocclusion.

CONCLUSION: Although controversy exists regarding the impact of GPP and POA on midface growth in cleft patients, our results demonstrate that GPP and POA do not interfere with maxillary grow or cause a Class III malocclusion at mixed dentition in most patients. POA, combined with GPP at the time of cleft lip repair, leads to normal maxillary development in unilateral and bilateral cleft lip and palate patients at mixed dentition. We feel that the normal maxillary growth justifies continuing the use of GPP and POA, especially when considering the potential advantageous that they can afford at the time of primary cleft lip repair, such as allowing for closure of the alveolus and anterior palate and achieving bony union across the cleft.

The Impact of Virtual Surgical Planning on Orthognathic Surgery: A Comparison of 2 Specialties

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