thrombophilic subjects who are deemed highest risk and receive IVC filters and therapeutic anticoagulation perioperatively are more likely to have postoperative complications, including an increase in hematomas with therapeutic anticoagulation.

A Computerized Approach to Facial Transplantation: Evolution and Application in 3 Consecutive Face Transplants

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INTRODUCTION: Face transplant (FT) candidates present with unique anatomic and functional defects unsuitable for autologous reconstruction, making the accurate design and transplantation of patient-specific allografts particularly challenging. In this case series, we present our computerized surgical planning (CSP) protocol for FT.

METHODS: CSP, computer-aided design and manufacturing, intraoperative navigation, and intraoperative computerized tomography have been successfully incorporated into a comprehensive protocol. Three consecutive FTs were performed. CSP and postoperative results were compared using computerized tomography–derived cephalometric measurements, and the literature was reviewed.

RESULTS: Two full and 1 partial FT were successfully performed using the CSP protocol. CSP facilitated the execution of FT with minor angular and translational cephalometric variations on immediate postoperative imaging. Our evolving experience was accompanied by a decreased reliance on cadaveric simulation, from 10 mock transplants and a research procurement before the senior author’s first clinical FT (2012) to 6 mock transplants and no research procurement before the third FT (2018). Operative time was significantly reduced from 36 to 25 hours, as was the need for major orthognathic surgical revision. This reflects the learning curve and variable case complexity, but is also representative of improved planning and execution, complemented by the systematic incorporation of CSP into FT.

CONCLUSION: A CSP protocol allows for refinement of operative flow, technique, and outcomes in partial and full FT. Standards for functional and esthetic outcomes are bound to evolve with the field’s growth, and computerized planning and execution offer a reproducible approach to FT through objective quality assurance.

Early Cleft Repair Versus Nasoalveolar Molding: Comparing Preoperative Severity and Postoperative Results Utilizing a Computer Engineered Al System

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BACKGROUND: Early cleft lip repair (ECLR) can be performed safely and effectively. One persistent question is whether ECLR may be offered to wide unilateral complete clefts who historically would have received nasoalveolar molding (NAM). This study aims to compare the preoperative cleft severity of ECLR patients to those who underwent NAM pretreatment and compare postoperative outcomes.

METHODS: Unilateral CL patients (January 1, 2005, to September 11, 2018) were retrospectively reviewed and divided into 2 groups: ECLR (age <3 months) and presurgical NAM with CL repair (age 3–6 months). Pretreatment CL severity was assessed using an AI computer engineered system that calculated cleft width ratios (CWRs, pretreatment cleft width divided by commissure width). For further analysis, a second subset of wide complete cleft lip patients undergoing ECLR (excluding incomplete clefts) was created to compare to the NAM group.

RESULTS: Seventy-four ECLR patients and 25 NAM patients (average age at repair 32.24 and 117.56 days, respectively) met inclusion criteria. Mean CWR was 0.456 for ECLR patients and 0.501 for NAM patients (P = 0.165). The ECLR subgroup considering only patients with complete clefts had a mean CWR of 0.520, suggesting that this group had more severe clefts. The ECLR subgroup’s average lip length, frontal nasal breadth, commissure length, nostril breadth, nostril width, and nasal angle symmetry ratios were compared to the NAM group’s postoperatively. The average lip length, frontal nasal breadth, and commissure length symmetry ratios for the ECLR subgroup of 27 complete clefts were 0.88, 1.05, and 0.92, respectively, compared to 0.93, 1.08, and 0.89 for the NAM group (P = 0.181, P = 0.526, P = 0.378). The average nostril breadth, nostril width, and nasal angle ratios among the ECLR subgroup were 1.09, 1.17, and 1.12, respectively,
Comparison of Liposomal Bupivacaine on Opioid Consumption in the Pediatric Alveolar Cleft Population

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INTRODUCTION: Liposomal bupivacaine (LB) is a long-acting local anesthetic that has become a valuable tool in multimodal pain therapy for many adult surgical specialties. However, it has only recently been used in the pediatric population. Recent studies have shown that administration of LB in pediatric patients is safe and efficacious, particularly in the craniofacial population. Despite this, there has not been a study focusing on its use in alveolar cleft patients. We proposed that the use of surgical site infiltration with LB in this population would be associated with a decrease in postoperative opioid requirements following alveolar bone grafting.

MATERIALS AND METHODS: A retrospective cohort study was conducted that included patients who underwent alveolar bone grafting from November 2016 to December 2018 by 2 craniofacial surgeons at a tertiary craniofacial center. Data collected included technique of harvest (H-osteotomy, trap door osteotomy, and coring drill), laterality (left, right, or bilateral), demographics, and the use of LB. We then calculated the total opioid use through the end of postoperative day (POD) 1. All opioid amounts were corrected for patient weight and converted to an oral morphine equivalent (OME) for standardization. We then performed a multivariable linear regression modeling OME as a function of LB use while controlling for operative technique, laterality, age, sex, and weight.

RESULTS: Forty-four patients who underwent alveolar bone grafting (29 female and 17 male, ages 8–17 years with median age 11 years) were included in our study. Two of the 44 patients underwent separate right and left ABG operations for a total of 46 charted hospital admissions. The H osteotomy harvesting technique was used 23 times (53.3%), trap door osteotomy technique 13 times (29.5%), and the coring drill technique 10 times (22.7%). Eighteen (39.1%) patients used intravenous narcotics, 18 (39.1%) patients used oral narcotics, and 10 (21.8%) used no narcotics at all. Twenty-five (54.3%) patients received LB. Average hospital length of stay (LOS) was 1.6 days (SD, ±0.63), over which patients received on average 13.0 mg OME (SD, ±13.1 mg) up until the end of POD 1. On multivariable analysis, patients who received LB required 14.4 mg less of OME up until POD 1 (P = 0.007). There was no difference in hospital LOS (1.76 versus 1.4 days; P = 0.83) or number of postoperative visits within 30 days following surgery (2.1 versus 1.8; P = 0.09) between cohorts. Patients who underwent bilateral bone grafting had a longer LOS (1.5 versus 0.9; P = 0.0183). The LB cohort had reduced proportion of patients requiring intravenous narcotics (28% versus 52.4%) and oral narcotics (36% versus 42.8%) and had a higher proportion of patients who received no narcotics (36% versus 4.8%) (P = 0.027). LB use was not associated with overall hospital costs ($35,211 versus $36,622; P = 0.68).

CONCLUSIONS: Intraoperative surgical site infiltration of LB was associated with decreased postoperative opioid requirements following alveolar bone grafting. It can be an effective part of multimodal pain therapy in the pediatric population. Further studies will need to be conducted focusing on the association of LB on LOS and decreasing hospital cost.

Primary Cleft Rhinoplasty: A 22-year Retrospective Review of a Single Technique

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PURPOSE: Repair of the cleft lip nasal deformity at the time of the initial cheiloplasty has become widely accepted owing to evidence of both improved outcomes and need for fewer revisions. Patients may require additional rhinoplasties before beginning school, if severe, and again in adolescence. Several primary rhinoplasty techniques exist, and few surgeons have long-term series of a single cleft rhinoplasty repair method. The senior author has over 20 years of experience performing the same primary cleft rhinoplasty repair based on a technique described by Salyer. The purpose of this study is to examine long-term outcomes of this technique.