determine how these retinal parameters change after surgery for craniosynostosis.

METHODS: Pediatric patients undergoing cranial vault expansion for craniosynostosis from September 2014 through December 2019 were prospectively enrolled through an institutional review board–approved protocol to obtain spectral-domain OCT, which was performed preoperatively after induction of anesthesia. RNFL thickness was measured with the iVue software (Optovue, Fremont, CA) along a peripapillary circumference with radius of 1.725 mm centered on the optic disk. AvgRNFL was defined as the mean thickness of all circumferentially obtained values. Maximal quartile RNFL was defined as the greatest thickness in any quadrant. Retinal parameters from the index procedure to the repeat procedure were compared using related samples Wilcoxon signed rank test. Scan quality index scores below 45 were excluded.

RESULTS: During the study interval, 25 patients underwent OCT scanning during index surgery for craniosynostosis and repeat OCT scanning during a subsequent procedure. Eighteen patients met inclusion criteria. Age at the index procedure was 7.85 months (Q1 3.8, Q3 17.2), and subsequent procedures for distractor removal were performed at a median interval of 105 days (Q1 91–132). AvgRNFL was significantly ($P = 0.001$) higher at the initial procedure (median, 96.5 μm; 95% CI, 87.0–111.0) than the subsequent procedure (median, 90.3 μm; 95% CI, 84.5–99.0). Maximal quartile RNFL was significantly ($P = 0.007$) higher at the initial procedure (median, 122.5 μm; 95% CI, 113.0–148.0) than at the subsequent procedure (116.5, μm; 95% CI, 112.0–130.0). Similarly noteworthy, many retinal parameters failed to normalize after multiple months of resolved intracranial pressure, including optic nerve head cup volume ($P = 0.441$), optic disc area ($P = 0.092$), maximal retinal thickness ($P = 0.721$), and maximal anterior retinal projection ($P = 0.919$).

CONCLUSIONS: In pediatric patients with craniosynostosis, retinal nerve fiber layer thickening secondary to elevated intracranial pressure demonstrated significant resolution after cranial vault expansion. Further vigilance ensuring appropriate cranial growth continues throughout childhood. This study demonstrates promise of this technology to longitudinally follow patients to ensure maintained resolution of intracranial hypertension. Further research is needed to understand the pathophysiology at the micron level allowing this remodeling to occur, as well as factors that may alter the time course of these changes.

Four- to Seven-Year Aesthetic Outcomes of 2 Bilateral Fronto-orbital Advancement and Reshaping Techniques for Nonsyndromic Metopic Craniosynostosis: Can We “Overcorrect” Our Way Out of Aesthetic Deterioration?

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BACKGROUND/PURPOSE: In 2012, the senior authors modified their previously published technique for bilateral fronto-orbital advancement and reshaping (BFOAR) to more radically “overcorrect” the transverse forehead constriction seen in metopic craniosynostosis. The purpose of this study is to compare the 4- to 7-year aesthetic outcomes of the newer “overcorrected” patients to a similar cohort of patients treated in the years preceding “overcorrection” in an effort to determine whether overcorrection can overcome the aesthetic deterioration of these results over time.

METHODS: A retrospective chart review was performed of patients treated with BFOAR for isolated metopic synostosis between June of 2002 and December of 2014. Patients with 4–7 years of follow-up and complete medical records were included. Patient demographics, operative technique, Whitaker classification as indicated by a senior craniofacial surgeon, and postoperative clinical outcomes were collected. Two-sample $t$ tests, chi-square and Fisher’s exact tests, as well as multiple regression analyses were performed using STATA 13.0 (StataCorp, College Station, TX). Both groups underwent similar operations from a technical standpoint—open BFOAR with nasofrontal interpositional bone graft, superior-lateral orbital strut grafts, reshaping of the bandeau into a more “boxy” configuration, particulate cranial bone grafting of osteotomy sites and bony defects, repositioning of the temporalis muscles—with the primary difference in the current technique being a concentration on more radical overcorrection.

RESULTS: One hundred twenty-eight patients underwent BFOAR during this time period, and 53 patients met
all inclusion criteria. Thirty-four (64.2%) patients underwent BFOAR without overcorrection (age at surgery 9.2 ± 2.9 months, follow-up 5.6 ± 0.9 years) and 19 (35.8%) of patients underwent BFOAR with overcorrection (age at surgery 10.3 ± 4.2 months, follow-up 5.4 ± 0.7 years). There was no significant difference between the age at surgery ($P = 0.25$) and length of follow-up ($P = 0.41$) between the cohorts. At follow-up for the cohort without overcorrection, 20 patients (58.8%) were classified as Whitaker class I, 5 patients (14.7%) as class II, 9 (26.5%) as class III. For the overcorrected cohort, 8 patients (42.1%) were classified as Whitaker class I, 10 patients (52.6%) as class II, 1 patient (5.3%) as class III. There were no Whitaker class IV results at the 4- to 7-year follow-up length in either cohort. On bivariate analysis, overcorrection was associated with significant differences in Whitaker class distribution at follow-up ($P = 0.008$). Neither length of follow-up, age at intervention, nor technique was a significant predictor of Whitaker class, visible irregularities, temporal hollowing, lateral orbital retrusion, or frontal bone irregularities at the 0.05 significance level.

CONCLUSION: Despite a more aggressive attempt to “overcorrect” the metopic deformity in infancy with BFOAR, we have seen similar deterioration of results over time, with a significant proportion of patients developing bitemporal narrowing and temporal hollowing in moderate term follow-up. Though this represents a small cohort of patients, these data are important for surgeons and families alike, as it potentially signals a significant need for secondary aesthetic revisions in the teen years.

The Utility of Dermal Wound Matrices Compared With Local-Tissue Rearrangement and Free-Tissue Transfer for Scalp Wounds: A Multidisciplinary Dual Matched-Pair Analysis

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**BACKGROUND:** Scalp reconstruction can pose significant challenges due to a lack of native tissue mobility and/or tissue damage secondary to radiation. Local tissue rearrangement (LTR), free-tissue transfer (FTT), and Bilayer Wound Matrix (BWM) (Integra; Integra LifeSciences, Princeton, NJ) are frequently employed for wound coverage of the scalp. We present the first comparative study to evaluate the optimal treatment modality.

**METHODS:** A retrospective chart review was conducted from January 2008 to June 2019 encompassing all patients requiring soft-tissue reconstruction (BWM, LTR, and FTT) to scalp wounds. Patients were matched into each group based upon patient age, wound defect size, and wound age. Patient demographics, comorbidities, wound characteristics, and postoperative healing outcomes were all recorded. Outcomes including 90-day exposure rates, reoperative rates, hospital length of stay, operative times, and wound complications were examined and compared between the modalities.

**RESULTS:** A total of 361 patients undergoing scalp soft-tissue reconstruction with either FTT, LTR, or BWM were identified. Following patient matching, 126 patients were deemed appropriate for inclusion in the LTR/BWM cohort, whereas 56 were examined in the FTT/BWM groups. The mean defect size of the LTR/BWM group was 45 cm². LTR provided significantly better wound coverage at 90 days (95.2%), compared with BWM (84.1%) ($P = 0.040$), although reoperative rates (7.9% versus 15.9%) did not differ significantly ($P = 0.271$). The total mean defect size in the FTT/BWM groups was 129.1 cm². Wound coverage success rates at 90 days were similar for the FTT group (92.9%) compared with the BWM group (96.4%) ($P = 1.00$). Reoperative rates (14.3% FTT, 3.6% BWM) were also not significantly different ($P = 0.352$). However, operative time for FTT patients was significantly greater (389.9 minutes) compared with BWM patients (87.2 minutes) ($P < 0.001$), as well as mean hospital length of stay (5.5 versus 1.2 days, respectively, $P < 0.001$).

**CONCLUSIONS:** LTR is a more durable option for moderately size wounds when compared with BWM. BWM may be as efficacious as FTT for wound coverage of uncomplicated larger defects and may be more cost-efficient, given the obvious greater technical difficulty, operative time, and length of stay associated with FTT.

Postoperative Complications Associated With Choice of Reconstruction in Head and Neck Cancer: An Outcome Analysis From the American College of Surgeons-National Surgical Quality Improvement Database