hollowing (TH), lateral orbital retrusion (LOR), or frontal bone irregularities (FBI). Patients with these complications have reoperation rates of 18-46%. To date, there have been few longitudinal studies assessing the effect of pre-operative dysmorphology on aesthetic outcomes in this cohort. This study evaluates the relationship between metopic severity, including the use of CranioRateTM, a novel metopic synostosis severity measure, and mid-term aesthetic outcomes.

MATERIALS AND METHODS: Patients with non-syndromic metopic craniosynostosis who underwent bi-frontal orbital advancement and remodeling (BFOAR) between 2012 and 2017 were reviewed. Metopic synostosis severity was determined based on pre-operative CT assessment of IFA and CranioRateTM. CranioRateTM is a machine learning algorithm trained to recognize morphologic features of metopic synostosis and generate quantitative severity ratings including metopic severity score (MSS) and cranial morphology deviation (CMD). Frontal and lateral photographs of patients with at least four years post-operative follow-up were assessed by attending craniofacial surgeons using masked three-rater aesthetic grading of clinical photos (n=39). Graders assessed Whitaker score as well as the presence of TH, LOR, FBI, or a ‘catch-all’ category of visible irregularities. Binary logistic regression was used to assess predictors of TH, LOR, FBI, and VI. Multinomial logistic regression was used to assess predictors of Whitaker classification.

RESULTS: The average age at preoperative CT scan was 7.7 ± 3.4 months and the average age at BFOAR was 9.9 ± 3.1 months. The average MSS was 6.3 ± 2.7 out of 10 and average CMD was 200.4 ± 44.7 out of 300. Average IFA for the cohort was 116.8° ± 13.8° (range 93° - 138°). The average time from operation to aesthetic assessment was 5.4 ± 1.0 years (range 4.1 – 7.8 years). ‘Any visible irregularity’ was present in 87.2% (n = 34) of patients, temporal hollowing in 76.9% (n = 30), frontal bone irregularities in 61.5% (n = 24), and lateral orbital retrusion in 20.5% (n = 8). Most patients received a median Whitaker classification of II (61.5%, n =24), followed by class III (23.1%, n = 9). There was a significant association between MSS and age at CT scan, with younger patients having more severe metopic severity scores (r = - .451, p = .004). Similarly, MSS and IFA were negatively associated, with a higher MSS correlating to a lower IFA (r = -.371, p = .034). MSS was found to be the only independent predictor of visible irregularities (OR 2.18, B = .780, p = .024). Decreased age at surgery (OR, 1.08; 95% CI, 1.05 to 2.6, p = .002) and increased length of follow up (OR, 1.59; 95% CI, 1.59 to 3.54, p <.001) were significantly associated with a worse median Whitaker score. No impact of surgical technique, including parietal bone graft use or interpositional bone graft size, was demonstrated (p > .05 for both).

CONCLUSION: More severe cases of metopic craniosynostosis show increased rates of cumulative aesthetic dysmorphologies. Measures of pre-operative metopic severity are predictive of mid-term aesthetic outcomes.

TRACK: CRANIOMAXILLOFACIAL/HEAD AND NECK

Layperson Bias and Empathy Influence Visual Attention Toward Patients with Hemifacial Microsomia: A Prospective Eye-tracking Study

Presenter: Dillan Villavisanis

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INTRODUCTION: Facial attractiveness influences our perceptions of others, with beautiful faces reaping societal rewards and anomalous faces encountering penalties. Previous work with functional magnetic resonance imaging (fMRI) has demonstrate implication of certain neuroanatomic structures in visual pathways when viewing others with facial anomalies. For example, laypersons with high levels of implicit bias toward those with facial anomalies demonstrated increased amygdala reactivity. This study aimed to characterize associations between visual attention patterns and implicit biases (attitudes toward groups of people without conscious awareness), explicit biases (attitudes toward groups of people with conscious awareness), and social dispositions toward people with facial anomalies.

METHODS: Participants completed an implicit bias association test (IAT), an explicit bias questionnaire (EBQ), and several social disposition tests (e.g. empathic concern and perspective taking) prior to viewing publicly available images of pre- and postoperative patients with hemifacial
microsomia (HFM). Eye-tracking was used to register visual fixations. Four areas of interest (AOIs) were defined on each face: cheek and ear, forehead and orbit, mandible and chin, and nose and lips. Linear mixed effects models (LMMs) in R Studio tested whether locations of participant fixations were affected by surgical correction of HFM and influenced by IAT, EBQ, or social disposition scores.

RESULTS: Sixty participants (38 women) were prospectively enrolled. LMMs revealed participants with higher IAT scores fixated significantly less on the cheek and ear region preoperatively compared to postoperatively ($\beta = 0.115$, SE = 0.040, $z = 2.855$, $p = 0.004$). Participants with higher scores on empathic concern fixated more on the forehead and orbit preoperatively compared to postoperatively ($\beta = -0.107$, SE = 0.053, $z = -2.007$, $p = 0.045$) and participants with higher scores in perspective taking fixated more on the nose and lips ($\beta = -0.085$, SE = 0.038, $z = -2.215$, $p = 0.027$) preoperatively compared to postoperatively. EBQ scores and other social disposition scores did not significantly influence visual fixations in any AOIs based on better fit to the null models.

CONCLUSION: Levels of biases, empathic concern, and other social dispositions may influence visual attention toward people with facial anomalies. Those with higher levels of implicit bias may avoid looking at anomalous anatomy, while those with higher levels of empathic concern and perspective taking do not show similar avoidance behaviors. These findings may have neural underpinnings with amygdala reactivity modulating visual activity in response to facial anomalies. This study has implications for the experience of patients with craniofacial anomalies and for characterizing neurologic mechanisms of the ‘beauty-is-good’ and ‘anomalous-is-bad’ biases.

**TRACK: BREAST**

**Breast Implant Illness: Identifying Patients Concerns from Public Comments on Regulation.gov**

**Presenter: Leen El Eter**

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**INTRODUCTION:** Breast Implant Illness is an evolving syndrome that has been gaining traction from the public and the medical community. Patients are experiencing negative emotions towards BII and are dissatisfied with the quality of patient education, as expressed in the public comments submitted in response to the 24OCT2019 FDA draft guidance on breast implant labeling recommendations. To better gauge the patient experience, this study aims to further examine these comments for frequently encountered concerns and themes.

**METHODS:** The comments under the 24OCT2019 Regulations.gov docket were extracted. A team of 14 researchers examined them to detect recurring themes. The comments were then equally and randomly allocated to two independent reviewers to code for the presence of the identified themes, and to a third reviewer for conflict reconciliation. Microsoft Excel was used to quantify theme frequencies.

**RESULTS:** The docket contained 1321 comments, of which 4 were not in English, 10 were duplicates and 449 represented repetitions of a template expressing dissatisfaction with the guidelines. Amongst the remaining 758 comments, we identified the following recurrent concerns and themes: 1) insufficiency of FDA guidelines (present in 37% of the 758 comments), 2) feelings of betrayal by doctors, implant manufacturers and/or insurance companies (29.7%), 3) requesting a complete list of ingredients and metals (18.6%), 4) requesting a patient checklist (15%), 5) surgeons, other physicians, or nurses not being able to explain the patient’s symptoms (13.5%), 6) requesting all breast implants to be banned (10.4%), 7) doctors not acknowledging patients’ BII concerns (8.6%), 8) concern about gel bleed/migration (6.2%), 9) explant not covered by insurance (5.7%), 10) patients recognizing they have BII only after coming across a social media group discussing it, or a friend who has it or read about it (4.2%), 11) requesting advocacy for recognition of BII by insurance companies (3.1%), 12) requesting only silicone breast implants to be banned (2.9%), 13) mention/discussion of the previous silicone implant ban (2.1%).

**CONCLUSION:** Patients are expressing several concerns about the safety of breast implants, the FDA guidelines,