and the associated machinery plays a critical role in craniofacial morphogenesis. The analysis of \( tln1 \), one of the proteins that link the cytoplasmic domain of integrin to the actin cytoskeleton, will lead to a better understanding of the involvement of the cytoskeletal network in craniofacial dysmorphism.

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Changes in Skull Dysmorphology with Age in Unilateral Coronal Synostosis

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PURPOSE: While modern research on coronal craniosynostosis has vastly widened our breadth of knowledge regarding treatment of the condition, the mechanism underlying the development of the deformity remains uncovered and largely uninvestigated. This study evaluates midface and skull base development in nonsyndromic unilateral coranalsynostosis (UCS), focusing on zygomatic and cranial base anatomical changes during the first year of life. Additionally, this study seeks to chronicle the changes over time in infancy in order to characterize the mechanistic progression of facial dysmorphology.

METHODS: CT scans from 50 subjects were reviewed (25 UCS, 25 controls) and CT DICOM data was digitized and reconstructed. Patients were stratified into five age groups all under one year of age. A series of 42 measurements focusing on the zygoma, orbits and cranial base were taken from the scans using Materialise Mimics software (Leuven, Belgium). Statistical analysis was performed using SPSS (Armonk, NY).

RESULTS: Starting at less than two months of age, significant differences are noted and persist in nasal and cribriform plate deviation (p=0.003). These differences are discernible in patients as young as 19 days old, except for the contralateral zygoma length, which only became noticeably higher in patients at the one month mark. At 2–3 months of age, the distance between the ipsilateral pterion to sella is significantly increased (p=0.003) and persists over time. Significant differences in contralateral zygomatic and orbital height and length are noted to develop and persist starting at 4–6 months of age. Patients under two months of age also demonstrated significant differences in the maxillary anteroposterior length (p=0.020), sella-basion distance (p=0.024), sphenoorbital synchondrosis-basion distance (p=0.040), more acute orbital rim angle (p=0.037), reduced orbital width (p=0.039) and higher contralateral zygoma lengths (p=0.037) with non-uniform re-development of significant differences at later time points. A feature that was prevalent across all ages was the difference in angle of the sphenoid wing between the ipsilateral and contralateral side. The sphenoid wing ipsilateral to the fused suture consistently had a more acute angle from the midline, in comparison to the contralateral side. This difference was as high as 22 degrees in some patients.

CONCLUSION: Unilateral coronal synostosis results in characteristic bony changes, but the development of this facial dysmorphology has not been chronicled over time to elucidate an underlying mechanism. This study demonstrates that the earliest changes in UCS are ipsilateral orbital changes and nasal deviation beginning before two months of age. This is then followed by changes in the contralateral zygoma and orbit. Sphenoid wing asymmetry was present in all age groups. Additionally, the ipsilateral sphenoid wing angle was consistently more acute than the contralateral sphenoid wing angle through all age groups; this further supports skull base changes as early changes in the mechanistic progression of facial dysmorphology in unilateral coronal synostosis. An understanding of the timing of development of facial features of unilateral coronal synostosis is essential for determining the optimal timeframe for intervention, and for allowing the surgeon and patient’s family to anticipate the possible need for revision surgeries for specific features.

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Ability To Cope With Chronic Pain Puts Migraine Surgery Patients In Perspective

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PURPOSE: Migraine surgery candidates are chronic pain patients. However, chronic pain analysis tools are not typically applied to migraine surgery patients. This is the first migraine study to include the Pain Self Efficacy Questionnaire (PSEQ), which is used to determine patients’ coping