were also identified. A total of 209 MRIs were included in this study, 171 of which were of syndromic patients (38 Apert, 68 Crouzon, 25 Muenke, 18 Pfeiffer, 22 Saethre-Chotzen) and 38 of which were of controls. All imaging data were processed via FreeSurfer software analysis to determine pial surface area and cortical volumes by lobe. The ratio of surface area to volume was calculated and compared with control data by lobe via linear mixed effect model to account for multiple measurements, syndrome, sex, and age at the time of imaging. Age was observed to vary logarithmically with this ratio and was subsequently log transformed for all analyses. Bonferroni correction was used for multiple comparisons.

RESULTS: Average age at the time of magnetic resonance imaging was 8.97 years (SD = 5.26 years) and was significantly associated with an increase in surface area to volume ratio in all lobes (P < 0.001). Mean frontal complexity ratio was 0.29 (SD = 0.02) and did not significantly vary among syndromic status (P = 0.493). Similarly, temporal (0.26; SD = 0.02; P = 0.322) and parietal (0.33; SD = 0.03; P = 0.124) complexity ratios were found to be uninfluenced by syndromic status. Mean complexity ratio for the occipital lobe was 0.38 (SD = 0.05) for all patients but was significantly reduced in Apert syndrome (P = 0.002). Further analysis of isolated cortical volumes demonstrated Apert syndrome patients to have larger volumes in each lobe among all groups (P < 0.001).

CONCLUSION: Occipital lobe cortical complexity development is significantly impeded in Apert syndrome, despite adequate gains in brain volume. This is suggestive of cortical folding impairment and may provide an anatomical explanation for neurodevelopmental delay observed in Apert syndrome.

Ultrasonographic Evidence of Trapezius Fascia Thickening in Patients Undergoing Trigger Site Deactivation Surgery Compared With Healthy Control

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PURPOSE: Trigger site deactivation surgery at the occipital site involves release of the greater occipital nerve (GON) from surrounding structures such as muscle, fascia, and occipital vessels. Recent intraoperative anatomic data at this site found that the trapezius fascia was macroscopically thickened in the majority of patients (94%) undergoing surgery.1 This structural anomaly has resemblance to the thickened transverse carpal ligament (TCL) seen in carpal tunnel syndrome (CTS). Ultrasonographic examination has been used to show transverse carpal ligament thickening as part of the screening and diagnosis of CTS. We hypothesized that similar to CTS, trapezius fascia would be significantly thicker in patients with migraine/headache/occipital neuralgia than in healthy controls when measured with ultrasound.

METHODS: Ten patients undergoing screening for trigger site deactivation surgery at the occipital site were enrolled in this study prospectively. Ten subjects with no history of migraine, headache, occipital/ trigeminal neuralgia, or trauma to the head and neck region were matched by gender/age/body mass index and included as controls. All participants underwent an ultrasound examination of the occipital region by the same examiner using standardized settings (frequency 10.0 MHz, depth 2.5 cm) and standardized pressure. Trapezius fascia thickness was measured bilaterally 3 cm inferior and 1.5 cm lateral to the occiput, at the exit point of the GON from the semispinalis capitis muscle. The resulting data were analyzed by unpaired t test.

RESULTS: Twenty participants were enrolled in the study with equal gender distribution between groups (12 females and 8 males). There was no statistically significant difference in age (49.1 versus 47.3; P = 0.09) or body mass index (27.5 versus 26.8; P = 0.21) between groups. Trapezius fascia was significantly thicker in patients presenting with migraine (mean ± SD, 2.0 ± 0.88 mm) than control (mean ± SD, 0.9 ± 0.23 mm) (P < 0.01). Maximum thicknesses among migraineurs was 4.1 versus 1.2 mm in healthy controls.

CONCLUSION: As previously seen in observational intraoperative studies, trapezius fascia appears grossly abnormal and thickened in patients undergoing trigger site deactivation surgery at the occipital site. This is the first study to quantify trapezius fascia thickness at the exit site of the GON from the semispinalis capitis muscle using ultrasound. It is also the first evidence that trapezius fascia is thickened in occipital migraine/headache/neuralgia patients versus control. As we continue to analyze the pathomechanism of headaches, it is critical to understand the origin of pain. We hypothesize that the structural anomalies seen at this site could be related to microtrauma/overuse or actual trauma in the head and neck region. Understanding the pathomechanism could lead to better diagnostic and screening methods for headaches, accelerated diagnosis and more effective treatment.
REFERENCE:
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Immediate Exubation Following Placement of Mandibular Distractors: Feasibility and Safety Profile

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BACKGROUND AND PURPOSE: Mandibular distraction osteogenesis is the preferred treatment at many centers for micrognathic patients with recalcitrant upper airway obstruction. Timing of exubation after placement of mandibular distractors is the subject of ongoing debate. Maintaining intubation allows for the airway size to be increased through gradual mandibular distraction, thus decreasing the impact of airway edema, which may occur after extubation. However, prolonged intubation has risks including subglottic stenosis, ventilator-associated pneumonia, and accidental extubation. In this retrospective chart review, our experience with mandibular distraction followed by immediate exubation is examined.

METHODS: A 4-year retrospective review of patients diagnosed with Pierre Robin Sequence who underwent mandibular distraction within the first 3 months of life was performed. All patients were treated at a tertiary children’s hospital and had failed preoperative positioning and airway adjuncts. Patients who were intubated preoperatively were excluded. Analytic endpoints included patient demographics, comorbidities, preoperative and postoperative respiratory support, rates of immediate exubation, need for reintubation, progression to tracheostomy, correlative polysomnography, direct laryngoscopic grade view, and functional nasoendoscopy.

RESULTS: A total of 52 (29 males, 23 females) patients met inclusion criteria. The mean follow-up interval was 18 months. Six patients (12%) progressed to tracheostomy in long-term follow-up. There was 1 mortality (2%), which was remote from surgical intervention. Seventy-three percent of patients undergoing distraction were exubated immediately in the operating room. In those who remained

intubated (27%), the mean intubation interval was 7.2 days (range, 1–14 days). No significant differences were found in associated comorbidities, syndromic status, cleft pathology, preoperative respiratory support, or grade of view on direct laryngoscopy between the exubated and intubated groups. Case duration >120 minutes and the subjective designation of a difficult airway by the anesthesiologist were associated with maintaining intubation ($P <0.05$). Twenty-one percent of patients in the exubated group experienced a respiratory event before discharge, and 11% (4 patients) required reintubation. Respiratory events were significantly more likely in patients with other congenital anomalies, a syndromic diagnosis, cardiac anomalies, gastroesophageal reflux disease, and in those who required respiratory support greater than low-flow nasal cannula before distraction ($P < 0.05$). Secondary airway anomalies and cleft palate were not associated with respiratory events or reintubation.

CONCLUSION: Our data suggest that immediate exubation after placement of mandibular distractors is feasible in patients who are not intubated preoperatively. Extra caution should be exercised in patients who required significant respiratory support before distraction and in those with certain comorbidities, as these patients were more likely to experience respiratory events and reintubation.

Impact of Prior Oncologic Treatment on Complications and Functional Outcomes in 1751 Head and Neck Free Flap Reconstruction Patients: An Institutional Analysis Using American College of Surgeons National Surgical Quality Improvement Program Methodology

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PURPOSE: Patients with head and neck squamous cell carcinoma (HN-SCC) frequently present with locally advanced disease, and many develop locoregional