

working memory and abstract reasoning.¹ The SMC also had increased connectivity in the in the posterior cingulate cortex, an area associated with attention deficit hyperactivity disorder.² White matter microstructure is studied using a measurement of anisotropy of water molecules throughout the brain using DTI. “Anisotropy” measures the bidirectional resistance of water molecules in the cerebral white matter. Anisotropy increases in the normally developing brain due to the increase myelination, reduction in brain water, and the compactness of fiber tract.³ The DTI analysis demonstrated an increased in fractional anisotropy in SMC group in the cingulum, nerve tracts projecting from the cingulate cortex to connect the limbic system involved with emotions and learning. In SMC vs ISc, increase in connectivity of the PCC correlates with an increase in maturation of the cingulum. The SMC increase in maturation could be leading to a difference in processing attention or emotions within the two groups. 1. Pochon, J.-B. *et al.* The Role of Dorsolateral Prefrontal Cortex in the Preparation of Forthcoming Actions: an fMRI Study. *Cereb. Cortex* **11**, 260–266 (2001). 2. Tomasi, D. & Volkow, N. D. Abnormal Functional Connectivity in Children with Attention-Deficit/Hyperactivity Disorder. *Biol. Psychiatry* **71**, 443–450 (2012). 3. Mukherjee, P. *et al.* Normal Brain Maturation during Childhood: Developmental Trends Characterized with Diffusion-Tensor MR Imaging. *Radiology* **221**, 349–358 (2001).

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Revisiting Reconstruction of Posterior Mandibulectomy Defects in the Modern Era of CAD/CAM Technology

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PURPOSE: Reconstruction of posterior mandibulectomy defects can be reconstructed utilizing either soft tissue or bone with relatively equivalent outcomes. However, with the emerging and growing advances in medical modeling, osteocutaneous free flaps may prove superior.

METHODS: Restrospective review of all free flap reconstruction of posterior mandibulectomy defects from 2005–2016.

RESULTS: Overall, 292 patients (mean age: 56.8 years; mean BMI: 26.2kg/m²) underwent reconstruction of a posterior mandibulectomy defect with 169 patients receiving a soft tissue flap and 123 patients receiving an osteocutaneous free flap (91 free hand vs. 32 CAD-CAM). Many of the patients had radiation (n=117) and chemotherapy (n=105). Forty patients required a double flap to reconstruct the defect, most commonly a fibula osteocutaneous flap for the mandibulectomy defect and a soft tissue flap for external coverage. There were 7 total flap losses. There were no differences in the incidence of trismus; however, malocclusion was most common in patients with soft tissue flaps (p<0.001). When comparing bony reconstruction, CAD-CAM significantly reduced the risks of malocclusion (p<0.001). Regarding speech and swallowing function, the best function was seen in patients who underwent reconstruction with a CAD-CAD assisted fibula flap. CAD-CAM patients were significantly more likely to have a regular diet (p=0.001) and trended to have superior speech (p=0.057) compared to the other cohorts.

CONCLUSION: Reconstruction of posterior mandibulectomy defects should be based on patient’s comorbidities, surgeon comfort, and available resources; however, the use of CAD-CAM-assisted fibula reconstruction provides patients with the best post-operative function following reconstruction.

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Persistent Opioid Use Among Children, Adolescents, and Young Adults After Common Cleft Operations

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