impact of BSO on operative burden and postoperative cranial deformity in patients undergoing surgical correction of sagittal craniosynostosis. Methods: A retrospective review of 85 patients treated for sagittal craniosynostosis at BC Children's Hospital (2010–2021) compared patients undergoing ES alone (n=18) and ES+BSO (n=67). Demographics, operative burden (anesthesia and surgical time, blood loss, hospital stay), and longitudinal CI measurements were analyzed. Mixed effects modeling controlled for age, preoperative CI, and helmet duration. Results: Operative burden did not differ significantly between treatment groups ($p > 0.05$). The median follow-up duration for CI measurements was 56.0 months. While preoperative CI was similar (67.4 vs. 66.8, p=0.61), CI was significantly improved in the ES+BSO group at all postoperative intervals ($p \leq 0.02$). Mixed effects modeling confirmed that BSO independently improved CI (effect size 2.21, p=0.001). Conclusions: In our series, the addition of BSO to ES significantly improved immediate and long-term cranial deformity without increasing operative burden, supporting its use in sagittal craniosynostosis correction.

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Outcomes and connectivity changes in treatment-resistant OCD after MR-guided focused ultrasound capsulotomy

A Zawari (Calgary) C Rockel (Calgary) DL Clark (Calgary) M Ardila (Calgary) B Pike (Calgary) S Pichardo (Calgary) B Adams (Calgary) Z Kiss (Calgary)*

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Background: Treatment-resistant obsessive compulsive disorder (trOCD) is a condition characterized by intrusive thoughts (obsessions) and uncontrollable behaviours (compulsions) unresponsive to conventional therapies. Lesioning both anterior limbs of the internal capsule is effective in ablating the circuitry underlying trOCD pathophysiology. The newest capsulotomy method is MR-guided focused ultrasound (MRgFUS). Here we measured neural networks changes of trOCD patients after MRgFUS capsulotomy using resting state functional MRI (rs-fMRI). Methods: Yale-Brown Obsessive-Compulsive Scale (YBOCS) scores and rs-fMRI data were collected in 6 trOCD patients preoperatively, postoperatively at 3-months and 1-year, along with rs-fMRI from 6 age and sex-matched controls. Independent component analysis, dual regression using the FMRIB software library, and node-node approaches were used with the CONN Toolbox. We also performed a systematic review of existing studies about trOCD resting state networks. Results: TrOCD patients demonstrated significant improvement 1-year postoperatively (mean YBOCS reduction of 41 ± 7%). Dual regression analysis 3-months postoperatively showed significantly greater sensorimotor network signal in controls compared to trOCD groups. Node-node analysis in trOCD found connectivity changed in networks associated with the cortico-striato-thalamo-cortico loop, particularly the salience and limbic networks at 1-year postoperatively. Conclusions: TrOCD patients who underwent MRgFUS capsulotomy demonstrated differences in sensorimotor and cortico-striatal connectivity and significant clinical improvement postoperatively.

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Management of ruptured arachnoid cysts with hemorrhage: a bayesian network analysis

D Datta (Ottawa) A Tu (Ottawa)*

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Background: Arachnoid cysts are fluid collections within the arachnoid membrane. Although rare, ruptured or hemorrhagic arachnoid cysts pose significant clinical challenges and management controversies. The present study analyzes factors influencing their treatment decision using Bayesian network models. Methods: PubMed and EMBASE databases were searched to identify reports of ruptured arachnoid cysts with patient-level data. Demographic, clinical, imaging and treatment data were extracted to develop Tree-augmented naïve Bayes (TAN) classifiers for analyzing the factors influencing decision of surgery and type of surgery. A web application was developed to explore the networks. Results: Middle cranial fossa cysts were most common (95%) along with a male predominance (M:F ratio 4.29:1). Headache and vision changes were the most common symptoms and >50% had a history of head injury. Surgery was performed in 89.8% of cases with craniotomy being the most common surgical procedure. Key factors influencing the decision of surgery were cyst location, hemorrhage type, age group, and Galassi classification, while type of surgery was also influenced by head trauma, seizures, and macrocrania. Conclusions: Bayesian network analysis demonstrates that decision of surgical treatment of a ruptured arachnoid cyst is dependent on multiple interdependent factors and should be individualized to match the presentation with the surgical modality.

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Normal pressure hydrocephalus concomitant with Progressive Supranuclear Palsy: an autopsy-confirmed case and review of the literature

S Husak (Saskatoon) K Meguro (Saskatoon)* RN Auer (Saskatoon)*

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Background: Recent research has identified the coexistence of normal pressure hydrocephalus (NPH) with neurodegenerative disorders, such as progressive supranuclear palsy (PSP). We present a patient with shunt-responsive NPH that was diagnosed with PSP at autopsy, in the absence of the typical clinical features of PSP antemortem. Methods: Medical records were reviewed, including diagnostic imaging and neuropathology. A literature review was conducted. Results: A 78-year-old female presented with a 4-year history of progressive gait dysfunction and cognitive impairment. MRI imaging was consistent with NPH. The patient's clinical status improved significantly following high-volume lumbar puncture, with TUG test results decreasing to 25.19 sec from 58.73 sec. A lumboperitoneal shunt was inserted. Subsequent clinical improvement was impermanent, despite the absence of shunt malfunction. Autopsy revealed