

visualization of posterior fossa structures. *Results:* The superior, middle and inferior neurovascular complexes of the cerebellopontine angle were better visualized with 3D comparing to 2D endoscope. A detailed view of the porus trigeminous and structures associated with the tentorial incisura was also attained with 3D endoscopy. *Conclusion:* The high quality and resolution obtained by 3D endoscopy makes it a potentially valuable surgical and teaching tool in the armamentarium for endoscopic posterior fossa surgery. The stereoscopic view of the critical neurovascular structures of the posterior fossa, offered by 3D images, allows for a more detailed dissection in the difficult area of the cerebellopontine angle.

P.086

Importance of ventricle-to-brain ratio (VBR) and volume of CSF drainage in the treatment of very low pressure hydrocephalus

D Houlden (Montreal) M Li (Montreal) S Portman (Atlanta)*

doi: 10.1017/cjn.2015.194

Introduction: Low pressure hydrocephalus is a known complication of prolonged hydrocephalus sometimes treatable with continued low-pressure drainage at subatmospheric pressures. Clarke et. al. and Filipidis et. al. have reported poor outcomes when treating very low pressure hydrocephalus (VLPH). We present 4 cases of very low pressure hydrocephalus (VLPH) following transnasal endoscopic resection of suprasellar lesions and hypothesize that poor prognostic cases can be identified thereby avoiding prolonged futile treatments. *Methods:* We performed a retrospective chart review of 4 cases of VLPH and tried to identify metrics contributing to successful treatment. We examined the Pearson correlations between Glasgow Coma Scale and ventricle-to-brain ratio (VBR); volume of CSF drained; net fluids; and serum sodium, urea, and creatinine. *Results:* Our investigation reveals that Glasgow Coma Score is positively correlated with increased CSF drainage and negatively correlated with increased ventricle-to-brain ratio. The most important determinant of good outcome is brain compliance as measured by the brain's ability to maintain a good GCS score in the face of wide ranges in ventricle-to-brain ratio (VBR). *Conclusion:* We propose that futile prolonged subatmospheric drainage be avoided by declining treatment in patients who have ventriculitis and patients who have a narrow range of ventricle-to-brain ratio (VBR) concurrent with a good neurological examination.

P.087

Tele-assistance during neurosurgical education: Remote Education, Augmented Communication, Training and Supervision (REACTS)

AG Weil (Montreal) S Obaid (Montreal) E Magro (Montreal) K Effenfendi (Montreal) T Sunna (Montreal) C Chaalala (Montreal) D Shehid (Montreal) MW Bojanowski (Montreal)*

doi: 10.1017/cjn.2015.195

Introduction: Tele-medicine has gained in popularity worldwide, particularly to help offer medical expertise, healthcare delivery and education to developing nations. There is little literature reporting the implementation or analysis of tele-assistance in the setting of surgical education. We have implemented a tele-assistance system,

called Remote Education, Augmented Communication, Training and Supervision (REACTS), as a tool to augment mentor-student education in the operating room. This system allows the mentor to observe the student during surgery remotely through screen sharing technology with integrated visual and audio interaction. The goal of this study is to assess the safety and the benefit of REACTS as an educational tool. *Methods:* Prospective observational study to evaluate the safety and qualitative benefit of REACTS. *Results:* REACTS was used in 20 cases, including 5 placement of EVDs, 5 pterional craniotomies, 5 Sylvian fissures dissection, 5 lumbar discectomies, and 5 lumbar spine decompressions. No untoward or adverse events were observed. It was judged to be a positive influence on resident and fellow education by the mentors. The main pitfall in its use is to appropriately select the learner for a given procedure. *Conclusion:* REACTS surgical system is a safe, and a useful adjunct tool for neurosurgical operative education.

P.088

Management of inadvertent injury to superior sagittal sinus in parasagittal meningioma: technical note

AA Ahmed (Hamilton) B Yarascavitch (Hamilton) N Murty (Hamilton)*

doi: 10.1017/cjn.2015.196

Background: Parasagittal meningioma is a common type of intracranial meningiomas. Surgical resection of such lesions can result in injury to superior sagittal sinus. In rare occasions, extended craniotomy might be required for uncontrollable hemorrhage from a lacerated venous wall. *Objective:* In order to avoid extended craniotomy, we attempted a surgical technique that would provide more sustained control over the lacerated venous sinus. *Method:* A 56 year old lady underwent surgical resection for parasagittal meningioma. The lateral wall of the superior sagittal sinus was prepped while scraping the tumor capsule from the sinus wall. Owing to difficulty in controlling the bleeding site, a tack up falx-assisted tension suture was attempted with a mass of Gelfoam and Surgicel over the laceration. *Results:* Adequate control for the venous sinus laceration. *Conclusion:* The falx-assisted suturing technique is quick, easy to perform and efficient in maintaining a constant tamponade effect over the lacerated site. We highly recommend such technique prior to extending the craniotomy over an injured venous sinus.

NEUROSURGERY (NEURO INTERVENTIONAL)

P.089

Is Digital Subtraction Angiography (DSA) necessary for Computed Tomography Angiography (CTA) negative subarachnoid hemorrhage (SAH) patients' management?

JJ Shankar (Halifax) L Hodgson (Halifax)*

doi: 10.1017/cjn.2015.197

Purpose: CTA is becoming the frontline modality to reveal aneurysms in patients with SAH. However, in about 20% of SAH patients no aneurysm is found. In these cases, intra-arterial DSA is still performed. Our aim was to evaluate whether negative findings

on CTA can reliably exclude aneurysms in patients with acute SAH. *Materials and Method:* We conducted a retrospective analysis of all DSA performed from August 2010 to July 2014 in patients with various indications. We selected patient who presented with SAH and had a negative CTA. Findings of the CTA were compared with DSA. *Results:* 857 DSA were performed during the study period. 51(5.95%) patients with SAH and negative findings on CTA who underwent subsequent DSA were identified. Of these, only 3(5.9%) of patients had positive findings on the DSA. One patient had a posterior inferior cerebellar artery aneurysm on the DSA, not seen on CTA due to the incomplete coverage of the head. Second patient's CTA did not show any evidence of aneurysm. DSA showed suspicious dissection of the right vertebral artery, potentially iatrogenic. The third patient's DSA showed suspicious tiny protuberance from left ICA, possibly infundibulum. *Conclusion:* In patients with SAH, negative CTA findings are reliable in ruling out aneurysms in any pattern of SAH on CT.

P.090

Carotid artery occlusion secondary to retropharyngeal abscess treated with endovascular carotid sacrifice

S Ahmed (Saskatoon) L Peeling (Saskatoon) ME Kelly (Saskatoon)*

doi: 10.1017/cjn.2015.198

Introduction: Carotid occlusion is a rare but serious complication of retropharyngeal abscess (RPA). Management questions that must be addressed include the choice between reconstruction and occlusion in the setting of an active infectious process. *Case Report:* A 4 year old female presented with hoarseness, shortness of breath, and a right-sided Horner's syndrome. A CT scan confirmed the diagnosis of RPA, and contrast studies showed no filling in the right internal carotid artery (ICA). Surgical exploration of the abscess disrupted the occluded artery, causing deep, uncontrolled bleeding. Emergent angiographic evaluation was completed, and the decision was made to sacrifice the ICA. The patient recovered on antibiotics, but the Horner's syndrome persisted. *Discussion:* The presence of a carotid artery occlusion must be ruled out in the setting of a RPA. When suspected, it should be investigated further. Therapeutic decisions regarding sacrifice or reconstruction of the carotid artery are burdened by risks associated with the setting of an infection, notably infection and systemic dissemination. *Conclusion:* The presence of a carotid occlusion is a serious complication resulting from a RPA that can lead to permanent neurological deficit. Endovascular vessel sacrifice is a viable treatment option for carotid occlusion in the setting of a retropharyngeal abscess, but must be considered on a case-by-case basis.

NEUROSURGERY (NEURO ONCOLOGY)

P.091

Factors associated with improved RCT impact and quality in neuro-oncology

A Mansouri (Toronto) S Shin (New York) B Cooper (New York) D Kondziolka (New York)*

doi: 10.1017/cjn.2015.199

Background: Deficiencies in design and reporting of randomized controlled trials (RCTs) limit their validity. The quality of recent RCTs in neuro-oncology was analyzed to assess adequacy of design and reporting. *Methods:* The MEDLINE and EMBASE databases were searched to identify non-surgical RCTs (years 2000-2010). The CONSORT and Jadad scales were used to assess the quality of design/reporting. A PRECIS-based scale was used to designate studies on the pragmatic-explanatory continuum. Spearman's test was used to assess correlations. Regression analysis was used to assess associations. *Results:* Overall, 44 RCTs were identified; majority (23 studies) were chemotherapy-based. High grade gliomas (43%) and metastases (41%) were top pathologies. The majority of studies were multi-center (70%), ITT (61%), and did not collaborate with biostatisticians (70%). Half of the studies were funded by industry (50%). The median CONSORT and Jadad scores were similar in radiation and chemotherapy-based trials (34 and 35 vs 3 and 2, respectively). The impact factor was significantly associated with higher quality ($p < 0.01$). Multi-center trials were more likely to result in positive outcomes ($p = 0.02$). *Conclusion:* Deficiencies in the quality of design and reporting of RCTs in neuro-oncology persist. Quality improvement is necessary. In parallel, alternative strategies may be required.

P.092

Midline skull tumors

*M Maleki (Montreal)**

doi: 10.1017/cjn.2015.200

Introduction: Variety of tumors could involve the skull; however, very few may occur over the midline. Some may affect venous blood flow of superior sagittal sinus. Few challenging cases are presented *Material:* 1-Rare case of osteoblastoma over the torcula, (headache, visual symptoms, papilledema, VI nerve palsy). 2- Rare case of metastatic liposarcoma involving midsagittal sinus, partially occluding it (headache and visual blurring). 3- A huge atypical (grade2) meningioma over the vertex *Method:* Case #1, the tumor over the venous confluences (torcula) was removed easily, without any complications. Complete resolution of symptoms Case #2, complete en-block resection of tumor, with sacrifice of mid-sagittal portion of sinus, without any neurological sequelae. Case #3, subtotal resection, followed by radiotherapy.

Discussion & Conclusion: Anterior 3rd of sagittal sinus could be sacrificed (if necessary), without major consequences. However, whenever mid or posterior portion of the sinus is involved, interruption of venous flow could pose very serious complications. Occasionally, chronic compression of sinus may force increasing collateral