higher median mRS at 1st [3(2–4) vs 1(1–2), p<0.001], and final [2(1–4 vs 1(1 (0–2), p<0.001] follow-up. Conclusions: Patients treated with DC fared worse at every endpoint, which was disproportionate to the difference in presenting WFNS grade. These data do not support the use of DC following microsurgical clipping of a ruptured aneurysm.

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Outcome prediction in patients with aneurysmal subarachnoid hemorrhage undergoing microsurgical aneurysm repair: analysis of a South Australian Cerebrovascular Registry

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Background: Accurate outcome prediction among patients with aneurysmal subarachnoid haemorrhage (aSAH) has remained elusive. We aimed to identify outcome predictors and develop a model to guide clinicians and the families of patients who are being considered for microsurgical repair of a ruptured aneurysm. Methods: We identified 246 consecutive patients with aSAH who underwent microsurgical clipping of the culprit aneurysm between 01/09/2011 and 20/07/2020. Independent predictors of outcome were identified using logistic regression and an outcome prediction model was developed. Results: Age>55 (OR3.35, 95%CI 1.06–10.56, p=0.04), high-grade aSAH (WFNS≥4) (OR7.82, 95%CI 2.66–22.98, p<0.001) and midline shift of ≥5mm (OR10.35, 95% CI 3.22–22.23, p<0.001) were all associated with unfavourable outcome (mRS≥4) at a mean of 87.27 (±53.40) days after ictus. Age>55 was also associated with inpatient mortality (OR4.98, 95%CI 1.83–13.54, p=0.002) and unfavourable outcome at final follow-up (OR3.76, 95%CI 1.26–11.20, p=0.002). Furthermore, midline shift of >5mm was significantly associated with inpatient mortality (OR5.55, 95%CI 1.74–17.64, p=0.004) and unfavourable outcome at final follow-up (OR9.71, 95%CI 3.25–29.04, p<0.001). Conclusions: Older age, poorer presenting WFNS grade and increased mass effect are all associated with poorer outcome among patients undergoing microsurgical clipping of a ruptured aneurysm. These data have been used to construct an outcome prediction model for these patients.

Other Multidisciplinary

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Women in Canadian neurosurgery: an update

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Background: Women continue to represent a minority of the neurosurgery workforce in Canada. We herein aim to provide an update of the current Canadian landscape to gain a better understanding of the factors contributing to this disparity. Methods: Chain-referral sampling, interviews, personal communications, and online resources were used as data sources. Online survey results obtained from women attending neurosurgeons across Canada were also utilized. Quantitative analyses were performed, including summary and comparative statistics. Qualitative analyses of free-text responses were performed using axial and open coding. Results: We observe a positive trend in the incoming and graduating of female residents across the country, although this trend is lagging compared to other surgical specialties. The proportion of women in active practice remains low. Positive enabling factors for success include supportive colleagues and work environment (52.6%), academic accomplishments (36.8%), and advanced fellowship training (47.4%). Perceived barriers reported included inequalities regarding career advancement opportunities (57.8%), conflicting professional and personal interests (57.8%), and lack of mentorship (36.8%). Conclusions: Women continue to represent a small proportion of practicing neurosurgeons across Canada. Our work highlights several key factors contributing to the low representation of women in neurosurgery and identifies actionable items that can be addressed by training programs and institutions.

Other Neurosurgery

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Neurosurgery research output in The Association of Southeast Asian Nations (ASEAN) region: a scientometric analysis

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Background: Various challenges and innovations have led to the evolution of neurosurgery in the ASEAN region. This has increased interest among neurosurgeons to publish research papers for the past years. The study aims to compare the publication trend, and topic trend on research in the region using scientometric techniques. Methods: Publications from Web of Science (WoS) using the keywords "neurosurgery" OR "neurological surgery." were obtained. Results only included English articles published from ASEAN countries. Publication, citation, collaboration, and text-co-occurrence analysis were done using WoS and VOSViewer. Results: 1951 articles published between 1996 to 2022 were analyzed. The ASEAN countries' productivity are: Singapore (34.07%), Thailand (21.66%), Indonesia (15.25%), Malaysia (14.72%), Philippines (5.99%), Vietnam (5.15%), Cambodia (1.78%), Myanmar (1.16%), Brunei (0.21%). Singapore, Thailand, Malaysia, and Indonesia were the top research collaborators. Publications have clusters of co-occurring keywords: (1) seizure, aneurysm, pain; (2) traumatic brain injury, mortality, functional outcome; (3) technology, application; (4) survey, training; (5) glioblastoma, brain metastases, chemotherapy. Conclusions: Trend in publications support the growing importance of neurosurgery. Variations in

publications are attributed to differences in research interest, training, technology and culture between countries. These are relevant to aid in future capacity-building projects, research agendas, policy guidelines, and collaboration between countries, to improve research production.

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Dura splitting technique for surgical resection of spinal meningioma

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Background: Spinal meningiomas are intradural extramedullary tumors that account for 25–46% of all primary spinal tumors. A growing body of literature suggests that the extent of resection significantly affects the recurrence rate of spinal meningiomas and that Simpson grade II resection may not be as adequate as previously thought. Dura Splitting Technique (DST) can be used with no major perioperative complications. Methods: Retrospect review of six cases of spinal meningiomas where DST was used. The patients ranged in age at presentation from 38 to 80 years. All presented with symptoms including gait unsteadiness and lower limbs weakness. Spinal MRI was used to establish the diagnosis. All of the tumors were located ventral or ventrolateral to the spinal cord. Results: DST was applying to spinal meningioma cases,complete tumor resection by separating the involved dura into inner and outer layer. Preserving the dura outer layer and avoiding the need for dural graft reconstruction and CSF leak. A total of six cases, four in thoracic spine and two in cercical spine one anterior and one posterior, all four cases had no reported surgical complications or tumor recurrenc. Conclusions: We confirm that DST is safe and a superior method in the treatment of spinal meningiomas.

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The effectiveness of primary endoscopic third ventriculostomy (ETV) on cognition and gait outcomes in adults with congenital obstructive hydrocephalus (COH)

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Background: Endoscopic third ventriculostomy (ETV) has become a treatment of choice for adults with clinically significant chronic obstructive hydrocephalus (COH). We evaluated the impact of ETV on cognition and gait in adults with COH. Methods: We retrospectively analyzed prospectively collected data from patients who underwent ETV as primary treatment for COH. Cognitive testing using the Montreal Cognitive Assessment (MoCA) and Symbol Digit Modalities Test (SDMT) was obtained pre-ETV at three months and one year postoperatively. Gait velocity was assessed using a 10-m walk test at each time point. Results: A total of 51 patients were identified. The mean age was 55±1 years, and 45% of patients were women. Baseline MoCA was 22.6±3.1, which improved to 25.7±3.0 and 26±3.4 at three months and one year, respectively ($p<0.001$). Half of the patients had a normal MoCA score post-ETV (IQR 26-27 at one year, $p<0.001$). Gait velocity was significantly improved at three months and 1-year post-ETV ($p=0.0036$). The cognitive and gait improvement one year after ETV was clinically significant. Conclusions: Cognition and gait improved at three months; results were sustained at 12 months post-ETV in adult patients with COH. ETV is an efficacious surgical consideration in this population.

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Implementation of Canadian driving guidelines following cranial procedures: a systematic review and survey of Canadian neurosurgeons

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Background: Following craniotomy, there is widespread agreement that post-operative neurological impairments require specialized evaluation to evaluate fitness to drive. However, for patients who had a craniotomy and do not have neurological deficits or known seizures, there is less consensus as to when return to driving is safe. In this study, we aim to review existing guidelines regarding driving post-craniotomy and assess the current practices for post-craniotomy recommendations in Canada. Methods: Our study has three components: 1) systematic review of existing guidelines for return to driving after cranial procedure; 2) review of primary evidence (cohort studies) regarding seizure risk following a craniotomy, depending of the underlying pathology; 3) online questionnaire distributed to Canadian neurosurgeons by the Canadian Neurosurgery Collaborative (CNRC) network. Results: Our systematic review unveiled various sets of guidelines for driving after a craniotomy. For instance, UK Driving and Vehicle Licensing Agency writes into law specific guidelines for return to driving varying based on underlying pathology. Their results were drawn from large cohort studies measuring the occurrence of post-operative seizures after craniotomy for a variety of conditions. The questionnaire is currently being distributed to Canadian neurosurgeons. Conclusions: Our study lays the first steps towards the development of Canadian guidelines for return to driving post-craniotomy.

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Sphenoidal Sinus aspergillus infection presenting with right-sided painful ophthalmoplegia and cavernous sinus-orbital apex lesion: a case report.

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Background: Cavernous sinus-orbital apex aspergillosis is a rare but serious complication and difficult to diagnose based on clinical and radiological results. This condition is frequently