

P.143**Eligibility criteria in glioma clinical trials: a systematic review and meta-analysis on selectivity, generalizability, and real-world applicability***F Otaner (Montreal)* MS Berger (San Francisco) JK Gerritsen (Rotterdam) JS Young (San Francisco)*

doi: 10.1017/cjn.2025.10290

Background: Glioma trials may use selective criteria, limiting their generalizability to real-world patients. This systematic review and meta-analysis quantifies the prevalence of these criteria and evaluates their impact on trial outcomes, assessing whether reducing selectivity to improve generalizability and applicability is feasible without compromising safety or efficacy. **Methods:** 51 glioma trials were extracted from the National Clinical Trial (NCT) database on June 1st, 2024. Eligibility criteria were classified as selective—defined as likely to exclude patients who could benefit, or generalizable—justified due to potential harm or trial focus. The selective criteria were analyzed for correlation with median overall survival (mOS). **Results:** The average number of selective criteria per study was 6.8 (range: 0–14, median: 7). The most common were “No prior malignancy with a specified disease-free period” (N=29), “Exclusion based on Karnofsky score” (N=27), and “No prior brain radiotherapy” (N=16). Meta-analysis showed no significant correlation between the number of selective criteria and mOS ($p = .327$). **Conclusions:** Selective criteria are common in glioma trials, particularly exclusions based on prior malignancies, performance status, and past treatments. However, their lack of correlation with mOS indicates minimal impact on outcomes. These findings suggest reducing selectivity in trial criteria may improve generalizability and applicability without compromising safety or efficacy.

P.144**Artery of Percheron Infarction following endoscopic transsphenoidal surgery: a case series and literature review***B Hoffman (Edmonton)* AR Rheume (Edmonton) K Au (Edmonton) T Sankar (Edmonton) V Mehta (Edmonton)*

doi: 10.1017/cjn.2025.10291

Background: Artery of Percheron (AOP) infarct is a rare but devastating complication following endoscopic transnasal transsphenoidal surgery (ETTS) for pituitary adenoma resection, characterized by decreased level of consciousness, mydriasis, and cognitive impairment. We reported two new and one remote case in a single institution. **Methods:** A retrospective case analysis and literature review was conducted. All patients had MRI-confirmed bilateral paramedian thalamic and/or midbrain infarcts following primary or redo ETTS for pituitary adenomas. **Results:** 8 total cases were identified, with a mean age of 45.8 years (SD: 6.06), including 6 females (75%) and 2 males (25%), undergoing initial (6/8, 75%) or repeat (2/8, 25%) ETTS for pituitary macroadenomas. Tumour consistency was solid in 6/8 (75%), hemorrhagic in 1/8 (12.5%) and cystic in 1/8 (12.5%). MRI showed bilateral paramedian thalamic infarcts (8/8 100%), with midbrain extension in 5/8 (62.5%). Intraoperative CSF leaks

occurred in 6 of 8 (75%). The mean Glasgow Outcome Scale (GOS) score was 3 (range 2–4, SD: 0.37) at a mean follow-up of 8.6 (SD: 5.5) months. **Conclusions:** AOP infarcts are rare following ETTS for pituitary adenomas. Possible associations include large tumour size, firm consistency, and intraoperative CSF leak. Clinical outcomes are typically poor and characterized by severe long-term disability.

P.145**The role of 5-ALA Fluorescence-guided surgery in non-glioma pathologies***M Saymeh (Ottawa) S Khairy (Ottawa) A Moreno (Ottawa) J Rabski (Ottawa) S Kilty (Ottawa) F Alkherayf (Ottawa)**

doi: 10.1017/cjn.2025.10292

Background: Fluorescence-guided surgery (FGS) with 5-aminolevulinic acid (5-ALA) is a well-established tool for improving tumor visualization in glioma surgery. However, its applications in non-glioma pathologies remain underexplored and require further investigation. **Methods:** A retrospective review of patients who underwent FGS with 5-ALA between January 2022 and September 2024 was conducted to assess its utility in non-glioma tumors. **Results:** Among 232 FGS procedures, 13 (5.6%) involved non-glioma pathologies. We categorized our patients into three different levels: high, moderate, and no response based on intra-operative 5-ALA fluorescence visualization. Our patients showed a high 5-ALA fluorescence in 10 cases (77%), mainly in the following tumors: choroid plexus papilloma, atypical teratoid rhabdoid tumor, metastatic adenocarcinoma as well as atypical meningiomas. Moderate 5-ALA fluorescence was seen in 2 cases (15%). While no 5-ALA fluorescence was seen in one case of CNS lymphoma. 90% of procedures with high response had total resection. **Conclusions:** Fluorescence-guided surgery (FGS) using 5-ALA has demonstrated effectiveness in enhancing tumor visualization beyond gliomas. This retrospective review highlights the potential applications of 5-ALA in various non-glioma pathologies. These findings emphasize the need for further research to refine the use of 5-ALA FGS in diverse pathologies, optimize patient selection, and expand its utility in neurosurgical oncology.

P.146**Factors affecting local control of resected brain metastases after single-fraction stereotactic radiosurgery: a systematic scoping review***N Alarifi (Toronto)* A Ajisebutu (Winnipeg) S Molot-Toker (Winnipeg) J Beiko (Winnipeg)*

doi: 10.1017/cjn.2025.10293

Background: This scoping review investigates factors influencing local control in patients with metastatic brain disease undergoing adjuvant stereotactic radiosurgery (SRS) to surgical cavities. **Methods:** Seven databases (Ovid Medline, PubMed, Web of Science, EMBASE, BIOSIS, Scopus, Global Health, Cochrane) were searched up to August 2, 2021, using terms related to radiosurgery and brain metastasis. A three-level

screening identified relevant studies. Data extraction included study type, population, SRS details, and outcomes. Variables recorded were histopathology, resection degree, number of metastases, SRS platform, dose parameters, cavity volume, margin, time to SRS, local control at 12/24 months, overall, and progression-free survival. Significant predictors were noted. Results: From 10,633 articles, 22 studies with 1,749 cavities. Local control at 12 months was 50–100% (median 82%, IQR 73–84.4%). Distant progression at 12 months was 36–64% (median 45.5%, IQR 38–51%) and at 24 months 39–76% (median 53%, IQR 46–55%). Histology, radiation dose, tumor size, extent of resection, treatment timing, tumor depth, and dural/pial attachment impacted local control, whereas primary disease status, surgical corridor coverage, and tumor location did not. Conclusions: Modifiable SRS treatment and patient selection factors need further investigation. This review emphasizes the necessity for consensus and guides future trials and guidelines to enhance metastatic brain disease management outcomes.

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Endoscopic transorbital approach to the skull base: a single centre 8 year experience

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doi: 10.1017/cjn.2025.10294

Background: Minimally invasive endoscopic techniques via the transorbital approach (ETOA) is emerging as an alternative approach for addressing skull base tumours. This study aims to showcase our institution's 8 year experience in using ETOA, detailing the surgical technique employed and presenting comprehensive patient outcomes. Methods: A retrospective analysis was conducted on data from 32 patients who underwent ETOA within the past eight years. Demographic data was obtained as well as information on surgical approaches, intra-operative findings, recurrence and complications. Results: 33 ETOA procedures were performed on 29 patients, with an average age of 45, 14 of whom were women. The superior orbital corridor was utilized in 100% of cases, and in 79.17%, ETOA was complemented by a transnasal approach. Spheno-orbital meningioma accounted for the most common surgical indication (36.36%, n=12, followed by lateral frontal sinus mucocoele (18.75%, n=6). The median length of stay was one day. Transient V1 numbness was the primary complication (33%, n=8), and 18.75% (n=6) necessitated another surgery. Notably, no mortality was associated with this procedure. Conclusions: Our institution's experience underscores the notable safety and effectiveness of ETOA, The main complications being transient V1 numbness, proptosis, transient diplopia. Revision surgery was only required in 6 out of 33 cases.

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Two cases of vestibular nerve hybrid nerve sheath tumours and literature review

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doi: 10.1017/cjn.2025.10295

Background: Hybrid Nerve Sheath Tumours (HNST) were introduced in the WHO Blue Book in the 2016 edition. Since that time, extracranial HNST are commonly identified but intracranial lesions are rare. Methods: A systematic review of the literature was completed. Additionally, chart reviews were completed on two cases of HNST identified at our academic center. Results: 3 reports of intracranial HNST located on a cranial nerve have been published to date. 2 cases of cranial nerve associated HNST have been identified at our academic centre. Conclusions: HNSTs may be underreported in the cranial region.

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Spontaneous regression of vestibular schwannoma: a clinical and radiographic characterization

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doi: 10.1017/cjn.2025.10296

Background: Vestibular schwannoma (VS) are the most common tumour of the CPA with an annual incidence of 17.4/1 million. They typically demonstrate slow growth over time and as such, observation is a reasonable approach to management. A portion of these tumour remain static and approximately 5-10% of these tumours will demonstrate spontaneous regression while under observation, including those associated with neurofibromatosis type-2.

Previous case series (N= 13-14) have attempted to identify predictive factors for tumour growth and regression, but few have reached significance or demonstrated reproducible findings. Methods: Using a clinical database of VS treated by one team at our institution, we identified 40 patients who have demonstrated significant spontaneous regression or complete resolution of their VS. All patients received a survey by mail and telephone. Results: Radiographic descriptions were collected on 40 patients. Surveys were completed by 18 participants and an additional 18 control patients who demonstrated growth and underwent surgical resection. Conclusions: This is the largest case series we know of to date describing radiographic and clinical presentations of patients shrinking vestibular schwannoma. It is also the only study known to date to consider patient factors by survey in an attempt to identify protective factors.