Supratentorial meningioma

Classification

Anterior clinoid region meningioma

Cavernous sinus meningioma

Convexity meningioma

Falx meningioma

Intraparenchymal meningioma

Intraventricular meningioma

Middle fossa meningioma

Olfactory groove meningioma

Optic nerve sheath meningioma

Parasagittal meningioma

Pineal region meningioma

Skull base meningioma

Sphenoid wing meningioma

Suprasellar meningioma

Tuberculum sellae meningioma

Clinical features

see Seizure in supratentorial meningioma.

Surgery

Intracranial meningioma surgery

Outcome

see Supratentorial meningioma surgery outcome.

Case series

A retrospective, single-center cohort study was performed for patients who underwent excision of supratentorial meningiomas from 2000 to 2019. Outcomes including operative time, postoperative in-hospital complications, readmission, causes of readmission including surgical site infection, pseudomeningocele, need for shunt surgery, and imaging appearance of pseudomeningocele on long-term follow-up imaging were compared. Univariate and multivariable analyses were conducted.

A total of 353 patients who had complete clinical and operative data available for review were included. Of these patients, 227 (64.3%) had nonsutured dural graft reconstruction and 126 (35.7%) had sutured dural repair, including primary closure, artificial dura, or pericranial graft. There was significant variability in using nonsutured dural reconstruction compared with sutured dural repair technique among surgeons ($p < 0.001$). Tumors with sagittal sinus involvement were more likely to undergo nonsutured closure ($n = 79$, 34.8%) than dural repair ($n = 26$, 20.6%) ($p = 0.003$). There were no other differences in preoperative imaging findings or WHO grade. Frequency of surgical site infection and pseudomeningocele, need for shunt surgery, and recurrence were similar between those undergoing nonsutured and those undergoing sutured dural repair. The mean operative time for the study cohort was 234.9 (SD 106.6) minutes. The nonsutured dural reconstruction group had a significantly shorter mean operative time (223.9 [SD 99.7] minutes) than the sutured dural repair group (254.5 [SD 115.8] minutes) ($p = 0.015$). In a multivariable linear regression analysis, after controlling for tumor size and sinus involvement, nonsutured dural graft reconstruction was associated with a 36.8-minute reduction (95% CI -60.3 to -13.2 minutes; $p = 0.002$) in operative time.

Duraplasty using a nonsutured graft and sutured dural repair exhibit similar postoperative outcomes for patients undergoing resection for supratentorial meningiomas. Although sutured grafts may sometimes be necessary, nonsutured graft reconstruction for most supratentorial meningioma resections may suffice. The decreased operative time associated with nonsutured grafts may ultimately result in cost savings. These findings should be taken into consideration when selecting a dural reconstruction technique for supratentorial meningioma [1)]

1)
Chotai S, Tang AR, McDermott JR, Guidry BS, Grisham CJ, Yengo-Kahn AM, Morone PJ, Thompson RC, Chambless LB. Comparison of supratentorial meningioma resection outcomes by dural reconstruction technique. J Neurosurg. 2022 May 27:1-8. doi: 10.3171/2022.4.JNS22290. Epub ahead of print. PMID: 35623370.