Lateral supraorbital approach for olfactory groove meningioma

Case series

Seven patients with large and giant OGMs underwent surgical resection via the lateral supraorbital approach. Six patients were female, with a median age of 56 years. Patients commonly presented with altered mentation, anosmia, and headaches. The average tumor volume was 120.6 ± 64.7 cm3 with five cases of vascular encasement. Simpson grade II resection was achieved in four patients while Simpson grade IV resection was achieved in three patients. The median length of stay was 2.0 days. The median preoperative Karnofsky Performance Scale (KPS) score was 70, improving to 100 at last postoperative follow-up visit. Two complications were encountered in the form of postoperative cerebrospinal fluid leak in one patient and a transient diplopia in another patient. Tumor recurrence/progression was identified in two patients during a median follow-up time of 65.5 months. Both cases have been managed with adjuvant radiosurgery.

Conclusion: The LSO approach is a safe and effective minimally invasive transcranial corridor for the management of OGMs that should be part of the armamentarium of skull base neurosurgeons [1].

Between September 1997 and June 2008, a total of 656 meningiomas were operated on by the senior author (JH) at the Department of Neurosurgery, Helsinki University Central Hospital; 66 were olfactory meningiomas. We retrospectively analyze the clinical data, radiological findings, surgical treatment, histology, and outcome of all the olfactory groove meningioma patients and discuss the operative techniques used.

Results: Sixty-six patients were operated on by the lateral supraorbital approach. The median preoperative Karnofsky Performance Scale score was 80 (range, 40-100). Three patients were redo cases in which the primary operation had been performed elsewhere. Seemingly complete tumor removal was achieved in 60 patients (91%); there was no surgical mortality. Postoperatively, 6 patients (9%) had cerebrospinal fluid leakage, 5 (8%) had new visual deficits, 4 (6%) had wound infections, 4 (6%) had cotton granulomas, and 1 (2%) had a postoperative hematoma. The median Karnofsky score at discharge was 80 (range, 40-100). Six patients had recurrent tumors; 3 underwent reoperations after an average of 21 months (range, 1-41 months); 1 was treated with radiosurgery, and 2 were only followed. During the median follow-up time of 45 months (range, 2-128 months), there were 4 recurrences (6%) diagnosed on average 32 months (range, 17-59 months) after surgery.

Conclusion: The lateral supraorbital approach can be used safely for olfactory groove meningiomas of all sizes with no mortality and relatively low morbidity. Surgical results and tumor recurrence with this fast and simple approach are similar to those obtained with more extensive, complex, and time-consuming approaches [2].

1)
Abou-Al-Shaar H, Patel KP, Mallela AN, Sekula RF Jr. Lateral supraorbital approach for resection of large and giant olfactory groove meningiomas: a single center experience. Br J Neurosurg. 2022 Sep 2:1-7. doi: 10.1080/02688697.2022.2117273. Epub ahead of print. PMID: 36053047.
2)

Romani R, Lehecka M, Gaal E, Toninelli S, Celik O, Niemelä M, Porras M, Jääskeläinen J, Hernesniemi J. Lateral supraorbital approach applied to olfactory groove meningiomas: experience with 66 consecutive patients. Neurosurgery. 2009 Jul;65(1):39-52; discussion 52-3. doi: 10.1227/01.NEU.0000346266.69493.88. PMID: 19574824.