Supraorbital keyhole approach

- Fully endoscopic keyhole approach for intracranial aneurysm clipping: clinical outcomes and technical note
- Supraorbital keyhole approach (SOKHA) versus endoscopic endonasal approach (EEA) for suprasellar meningioma (SSM) resection: systematic review and meta-analysis
- Supraorbital Keyhole Hybrid Exoscopic and Endoscopic Approach for a Giant Tuberculum Diaphragma Sella Meningioma
- Supraorbital Keyhole Approach: Opening of the Frontal Sinus and Cerebrospinal Fluid Rhinorrhea
- Clipping of anterior circulation aneurysms using fully endoscopic-assisted minimally invasive keyhole craniotomy: a clinical study and analysis
- Important role of endoscope in tuberculum sellae meningioma resection via supraorbital keyhole approach
- Fully endoscopic combined endonasal and supraorbital keyhole approach for tuberculum sellae meningiomas with marked lateral extension: How I do it
- Recent experience with calcium phosphate cement cranioplasty after lateral supraorbital keyhole approach to the anterior cranial fossa

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Supraorbital keyhole approaches (SKAs) have garnered criticism for limited surgical exposure, restrictive surgical freedom, blind spots, and the learning curve.

A retrospective study of patients who underwent SKA aims to explore the outcomes, technical nuances, and the learning curve reflected in a single surgeon's experience in the initial 3 years of practice.

A total of 20 SKA operations were performed in 19 patients. Gross- or near-total resection was achieved in 14 of 17 tumor cases. The mean blood loss was 80.5 mL, the mean duration of surgery was 5 hours, and the median stay was 3 days. Endoscopic augmentation was used in 11 cases where additional tumor removal occurred in 8 of the 11 cases. There were no cases of cerebrospinal fluid leakage or wound infection. A 30-day readmission and typical narcotics after discharge were seen in one patient each. When comparing two halves of a neurosurgery practice over 3 years, the duration of surgery was significantly longer in the later year, which is likely due to operating on a larger tumor size as the years progressed. No cases required static retractors or conversion to larger craniotomies.

Careful case selection and respecting the learning curve allow the safe incorporation of SKA in the early stages of neurosurgical practice [1)]

Mehrotra et al. retrospectively reviewed 166 cases involving aneurysm clipping, with 62 patients undergoing SOKHA and 104 patients undergoing the pterional approach. Factors evaluated included patient demographics, aneurysm characteristics, incidence of intraoperative complications, temporary-clipping usage, and postoperative clinical outcomes. Glasgow Outcome Scale scores were utilized to assess clinical outcomes.

The study found that both the SOKHA and pterional approaches were similar in terms of age distribution, Hunt and Hess grades, and the incidence of hydrocephalus. The majority of aneurysms in both groups were anterior communicating artery aneurysms. Hydrocephalus was observed in 14.5 % of SOKHA cases and 13.5 % of pterional cases. Intraoperative aneurysm rupture occurred in 8.1 % of SOKHA cases and 7.7 % of pterional cases. There were no mortalities in the SOKHA group, while the pterional group had a 1.92 % mortality rate. At the last follow-up, 77.4 % of SOKHA cases and 75.9 % of pterional cases had a favorable outcome (Glasgow Outcome Scale IV and V), with no significant difference.

Conclusion: SOKHA offers the advantage of potential cosmetic benefits with neurological outcomes comparable to those of the traditional pterional approach, in properly selected patients [2].

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Shahid AH, Butler D, Dyess G, Bassett M, Harris L, Hummel U, Chason D, Thakur JD. Supraorbital keyhole approaches in the first 3 years of practice: outcomes and lessons learned. Patient series. J Neurosurg Case Lessons. 2024 Mar 25;7(13):CASE23744. doi: 10.3171/CASE23744. PMID: 38531085.
2)
Mehrotra A, Kanjilal S, Kumar B C A, Tataskar P, Verma PK, Bhaisora KS, Kanti Das K, Jaiswal AK, Kumar R. Comparative analysis of supra-orbital keyhole approach and pterional approach for surgical clipping of intracranial anterior circulation aneurysms in patients with favorable Hunt and Hess grades. Clin Neurol Neurosurg. 2024 Mar 3;239:108230. doi: 10.1016/j.clineuro.2024.108230. Epub ahead of print. PMID: 38490076.