Lateral supraorbital approach for Tuberculum Sellae Meningioma

Park et al. assessed the surgical indications and esthetic benefits of the lateral supraorbital approach (LSO) approach in comparison with the pterional approach for parachiasmal meningiomas. From April 2013 to May 2017, a total of 64 patients underwent surgery for parachiasmal meningiomas. Among them, tumor resection was performed with the LSO approach for 34 patients and a pterional approach for 30 patients. A retrospective analysis was done on tumor characteristics, surgical outcome, approach-related morbidity, and esthetic outcome between the two approaches. Gross total resection was achieved in 33 of 34 patients (97.1%) with the LSO approach. There were no differences in tumor size, origin, consistency, internal carotid artery encasement, cranial nerve adhesion, and optic canal invasion between the two approaches. The most common tumor origin was the tuberculum sellae for both the LSO and pterional approaches. For tumors with preoperative visual compromise, immediate visual outcome improved or remained stable in 76% and 80.9% with the LSO and pterional approaches, respectively. Surgery time, surgical bleeding, hospital length of stay, and esthetic outcome were significantly shorter and superior with the LSO approach. There were no differences in surgical morbidity and brain retraction injury between the two approaches. The LSO approach can provide a safe, rapid, and minimally invasive exposure for parachiasmal meningiomas compared with the pterional approach. Surgeons must consider tumor size, origin, and extent in determining the resectability of the tumor rather than the extent of exposure [1)].

Clinical symptoms of 20 patients with surgery via LOS approach were analyzed retrospectively. According to the neuroradiological findings and the improvement of symptoms, and some score scale, the efficacy, and safety of LOS were assessed for removing sellar tumors.There were tuberculum sellae meningioma (n=11), craniopharyngioma (n=4), epidermoid cysts (n=4) and pituitary neuroendocrine tumor (n=1). Results: Complete resection was achieved in seventeen patients(85%). The mean operating time was 144.0±54 minutes and the mean intraoperative blood loss was 96.5±51.1 ml. Four patients had postoperative fever, four had endocrine disorders, and one had seizure.No other complications were noted. Fifteen patients had visual function impairment before the operation, seven of which were improved while one was aggravated after surgery. The median Karnofsky score (3-46 mon) was 95(0-100) and the Glasgow outcome scale (GOS) at follow-up (3-46 mon) was 4.7(0-5). In general, the outcomes were improved in 18 patients and the mortality was 2. Conclusion: The resection of tumors at the sellar region via lateral supraorbital approach is efficient, simple and minimally invasive, which can make the removal of the tumors reliably and safely. It is worthy to be popularized clinically [2)].

Between 2011 and 2016, 16 patients were treated using the supraorbital keyhole procedure and 6 patients received an endoscopic endonasal procedure. Both surgical techniques were analyzed and compared concerning complications, surgical radicality, endocrinologic, and ophthalmologic outcome and recurrences in patients' follow-up.

The 2 different approaches yielded similar rates of gross total resection (endonasal 83% [5 of 6] vs. supraorbital 87% [14 of 16]), near total resection (17% [1 of 6] vs. 13% [2 of 16]), and visual recovery (endonasal 66% [2 of 3] vs. supraorbital 60% [3 of 5]). An extension lateral to the internal carotid

artery was noted in 81% (13 of 16) of the supraorbital cases and in none of the endonasal cases. Tumor volume was 14.9 cm3 (±8.2 cm3) for supraorbital tumors versus 2.1 cm3 (±0.8 cm3) for the endonasal approach.

Both approaches provide minimally invasive surgical routes accessing meningiomas of the sellar region. The ideal approach should be tailored to the individual patient considering the tumor anatomy, lateral extension, and the experience of the surgeon with both surgical approaches. We suggest using the supraorbital approach for larger meningiomas of sellar region with far lateral extension or broad vascular encasement [3].

Can be removed with relatively low morbidity and mortality. Surgical results with this fast and simple approach are similar to those obtained with more extensive, complex, and time-consuming approaches [4].

In 51 patients treated surgically for TSM between 2003 and 2010, with special attention to surgical technique, visual outcomes, and prognostic factors for treatment outcome. All patients were operated via the lateral subfrontal approach. The cohort mean age and Karnofsky performance status (KPS) on admission was 57.1 ± 13.6 and 84.3 ± 11.7, respectively. The most common presenting sign was visual impairment. The mean tumor size was 29.4 ± 10.7 mm. In 45 of the patients (88.2%), gross total resection was achieved. Improvement and/or preservation of visual acuity and visual field were achieved in 95.9% and 85.3%, respectively. Visual functions on admission were found to be the strongest predictors for postoperative improvement in visual outcome, followed by better KPS on admission, smaller tumor size, and young age. Postoperative neurological complications included cerebrospinal fluid (CSF) leak, meningitis, and postoperative seizures. TSM can be safely operated on through the lateral subfrontal approach. A high percentage of complete tumor resection and excellent visual outcomes are achieved using this technique [5].

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