Transciliary supraorbital keyhole approach for meningiomas of anterior cranial fossa
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Introduction: Meningiomas are largely benign tumors that can be excised completely with minimum morbidity. Operative morbidity can further be lessened with less invasive keyhole approaches. Meningiomas of the anterior cranial fossa are amenable to excision by transciliary keyhole approach. A miniaturized version of the pterional approach, the transciliary supraorbital approach follows the same approach corridor as the traditional craniotomy. However, with the availability of operating microscopes with better optics and special instruments, it is possible to get a view and use instruments through the small approach.

Methods: We excised 39 meningiomas involving the anterior cranial fossa and parasellar region between 2003 and 2011. Twenty nine of these were females. There were fifteen patients with olfactory groove meningiomas, five with unilateral subfrontal meningiomas, two lateral pterional, three tuberculum sellae meningiomas, four diaphragm sellae tumours, seven anterior cliniodal and three with medial third of sphenoid tumors. Thirty five of these patients presented with headache, seven with visual dimness, three with diplopia and one with diabetes insipidus. Foster Kennedy syndrome was seen in five patients. These tumours ranged from 1.5 to 06 cm in size. Thirty seven of these tumors were approached from the right side, while two tumors were excised from the left. Gross total excision with dural coagulation could be done in thirty six patients. Approach was through the eyebrow, and size of craniotomy flap was 2.5 x 1.75 cm. Dural opening was followed by brontal lobe retraction, CSF suction, arachnoid lysis, opening of cisterns, including Sylvian cistern. Two patients underwent drilling of anterior clinoid. Tumour was delineated and devascularised, and excised piecemeal.

Results: Complete tumour excision was achieved in all cases. Postoperative period was uneventful in 35 patients. Two patients developed orbital ecchymosis, one had edema of eyelid and one developed hydrocephalus requiring CSF shunting. Postoperative imaging confirmed lack of any tumour residue. Follow-up ranged from 06 months to three years, during which period there was no instance of tumour recurrence.

Conclusions: Transciliary supraorbital keyhole approach is an excellent minimally invasive approach for meningiomas of anterior cranial fossa and parasellar regions.