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LETTER TO THE EDITOR

Microsurgical excision of olfactory groove meningioma's: a brief study of outcome of different surgical approaches.

Olfactory groove meningiomas (OGMs) account for 4.5 to 13% of all intracranial meningiomas[1]. Olfactory groove meningiomas arise in the midline over the cribriform plate and frontosphenoidal suture[1]. It is well known that most of these tumors occupy the floor of the anterior cranial fossa, extending all the way from the crista galli to the tuberculum sellae[2]. In case of large OGMs surgery represents a special challenge, because of their proximity to the arteries of the anterior circulation and the optic nerves. OGMs push the optic nerves and the chiasm downward and posteriorly as they grow. These benign, slow-growing tumors frequently achieve large size before detection. As diagnosed at a late stage, they usually have already reached a large size and are highly vascularized and covered by stretched and swollen and edematous brain parenchyma[3]. As the tumor is very large and/or infiltrates or involves surrounding structures, making its removal challenging. Several surgical approaches can be applied for tumor removal. Traditionally, bifrontal craniotomy has been used with subfrontal approach to the tumor[4]. Dandy used an even larger approach by performing a bifrontal craniotomy plus partial bifrontal lobectomy.

This observational study was carried out in the department of Neurosurgery of Bangabandhu Sheikh Mujib Medical University in the period of January 2010 to December 2011. Patient data regarding demography, clinical manifestations, surgical approaches, post operative complications, outcome according to neurological status and Glasgow outcome Scale (GOS) and recurrences were collected, tabulated and evaluated.

We studied 7 patients retrospectively. Among 7 patients, 4 were females and 3 were male. Age of the patients ranged from 30 years to 65 years, with a mean age of 44 years. All the patients complained of headache and vomiting. Anosmia and personality or behavioral changes were the next common manifestations. Visual impairment was found only in two cases associated with papilledema. All patients underwent preoperative and postoperative CT scan and/ or MRI of brain. Maximum tumor diameter was 8.5 cm (range from 5-8.5 cm) and mean diameter was 6.78 cm. Intercranial tumor with extension to ethmoidal sinuses was found in two cases. Hyperostosis of the ethmoid sinus was found in one case. In all the cases surgery was performed with the help of an operating microscope and microsurgical instrumentation. Tumors were operated on through the Glabellar mini craniotomy (Figure 3) (2 cases), frontolateral (Figure 2) (2 cases) and bifrontal approaches (3 cases). Bifrontal approach (Figure1) was chosen for larger diameter of the tumor. Total tumor removal (Simpson Grade 1 or 2) was achieved in all of the cases. All the seven patients were followed-up with early postoperative CT scan and neurological evaluation. The follow up period ranged from 7 month to 16 months. Visual acuity was assessed both pre and post operatively. Visual acuity and field of vision were improved in all cases. No recurrence of tumor was found within this short period of follow up. CSF leak was found in one case. There is no mortality in seven cases. Two patients developed meningitis and one case developed C.S.F. rhinorrhoea along with meningitis. This patient was treated by antibiotic therapy and lumber drain for C.S.F. leak.

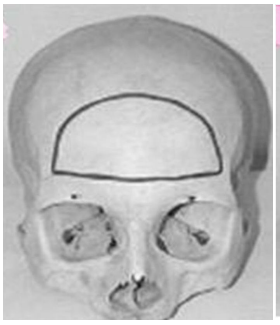

Fig. 1: Bifrontal craniotomy

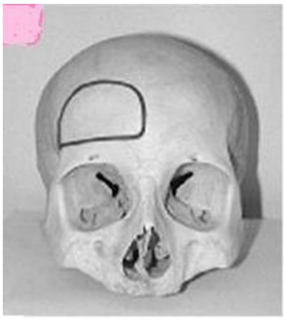

Fig. 2: frontolateral craniotomy

Fig. 3: Glabellar craniotomy

The surgical principles of the management of olfactory groove meningiomas were first described by Cushing and Eisenhardt in 1938[5,6]. The bifrontal approach, proposed earlier by Tönnis, is recommended by others for removal of large olfactory groove meningiomas. For smaller tumors, a unilateral sub frontal approach was preferred by some authors, with partial resection of the frontal

lobe in some cases. The disadvantages associated with the sub frontal approaches have been stressed by authors who advocated the pterional approach for removal of olfactory groove meningiomas[5]. We tried to evaluate the 3 different approaches in this brief study with an intension to have a clue to find the most suitable approach in our context with available settings. Patients were selected for different approaches depending on the size and location of the tumors, evaluation and visualization of the lesion from the pre-operative images and surgeons' convenience[6].

With our very small experience we feel that frontal ateral approach for OGMs larger than 5 cm is a convenient approach in many respects. To have an appropriate evaluation, study with larger number of patients and longer period of follow up is needed in future.

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