Giant sphenoidoethmoidal nasopaharyngeal schwannoma with anterior skull base extension managed by a total anterior transbasal approach

Sir,

Schwannomas are benign well-encapsulated tumors arising from the schwann cells surrounding the peripheral nerves. Schwannomas of the paranasal sinuses and nasopharynx are very rare lesions, with involvement of the skull base by these tumors very uncommon.\(^1\) Very few such cases are described in the literature, most of them managed with extracranial surgical approaches.\(^2\) The authors describe a case of giant sphenoidoethmoidal schwannoma involving the nasopharynx and extending into the anterior skull base, which was totally excised through an anterior transbasal approach. The postoperative course was uneventful.
A 22-year-old male presented with nine months history of proptosis of the right eye along with complaints of frequent nasal obstruction. Examination revealed right axial non-pulsatile proptosis. Magnetic Resonance (MR) imaging showed a mass involving the sphenoid and ethmoid sinuses along with the nasopharynx [Figure 1]. Non-contrast computed tomography (NCCT) scan revealed scalloping and expansion of bone at the anterior skull base with extension into the bifrontal area. Endonasal biopsy from the tumor revealed a benign nerve sheath tumor.

A bifronto-orbital craniotomy was performed. The tumor was involving the right ethmoid and extending into the nasal cavity, sphenoid sinus, nasopharynx and bilateral frontal region with destruction of the planum and tuberculum sellae and was excised completely. A long pericranial flap based on the temporals muscle was rotated over the anterior cranial fossa one over the other, thus double-breasting the defect which was further strengthened using the fibrin double sealant glue system (Tisseel and Tissuol by Immuno AG). Endoscopic exploration of the nasal cavity was performed to confirm total tumor excision, which indeed revealed no residual tumor. The patient had an uneventful postoperative course with no cerebrospinal fluid leak. Postoperative scan revealed no residual tumor. Histopathology confirmed the diagnosis of schwannoma [Figure 2].

Schwannomas involving the paranasal sinuses are very rare with very few cases described in the world literature. The extensive spread, as in our case, involving the sphenoid sinus and intracranial extension in the skull base is a very unusual presentation of such a tumor considering the benign nature of the same. Most of the surgical approaches used for schwannomas with intracranial extension have been extracranial or transfacial, involving various approaches like transantral or lateral rhinotomy with external ethmoidectomy via a Caldwell Luc incision. Only two cases are described in which the tumor involving both the paranasal sinus with intracranial extension was removed via a total intracranial approach as described by the authors also. Probably, an anterior transbasal approach through a bifronto-orbital craniotomy is preferable to the complex transfacial approaches which have potential for more morbidities. Though such an extensive spread of the tumor with bone erosion can be misinterpreted as a malignant tumor, the tumor by expansion can lead to bone erosion by pressure and not necessarily indicates malignancy. Histopathology is very crucial in the correct diagnosis of these tumors.

To conclude, schwannoma involving the sphenoeothmoidal sinus with intracranial extension is very rare and can give rise to giant tumors. A correct histopathological diagnosis is crucial to avoid overzealous treatment. Often total transfacial or combined transfacial intracranial approaches are required for resection of these tumors. The authors presented this unique case of giant schwannoma involving the paranasal sinuses with intracranial extension which was totally resected by an anterior skull base approach. Though anterior transbasal approach can lead to increased chances of CSF leak or the formation of pseudoencephalocele after surgery, a good reconstruction of the basal defect after surgery as described by the authors should prevent the same.

Departments of Neurosurgery, *Neuropathology and **Neuroradiology, All India Institute of Medical Sciences, New Delhi - 110 029, India. E-mail: surineuro@hotmail.com

References

1. DiNardo LJ, Mellois MG. Cystic schwannoma of the sphenoid sinus and...

Accepted on 19-02-2007