

Nasomaxillary Swing — A Novel Approach for Bilateral Angiofibroma

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Abstract

Juvenile nasopharyngeal angiofibroma (JNA) is a high-risk tumor of adolescent males. Choice of the approach should be based on the stage and site of the lesion. For complete removal of tumor, surgical exposure must be adequate. We here present a case of nasopharyngeal angiofibroma with intracranial and bilateral infratemporal fossa extension in which tumor was completely excised by nasomaxillary swing approach.

Keywords: Angiofibroma, maxilla, swing.

INTRODUCTION

Juvenile nasopharyngeal angiofibroma (JNA) is a histologically benign, highly vascular tumor of the nasopharynx, which commonly presents in male teenagers. Morbidity from JNA is due to progressive obstruction of nasal respiration, bleeding, obstruction, invasion of paranasal sinuses, and in advanced cases due to intracranial extension. Intraorbital extension of tumor can lead to vision loss or ophthalmoplegia.¹ Extensive growth is not uncommon because of the silent area of origin. Surgery remains the main treatment modality for this tumor. The choice of a surgical approach is still controversial. The prime aim of any surgical approach is to achieve a good surgical exposure of the tumor so that the complete excision of the tumor can be ensured. Maxillary swing approach is one of the commonly accepted approaches for removal of JNA but it provides exposure to only ipsilateral infratemporal fossa. We here adopted an extended approach called nasomaxillary swing for the large JNA involving bilateral sinuses and infratemporal fossa with intracranial extension.

CASE REPORT

A 14 years old boy presented to the Department of Otorhinolaryngology, All India Institute of Medical Sciences, New Delhi with history of bilateral nasal obstruction and epistaxis for 1 year. He had also developed right side proptosis and decrease in vision for 5 months. On examination, patient

was having telecanthus and right side proptosis. Anterior rhinoscopy revealed pinkish mass in left nasal cavity and oral cavity examination showed bulge in soft palate. Vision was 6/18 on right side and normal on left side. Extraocular movements were normal in all the directions in both eyes. Contrast enhanced CT scan and MRI of the paranasal sinuses showed large enhancing mass in nasopharynx, ethmoids, sphenoid with extension up to bilateral infratemporal fossa and extension into middle cranial fossa through superior orbital fissure and destruction of roof of sphenoid (Figs 1 and 2). Tumor was staged as Radkowski Stage IIIA. Embolization was done 24 hours prior to surgery.

Because of the bilateral lateral extension, the tumor was excised with nasomaxillary swing approach. A temporary tarsorrhaphy was done and a modified Weber-Fergusson incision was made beginning from the zygomatic arch and passing just below ipsilateral ciliary line, nasofrontal suture and contralateral nasomaxillary groove with lip split (Fig. 3). Appropriate sized miniplates were placed, screw holes were made, and then miniplates and screws were removed (Fig. 4). Osteotomies were made and the nasal bone, nasal septum, hard palate and maxillary bone were swung laterally and anterior skull base, postero-superior wall of nasopharynx and anterior part of clivus were fully exposed (Fig. 5). The medial, lateral and superior margins of the tumor were fully exposed. Dissection was done at the anterior skull base and tumor removed in toto after releasing its peripheral lateral attachments.

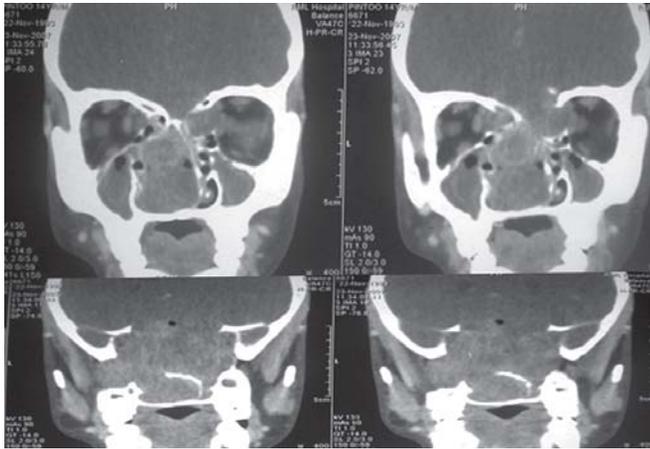


Figure 1: CT scan (Coronal cut) showing mass in bilateral nasal cavities, nasopharynx, adjoining sinuses with intracranial extension



Figure 4: Intraoperative photograph showing preplating before giving bony cuts

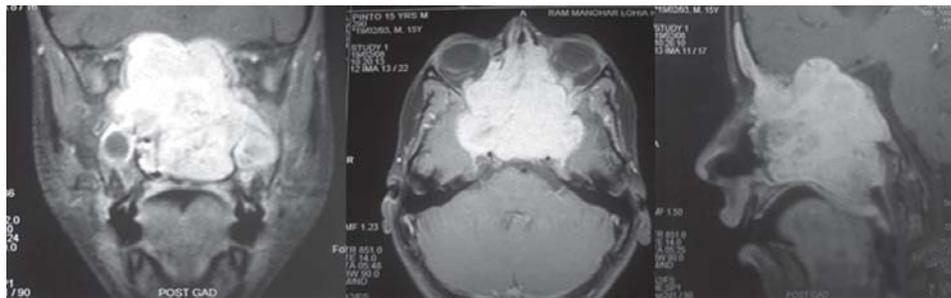


Figure 2: MR scan (coronal,axial and sagittal cuts) showing enhancing mass with bilateral extension



Figure 3: Clinical photograph showing skin incision marked for nasomaxillary swing approach



Figure 5: Intraoperative photograph showing maxillary bone and nose being swung laterally for exposure of the tumor

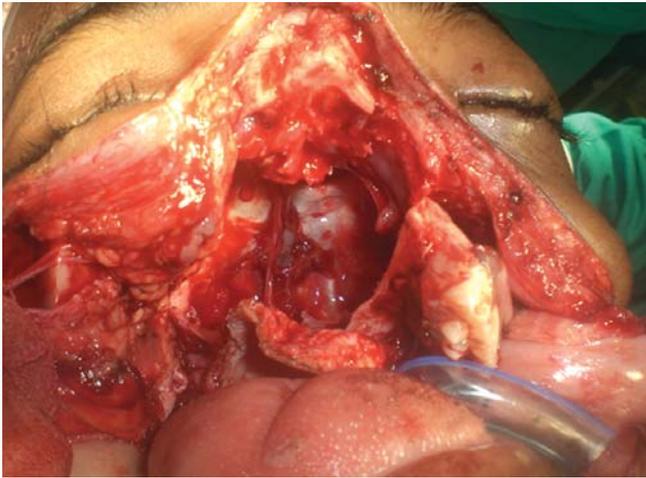


Figure 6: Exposed base of skull and dura after removal of tumor



Figure 7: Clinical photograph showing refixation of maxilla with mini-plates and screws



Figure 8: Clinical photograph of patient at postoperative day 6

After removal of tumor, whole of the skull base could be visualized (Fig. 6). Optic nerve and temporal lobe dura was found dehiscent. Dura was supported with abdominal fascia which was harvested through separate abdominal incision.

After complete removal of the tumor, maxillary bone and nose were repositioned. Bony alignment was done with mini plates (Fig. 7). Soft tissue and skin flap sutured in two layers. Pack was put in bilateral nasal cavities. Oral diet was started on the same day of surgery. Postoperative period remained uneventful (Fig. 8).

In the follow-up period, there was improvement in vision (6/12) on right side at 3 months and at follow-up period of 1 year patient was symptom free without any evidence of recurrence.

DISCUSSION

Juvenile nasopharyngeal angiofibromas are highly vascular, nonencapsulated tumors. Surgical excision of JNA is considered the primary treatment modality, whether intracranial or extracranial.² The open anterior approach may be chosen for those with intracranial extension. When intracranial extension occurs, the most common sites of intracranial extension of JNA include the middle cranial fossa, the pituitary fossa/parasellar, and the anterior cranial fossa. Appropriate surgical approach should be selected according to the clinical classification and whether the tumor has extended into whole nasal cavity, infratemporal fossa, intracranial or not. Such approaches might better facilitate the complete removal of nasopharyngeal angiofibromas and reduce the surgery related morbidity and recurrence.

Majority of angiofibromas are unilateral, although bilateral angiofibromas have also been reported in the literature.³ Maxillary swing approach provide excellent exposure of the nasopharyngeal mass having lateral extension and small intracranial extensions.⁴ One of the limitations of this approach is the inability to approach the contralateral extension of the tumor. To encounter this limitation, maxillary swing approach can be modified to nasomaxillary swing which provides excellent exposure of anterior and middle skull base as well as of the bilateral infratemporal fossa (Figs 9 and 10). This approach has previously been used for the tumors of skull base and large palatal tumors.⁵ In our case the tumor was having a large bulk with bilateral extension with erosion of anterior and middle skull base.

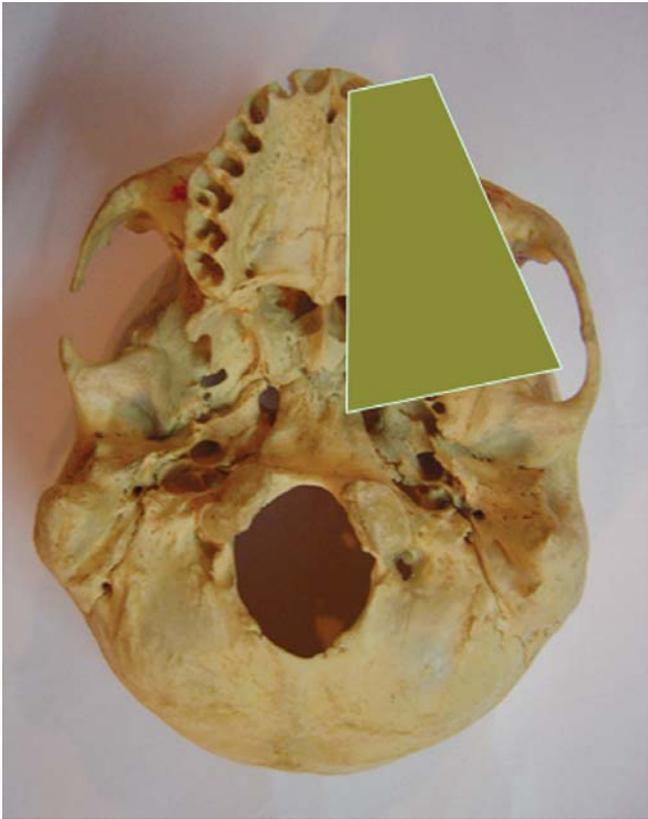


Figure 9: Schematic diagram showing approachable area through maxillary swing

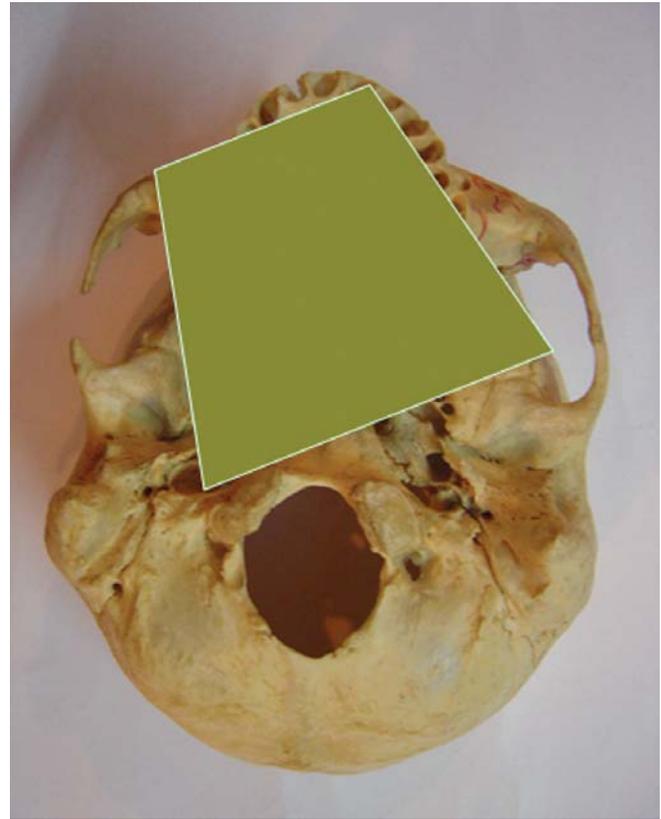


Figure 10: Schematic diagram showing approachable area through nasomaxillary swing

We excised the tumor completely with nasomaxillary swing approach which was not feasible with the conventional maxillary swing approach. With the use of this approach we were able to access bilateral infratemporal fossa with exposure of whole of the anterior and middle skull base and thus ensuing complete removal and avoiding a formal craniotomy. Morbidity and cosmetic outcome are nearly the same as for any other open transfacial approach and are reasonably acceptable.

CONCLUSION

Nasomaxillary swing approach provides excellent tumor exposure and with use of this approach extensive angiofibromas with bilateral extensions can be excised with good surgical outcome and minimal morbidity.

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