



MAXILLARY SWING TECHNIQUE TO LARGE JUVENILE NASOPHARYNGEAL ANGIOFIBROMA

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Abstract : Juvenile nasopharyngeal angiofibroma (JNA) is a risky vascular 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 juvenile nasopharyngeal angiofibroma with unilateral intraorbital infratemporal fossa extension in which tumor was completely excised by total maxillary swing approach.

Keyword : Angiofibroma, maxilla, swing, infratemporal fossa.

INTRODUCTION:

Juvenile nasopharyngeal angiofibroma (JNA) is a histologically benign, highly vascular tumor of the nasopharynx, which commonly presents in adolescent males. Morbidity from JNA is due to progressive obstruction, bleeding, invasion of paranasal sinuses & infratemporal fossa and in advanced cases due to intracranial extension. Intraorbital extension of tumor can lead to vision loss or ophthalmoplegia. 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 those accepted approaches for adequate exposure and complete removal of JNA and to minimize recurrence.

CASE REPORT:

A 18 yr old male came to the upgraded institute of otorhinolaryngology, rajiv Gandhi govt hospital, Chennai, with Bleeding through the nostrils On & Off 3months which was profuse, right side Nasal Obstruction for 3 months, right Side Facial Swelling for 2months, also with associated complaints of Headache, Mouth Breathing. There was no complaints of Hard Of Hearing, Ear Pain, Trismus, Ptosis, Epiphora, Diplopia, Decreased Vision Or Enophthalmos. there was No previous history of any surgical procedure. Anterior rhinoscopy revealed mild deviation of septum to left, bil inferior turbinate hypertrophy, no mass visualized, but on Postr rhinoscopy a reddish lobulated mass seen in nasopharynx, right ET orifice not visualised, Right Paranasal

tenderness +, Cold spatula test showed decreased fogging on right side.

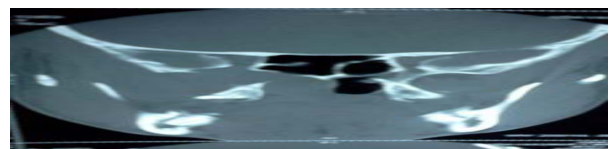
Computed tomography showed Fisch staging type iii-A with Soft tissue enhancement involving

1. sphenopalatine foramen



ct-sphenopalatine foramen involvement

2. nasopharynx and involvement of pterygoid plates



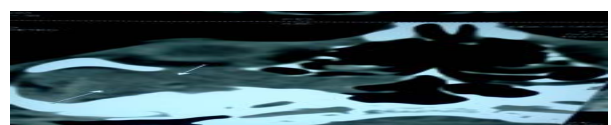
ct- pterygoid plates erosion and mass occupying nasopharynx

3. pterygo palatine fossa, widening pterygomaxillary fissure



ct- widening of pterygomaxillary fissure

4. Involvement of floor of orbit, inf orbital fissure, and involvement of greater wing of sphenoid.



ct- orbital involvement through inferior orbital fissure

Because of the tumour extent to infratemporal fossa and orbit open approach – total maxillary swing was preferred over endoscopic excision and other approaches



ct-angio showing mass supplied by internal maxillary artery

First we had a external carotid artery control and then right tarsoraphy done. weber ferguson incision done without gingivolabial component. inverted U shaped incision marked on hard palate. Infra orbital nerve sectioned as it comes out of infraorbital foramen. Periosteum of the inferior orbital wall elevated.



.osteotomies done with mini plates and screws

Appropriate sized mini plate and screws drilled for future anchorage of maxilla. Osteotomies performed at frontal process of maxilla and maxillozygomatic suture. Maxilla ethmoidal junction separated using an osteotome. Mucoperiosteum elevated over the hard palate. A straight osteotome placed over the anterior nasal spine to get down the maxilla. A curved osteotome is used to disarticulate maxilla from pterygoid process. Now the whole maxilla swung like a door exposing the mass in the nasopharynx.



maxilla mobilized and maxillary swing done

Mass was removed in toto with all its small projections from choana, sphenopalatine foramen, pterygopalatine fossa, infratemporal fossa, Sphenoid sinus, orbit under direct vision. Mini plate and screws were used to fix the maxilla back in place and skin sutured.



total removal of mass with all extensions



post operative picture after 2 months

DISCUSSION :

Juvenile Nasopharyngeal angiofibroma is a uncommon, benign, extremely vascular, locally invasive tumour that arises within the tissues of the Sphenopalatine Foramen 0.5% of all head & neck tumour recognized since ancient times by Hippocrates. Develops almost exclusively in adolescent males also found in children, elderly, young & pregnant women. Maurice & Millard theory- Nasopharyngeal angiofibroma arises from the misplaced erectile tissue [simulating penile erectile tissue] present in the base of the skull. At least 75% of the tumour present with androgen receptors, some shows progesterone receptor also. Vascular endothelial growth factor- marker Ki 67. Over expression of Insulin like growth factor-II associated with recurrence & poor prognosis. JNA develops 25 times more frequently in patients with Familial Adenomatous polyposis. Germ line mutation of APC gene on chromosome 5q- sporadic JNA. Mutation of beta catenin- sporadic & recurrent JNA. Well defined lobulated tumour, covered by nasopharyngeal mucosa. It consists of two components vascular components- proliferating irregular vascular channels lack of smooth muscles & elastic fibres- reason for sustained bleeding. Stromal components- made up of plump cells & varying amount of collagen. Plump cells- spindle or stellate in shape. Investigations CT & MRI – exact extent & stage of the tumour. CT Angiogram- to know about the feeding vessels & pre operative embolisation.

FISCH STAGING

TYPE-I : Tumour limited to the nasopharynx, bone destruction is negligible or limited to the sphenopalatine foramen

TYPE II : Tumour invading the pterygopalatine fossa or maxillary, ethmoid or sphenoid sinus with bone destruction

TYPE III : Tumour invading the infratemporal fossa or orbital region A: Without intracranial involvement B: With intracranial extradural [parasellar] involvement

TYPE IV : Intracranial intradural tumour A: Without infiltration of cavernous sinus, pituitary fossa & optic chiasma B: With infiltration of cavernous sinus, pituitary fossa & optic chiasma

Treatment: Surgery- main modality

1. Endoscopic Endonasal approach 2. Open approaches for type III tumours 1. Midfacial De gloving 2. Sardana's trans palatal, sublabial approach 3. Kerman's trans mandibular 4. Hiranandani's triple approach 5. Maxillary swing 6. Fisch type C- Infratemporal fossa approach 7. Facial translocation approach.

MAXILLARY SWING TECHNIQUE :

Indication: Nasopharyngeal tumours with extension into the infratemporal fossa. Contraindication: Lesions involving the petrous ICA, Lesions extending into the petrous apex, Parasellar involvement.

Advantages: direct approach, simple technique, Wide exposure & better visualisation, Good cosmetic & Functional results. Provide access for ligating feeding vessels, Not dealing with vital structures like Facial nerve & ICA. **Disadvantages:** Postoperative trismus, Necrosis of the maxilla in some cases, Palatal necrosis, Palatal fistula, Floating palate, Rhinolalia aperta.

CONCLUSION:

Type III A Tumours are difficult for the endoscopic endonasal approach for complete clearance and type IIIB & IV are beyond the endoscopic approach. Open approaches is the procedure of choice for the complete removal of tumour in these situations. Among the various open approaches, maxillary swing is the best approach regarding functional & cosmetic point of view and to prevent recurrences.

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