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Case Report

Fronto-Ethmoid Osteoma - A Case Report

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Abstract

Frontal osteoma is most of the times diagnosed accidentally, but it may rarely produce ophthalmic and neurological complications along cosmetic problem. Etiology of osteoma of frontal sinus may have many different factors. Surgical treatment is mostly specific to size of tumor and site of tumor. A combined method of open approach and endoscopic approach could help complete removal and decrease the chance of residual tumor. We are reporting a fronto-ethmoidal osteoma of size approx. 5*3 cm. The literatures review and our experience indicate that even large osteoma which arise from in the fronto-ethmoid region can be removed with lesser complication. The surgical approach may differ according to the size and site of the tumor. A regular follow up is necessary in view of the potential complications.

Keywords: Fronto-Ethmoid Osteoma; Frontal Sinus; Sunken Eye; Lynch– Howarth Incision

Introduction

Skull base osteomas are relatively rare new bone formations which often remain asymptomatic throughout many years of patient's life. Diagnosis is usually accidental, but rarely these can produce exceptional ophthalmic and neurological complications apart from cosmetic problems. So it is important to understand pathology of this tumor very well. Open and endoscopic approach together can be very beneficial.

Fronto-ethmoidal Osteoma: A Case Report

A 32 year old female presented to us with complaints of sinking of right eyeball and swelling at inner side of eyeball with decrease in vision since 5 years. It was also associated with frontal headache (right>left), blurring of vision, double vision, orbital pain and frequent cold and cough. Patient didn't had history of trauma to head or face.

Examination

- Showed right eyeball sunken and painless swelling at medial canthus of eye, diplopia was present and sinusitis was also present.
- Fundoscopy was normal.
- Vision was 6/36 in right eye and 6/24 in left eye.

CECT Brain and orbit

Showed an ivory osteoma of the right frontal and ethmoid sinuses, approx size4*3*2.7 cm extending along the roof and medial side of right orbit protruding into orbit causing downwards displacement of right eyeball. Lesion displaces right superior rectus muscle.

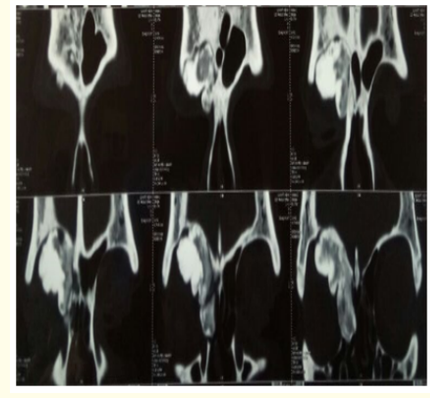

Figure 1: CECT Brain and Orbit showing tumor in Coronal section.

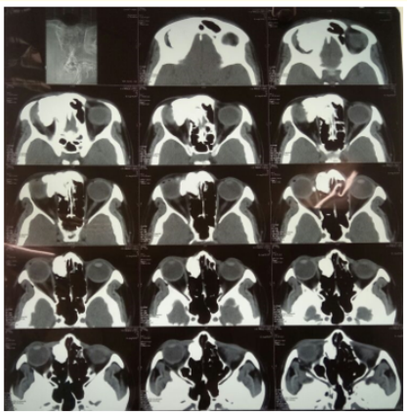

Figure 2: Axial cut of ct scan showing tumor extension in orbit.

Operative steps

After appropriate pre operative preparations painting and draping marking was done and lower eyelid was sutured and eye was closed. Incision kept and flap retracted.

Figure 3: Marking of Lynch Howarth incision.

Figure 4: Osteoma frontal part 3*3 cm.

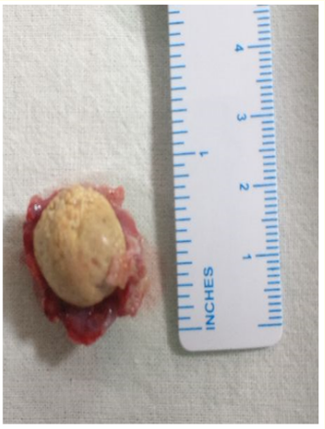

Figure 5: Ethmoidal part 2*2 cm removed.

Figure 6: Post operative healthy scar.

Remaining ethmoidal part was removed by endoscopic approach. The tumour was removed completely. Sinus kept open. 1 merocele was kept in nose removed after 2 days. No Post operative visual problem. No other bleeding or post operative complication found. Patient come for regular check up every 1 monthly. Suction clearance of crusting from nose done by endoscopically. Patient has healthy scar.

Discussion

Diagnosis of frontal osteoma is sometimes found accidentally, and very less likely to cause ophthalmic or neurological problem. Most common complaint patient have is headache due to sinusitis and forehead deformity are not [1]. Present theories of osteoma can't fully explain the etio-pathogenesis. More than one aetiology are possible for it. Open and endoscopic approach together can be

very beneficial. The surgical approach may differ according to the size and site of the tumor. A regular follow up is necessary in view of the potential complications.

Incidence

The exact incidence of this tumor is difficult to find since most of the cases are asymptomatic and present very late sometimes. Osteomas makes 1% of all bony tumors and 11% of benign bone tumors [2]. It is mostly seen in the second and third decades of life (75%) [3] with a male predominance [3] of 2:1. Osteoma of skull base are rare and occur in the frontal and ethmoidal sinuses. Less likely to occur in maxillary and sphenoid sinuses. 45 to 80% of paranasal sinus osteomas are found in the frontal sinus, 35% of these arising near the frontal sinus ostium and the others from the roof, floor, interfrontal septum, anterior or posterior wall. In the fronto ethmoidal region mostly it arise from nasolacrimal system.

Aetiology

3 main theories are possible for osteomastraumatic, infective and embryological [4-6]. Many times history of trauma may present. Trauma during adolescence period has more chances of developing osteoma. Sinusitis may cause osteoma. Embryological theory suggest that an osteoma may arise from fronto-ethmoidal sutures This looks like to be a more acceptable theory but the precipitating event could be recurrent infection or trauma.

Pathology

Osteomas are sessile tumor mass that arise from the subperiosteal or endosteal surfaces of the bony cortex. Histologically, they are composed of a composite of lameller and woven bone that is commanly deposited in a cortical pattern.

Three types of osteoma can be seen [4-7].

- Eburnated, (slow growing);
- Spongy (more aggressive growth);
- Mixed

Clinical sign/symptoms

Clinically, almost all of the frontoethmoid osteomas are asymptomatic. Some of them become symptomatic in the second to fifth decades of life with a male to female ratio of 2:1. This could be due to the larger exposure of the male population to trauma. The average growth rate is 1.60 mm/year, range of 0.44 to 6.0 mm/year [7]. The most common symptom is headache which is characteristically nocturnal and relieved by analgesics. There may be forehead disfigurment related to the site and size of the osteoma [6,8]. Ophthalmic problems are rare like proptosis, diplopia, ptosis [6,8]. Very rarely visual loss and epiphora can occur due to compression of lacrimal sac by the osteoma. Osteoma can compress the frontal lobe by eroding cribriform plate [7,9,10].

Diagnosis

Osteomas can be diagnosed by simple digital x ray of paranasal sinus [8]. CECT Brain with orbit and paranasal sinuses is very helpful for diagnosis and treatment planning.

Treatment

If no symptoms and elder patient with various comorbid condition than just wait and watch and regular follow up is needed. Otherwise surgery is the treatment of choice.

Selection of surgical approach mainly depends on the site and extent of the osteoma. Evaluation of intracranial disease.

A Howarth–Lynch incision extended to lateral rhinotomy and the nasofrontal flap aids good access to the orbit and to the frontal sinus and posterior ethmoid. This along with endoscopic clearance of sinuses was effective in ensuring complete removal of osteoma as well as treat associated sinus complications.

The incidence of recurrence may vary from 10-12%.

Conclusion

Frontal osteomas mostly produce ophthalmic and cosmetic problem. Clinical present depends on site of occurrence and size of tumor. Excision of tumor surgically is the treatment of choice. Only endoscopic approach may leads to incomplete removal of tumor. So open and endoscoic combined is very beneficial.

Conflict of Interest

The authors declare that they have no conflict of interest.

Informed consent

- "Informed consent was obtained from all individual participants included in the study".
- "Additional informed consent was obtained from all individual participants for whom identifying information is included in this article".

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