

An Unusual Giant Ethmoid Ivory Osteoma A CASE REPORT

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Abstract: An osteoma is the most common benign tumor of the nose and paranasal sinuses. Most commonly seen in the frontal sinus, it is less common in the ethmoid and maxillary sinuses. This tumor may be discovered incidentally on radiographs, or may grow enough to produce symptoms. Rarely, complications occur at its location near the orbit and anterior skull base. We present a case of a Giant Ethmoid Ivory Osteoma successfully treated with a Lateral Rhinotomy approach with no postoperative complications.

Introduction: Paranasal sinus osteomas are slow-growing, encapsulated bony benign tumors that usually cause few symptoms. They are usually detected incidentally in up to three percent of CT scans and one percent of plain sinus films being performed for unrelated reasons. The true incidence of these tumors is unclear, since they are frequently asymptomatic and diagnosed serendipitously. Osteomas usually present between the fifth and sixth decades of life. There is a slight male predominance, with ratios varying from 1.3:1 to 3:1. The greater preponderance of sinus osteomas in men is attributed to men's greater exposure to trauma and the larger size of their sinuses. Paranasal sinus osteomas may sometimes be a component of Gardner's syndrome, an autosomal dominant disease, characterized by intestinal polyposis and bone and skin lesions.

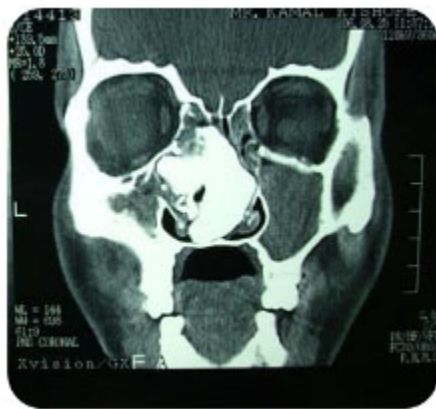
There are several theories regarding the origin of osteomas. The embryological theory postulates that osteomas arise at the junction of the embryonic cartilagenous ethmoid and membranous frontal bones. But we know that many osteomas arise at sites distant from this junction. Sinusitis has been suspected in the etiology of osteoma formation, but the incidence of osteoma and infection cannot be correlated. Trauma is another factor blamed in the formation of osteomas. However, many patients lack a history of trauma.

Two different histopathologic types of osteoma have been described. Firstly, the ivory osteoma, composed of dense bone with only a minimal amount of fibrous tissue and secondly, the osteoma spongiosum, containing mature cancellous bone. Occasionally, a third variety called "mixed" osteoma contains features of both.

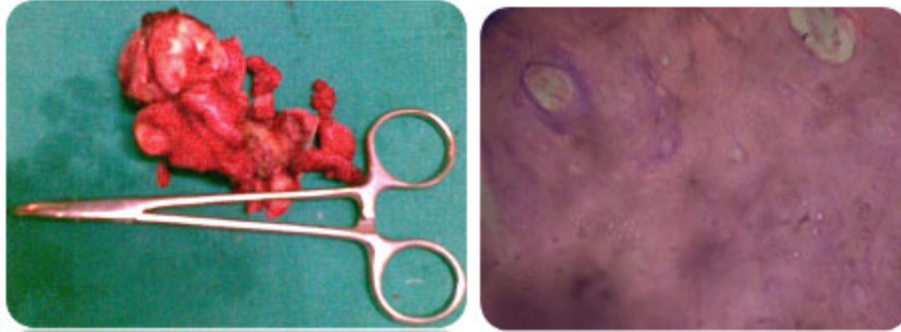
Although plain films play a role in the diagnosis of paranasal sinus osteomas, they do not give sufficient information. Computed tomography (CT) scan is the suggested method for determining the regional anatomy and the extent of the lesion. One should consider other fibrous lesions of the paranasal sinuses in the differential diagnosis. These lesions include fibrous osteoma, fibrous dysplasia, and ossifying fibroma.



Case Presentation: A 30 year old male patient presented with complains of nasal blockage and difficulty in breathing since 5 years of age. Besides this, there was an associated complaint of a mild, off and on headache. There was no history of trauma, nasal surgery or major paranasal sinus infection. On clinical examination there was no obvious external deformity while on anterior rhinoscopy there was a bony hard mass covered by mucosa and gross septal deviation towards the right side. The mass could be probed all around except laterally and was sensitive to touch. Nasal endoscopy revealed similar findings with distortion of the lateral wall of the nasal cavity on left side. There was also no suspicion of orbital and intracranial extension of tumor.



The remainder of head and neck examination was unremarkable. A subsequent CT scan of the paranasal sinus showed a well defined irregular ossifying lesion measuring 4 by 3 by 3 cubic cm, seen filling the left nasal cavity. The mass was arising from the left ethmoid sinus and displaced the septum to opposite side with lateral displacement of medial wall of left maxillary sinus. The soft tissue density filled the sphenoid, ethmoid and frontal sinuses bilaterally. The findings were suggestive of Ivory Osteoma of ethmoid sinus with pansinusitis.



The mass was removed via a

lateral rhinotomy approach. Intraoperatively, a hard smooth mass firmly impacted in left nasal cavity and pushing the nasal septum to right side was seen. The morphological findings were the same as were found on endoscopy. Postoperative histological findings showed dense mature predominantly lamellar bone with adjacent areas lined with a pseudostratified respiratory epithelium. The subepithelial area showed a dense chronic inflammatory infiltrate comprising of lymphocytes and plasma cells.

Discussion: The clinical presentation of paranasal osteomas can vary widely. Most paranasal sinus osteomas are asymptomatic due to their slow growth rate.¹ When they produce symptoms, headache or facial pain are the most common and are localized over the area of osteoma. Other symptoms include facial deformity, anosmia, rhinorrhea or secondary sinusitis. They may also produce orbital or intracranial complications when they extend beyond the confines of the sinuses.² Orbital symptoms include diplopia, proptosis, exophthalmos, and changes in vision.^{2,3} Neurologic complications such as subdural abscess, meningitis, and intracranial pneumatocele have also been reported. Symptoms are generally related to the location, size and growth rate of the osteoma.

It is generally agreed that asymptomatic osteomas without intracranial, or orbital extension, or cosmetic deformity require no treatment. These should be followed with serial radiographs to determine any change in size. Savic and Djeric (1990)⁴ recommend surgical removal for osteomas that are enlarging rapidly, extending beyond the confines of the sinus or filling more than 50 % of the volume of frontal sinus. They also recommend removal of osteomas associated with unexplained headache, recurrent sinusitis, ocular symptoms, central nervous system symptoms, and those that are located near the frontal sinus ostium or those causing cosmetic deformity.² Unlike other areas, sphenoid osteomas should be removed immediately, as their slow progressive growth can cause loss of vision due to compression of visual pathways.

External surgical procedures have been the method of choice in the treatment of paranasal sinus osteomas.⁵ Various surgical approaches for osteomas have been described; including osteoplastic flap technique¹, lateral rhinotomy⁶, and direct anterior fossa surgical approach.

Recently, endonasal endoscopic sinus surgery offers a minimally invasive alternative for the treatment of paranasal sinus osteomas but only if they have a smaller size.^{1,7} For large tumors, open surgery is the preferred technique to assure the complete removal.^{1,8} The authors opted for the lateral rhinotomy approach in this case as the tumor was too large (4 by 3 by 3 cubic cm) to be removed using endoscopic sinus surgery. The patient stayed for 4 days in the hospital after the operation and the post operative period was uneventful.

Reference

1. SCOTT-BROWN'S Otorhinolaryngology, Head and Neck surgery; Seventh edition <http://www.scottbrownent.com/>
2. Pai SB, Harish K, Venkatesh M, Udayshankar, Jermely D. Ethmoidal osteoid osteoma with orbital and intracranial extension - a case report. BMC Ear Nose Throat Disord. 2005 Mar 11;5:2. [View Abstract](#)
3. Mehta BS, Grewal GS. Osteoma of the paranasal sinuses along with a case report of an orbital-ethmoid osteoma. J Laryngol Otol. 1963 Jul;77:601-10. [View Abstract](#)
4. Savić DL, Djerić DR. Indications for the surgical treatment of osteomas of the frontal and ethmoid sinuses. Clin Otolaryngol Allied Sci. 1990 Oct;15(5):397-404. [View Abstract](#)
5. Lachanas VA, Koutsopoulos AV, Hajjiioannou JK, Bizaki AJ, Helidonis ES, Bizakis JG. Osteoid osteoma of the ethmoid bone associated with dacryocystitis. Head Face Med. 2006 Aug 4;2:23. [View Abstract](#)
6. Whittet HB, Quiney RE. Middle turbinate osteoma; an unusual cause of nasal obstruction. J Laryngol Otol. 1988 Apr;102(4):359-61. [View Abstract](#)
7. İLERİ F, S. USLU S, KÖYBAŞIOĞLU A, & İNAL E. Endoscopic approach in ethmoid sinus osteomas. Gazi Medical Journal 2000 11;85-88 <http://www.gmjournal.net/>
8. Osma U, Yaldiz M, Tekin M, Topcu I. Giant ethmoid osteoma with orbital extension presenting with epiphora. Rhinology. 2003 Jun;41(2):122-4. [View Abstract](#)