



SPHENOID SINUS OSTEOMA

ENT

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ABSTRACT

Paranasal sinus osteomas, especially those located in the sphenoid sinus, are rare lesions. They are usually solitary, benign and asymptomatic lesions and detected incidentally. We report a case of sphenoid sinus osteoma that was detected during investigations for otitis media. The patient was operated using the trans nasal endoscopic approach. Pathological examination revealed an osteoma. The patient was discharged on the postoperative 3rd day without any problems.

KEYWORDS

INTRODUCTION

Sphenoid sinus osteomas are benign and rare tumours of paranasal sinuses. They are generally slow-growing tumours. Paranasal sinus osteomas are usually asymptomatic and detected incidentally. The most common symptom of paranasal sinus osteomas is non-specific headache. The incidence has been shown to be from 0.014% to 0.43% with a slight male predilection. Paranasal sinus osteomas generally present as solitary lesions. Treatment options for sphenoid osteomas are still controversial.

Case Report

A 43yr old woman came to our ENT Opd, Narayana hospitals Nellore with a complaints of left ear pain, cold and non-specific headache. On otoendoscopy we found it was otitis media, gave medical management and advised for follow-up. After 2weeks symptoms subsided but headache persisted. Then we advised CT paranasal sinus showed a very dense mass lesion that completely filled the sphenoid sinus. There was no extension beyond the sinus margins or erosion of the bony borders. Preoperative magnetic resonance imaging (MRI) examination also revealed a bony lesion in the sphenoid sinus. There was no pathology in cerebral angiograms. The patient was operated via the trans nasal endoscopic approach. The walls of the sphenoid sinus were thinned by tumour. Tumour tissue was observed as an ivory white and very hard mass lesion. It was not possible to remove the tumour using biopsy forceps and curettes. Subtotal decompression was achieved with a high-speed drill and the specimen was sent for histopathological investigation. The postoperative period was uneventful and the patient was discharged on the postoperative third day. The lesion was diagnosed as osteoma by histopathological examination and was characterized by mature lamellar bone formation with prominent fibrosis in the intertrabecular spaces. New bone formation was evident at some areas. There were both ivory and cancellous parts indicating this was a mixed-type osteoma.

DISCUSSION

Osteomas are common benign tumours of the paranasal sinuses. They are located mostly in the frontal sinus, and less commonly in the ethmoidal and maxillary sinuses. The sphenoid sinus is a rare location. The exact pathogenesis is still unknown. Current theories on the aetiology of paranasal sinus osteomas are developmental, infectious and traumatic.

Embryological theories are based upon the belief that tumours may develop in those areas as in the case when endochondral and membranous bones meet at the junction of frontal and ethmoid bones. Infectious theory postulates that osteoblasts are stimulated by suppurative sinusitis and secondary deposition of calcium salts ossify the soft mass caused by exudative process and the stimulated osteoblasts. Traumatic theory states that exposure to trauma and subsequent osteoma formation through a process of trauma leading to bone cyst and then osteitis fibrosa and osteoma formation.

They are histologically classified as ivory or compact, cancellous or spongy and mixed type. Compact osteomas have a compact lamellar

structure with a numerous small Haversian canals and osteocytes. Spongy or cancellous osteomas have a periphery of compact bone with radial septa and lobular appearance. Mixed osteomas have a compact cortex and a spongy core with elements of other two types. No significant practical differences are found between these forms of morphology when diagnostic techniques, treatment and prognosis are considered.

CT is the method of choice for radiological diagnosis. It is able to show bony borders, erosions, soft tissue involvement and pneumatization as well. These pneumatization patterns are important for surgical planning of transsphenoidal approaches to pituitary tumors. These include sellar (90%), pre-sellar (9%) and conchal (1%) The sellar type is most common and describes sphenoid pneumatization posterior to the Sella turcica. The presellar type describes sphenoid pneumatization up to the anterior Sella the conchal type describes a shallow bowl with minimal sphenoid pneumatization and trabecular bone between the sinus and Sella.



Osteomas are seen as well circumscribed dense lesions in CT scans. However, MRI is mostly useful in demonstrating complications (e.g. mucocele, pneumatocele) and in differential diagnosis. Fibrous dysplasia, ossifying fibromas, clival chordomas, cranial base meningiomas and other types of bone tumours must be considered in the differential diagnosis. Preoperative coronal paranasal sinus tomography shows a hyperdense mass filling mainly the right side of sphenoid sinus. Histopathological examination of surgical material revealed compact mature lamellar bone and cancellous morphology with fibrosis at the intertrabecular spaces. Durmaz et al. reported that bone scintigraphy is useful making a differential diagnosis between various bone tumours and that it could detect the lesions not visible in plain radiograms.

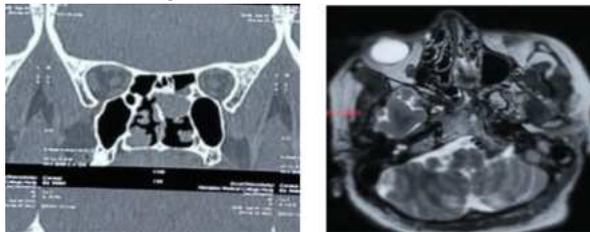
The most common symptoms are facial pain, headache and nasal obstruction. If the lesions extend beyond the sinus margins, they cause complications such as cerebral abscess, CSF leak, mucocele, pneumatocele, meningitis and visual disturbance and may also rarely extend intradurally.

Treatment of incidentally found osteomas is still controversial. Smith proposed that asymptomatic and minimally symptomatic patients could be followed by serial radiograms but that surgery is indicated if the lesion fills the frontal sinus by more than 50% by volume. On the other hand, ethmoidal osteomas can cause symptoms earlier than those in frontal sinuses because of the small size of the ethmoidal sinuses. Osteomas that may pose a potential risk to the visual pathways have to be operated on urgently when diagnosed. Savic et al. advocated that

surgery is indicated when extension beyond sinus margins or association with chronic sinusitis occurs and when they are localized near the frontonasal recess. They also proposed that ethmoidal sinus osteomas should be resected regardless of their size. Teed et al. proposed that osteomas should be resected when they are still small in size. For the past 20 years, minimally invasive surgery has gained popularity for paranasal sinus diseases. Frontal ethmoidal sinus osteomas can be reached and resected easily by endoscopic techniques. It is also possible to treat of sphenoid sinus lesions safely by endoscopic approaches. The restraints of this approach are vital structures adjacent to the sphenoid sinus such as the optic nerve, cavernous sinus and carotid artery. Lesions located laterally in the sphenoid and frontal sinus are very hazardous. Neighbouring structure must be evaluated carefully with preoperative CT and MRI to avoid fatal injuries. However, if cranial base involvement or complicated lesions are present, open surgery should be considered.

Summary

osteomas are benign and slow growing tumours. Asymptomatic lesions in the sinus margins can be followed by serial radiograms but a biopsy should be performed if there is any suspicion about the nature of the tumour. Osteomas beyond the sinus margins or associated with complications should be operated on. The operative technique has to be chosen according to the location and size of the tumours.



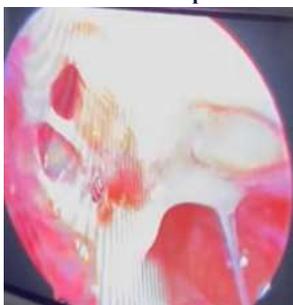
Pre Operative Ct Scan , CECT Scan And CT 3d Constriction Images



Intra Operative Findings



Post Operative second Week Follow Up



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