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CASE REPORT

Maxillary Sinus Osteoma: A Rare Cause of Headache

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ABSTRACT

A 66-year-old male presented with right-sided facial pain and headache since one year. MRI brain showed a large bony lesion in right side of maxillary sinus. CT scan of the paranasal sinuses revealed maxillary sinus osteoma. The tumor was excised through an opening made in anterior wall of maxilla along with endoscopic guidance through nasal cavity. Postoperative period was uneventful. The pathogenesis and various treatment modalities for maxillary sinus osteomas have been discussed.

Keywords: Osteoma, Maxillary sinus.

INTRODUCTION

Osteoma is a benign, slow-growing tumor characterized by proliferation of compact or cancellous bone. It is perhaps the most common benign tumor of the sinonasal system.[1] Radiologic evidence of osteoma can be present in up to 1% of all radiographs[2] and up to 3% of all CT scans.[3] In up to 95% of the patients the osteoma is situated in frontoethmoidal region. Osteomas of the maxillary sinus represent only 5% of the tumors involving this site.[4] We present a rare case of osteoma of maxillary sinus in a 66-year-old gentleman who presented with headache to the neurologist.

CASE REPORT

A 66-year-old male presented to the Neurology OPD with complaints of right-sided facial pain associated with headache since one year. He also gave history of nasal surgery 18 years back for nasal obstruction. The complete details of the surgery were not known. Neurologists planned for MRI brain which revealed a large bony lesion in the right maxillary sinus. He was referred to ENT department for further management. On further questioning, he also gave history of on and off right-sided nasal discharge. A CT scan of nose and PNS region was done which showed a dense (CT value 700-800 HU), well-defined rounded mass with a thick rim of peripheral calcification measuring 2.3 × 2.1 × 3.5 cm having smooth margins arising from the medial wall of the right maxillary sinus (Fig. 1). There was no evidence of any bone erosion, expansion or remodeling of the sinus. Diagnostic nasal endoscopy revealed bulge in right uncinate process. It was probably impairing normal drainage of maxillary sinus thereby resulting in chronic sinusitis. He was taken up for excision of the mass. A standard external approach using a modified Caldwell-Luc procedure was employed, as endoscopic surgery was limited by the size of the bony lesion. The tumor was mobilized completely using sharp dissection through a window made in anterolateral wall of maxilla. As the tumor was almost completely occupying the sinus, it was divided into two pieces inside the sinus and delivered out (Fig. 2). Postoperative period was uneventful and patient was discharged on second postoperative day. Histopathology report showed bony pieces with interconnecting trabeculae of mature lamellar bone with intervening loose fibroconnective tissue

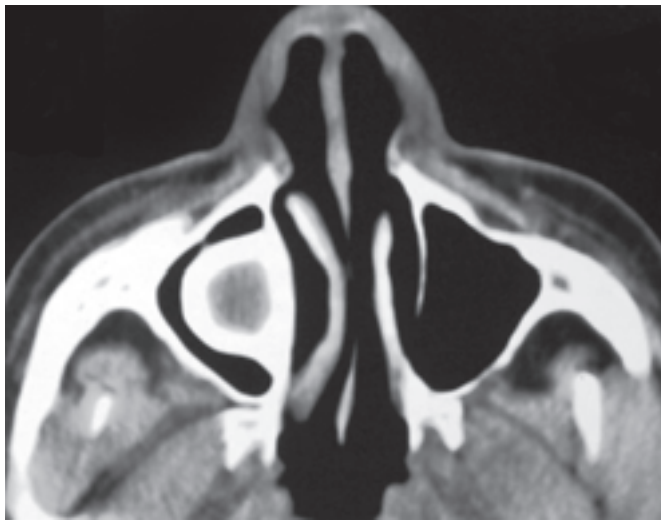

Fig. 1: Two-dimensional axial CT slice showing maxillary sinus osteoma arising from the medial wall of the sinus (2.3 × 2.1 × 3.5 cm)

containing plasma cells and lymphocytes. Postoperative period was uneventful and his headache relieved. A repeat CT scan at 6 months follow-up did not reveal any osteoma (Fig. 3).

DISCUSSION

Osteomas within the paranasal sinus tend to involve mainly the frontoethmoidal region.[4] An osteoma of maxillary sinus is extremely rare. They manifest as fixed tumors of bony-hard consistency that may be sessile or pedunculated. Clinically and radiologically, three variants of osteoma are seen: Central, peripheral and extraskeletal. Central osteoma arises from endosteum, peripheral arises from periosteum and the extraskeletal resides within the muscle. The peripheral type presents early as a swelling, asymmetry or erosion of the surrounding structures.[5]

Fig. 2: Intraoperative picture showing the maxillary sinus osteoma being delivered out through anterolateral window

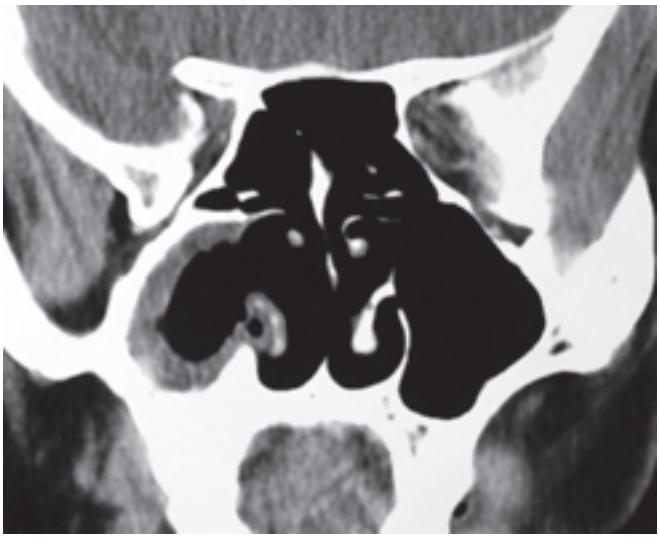

Fig. 3: Two-dimensional coronal CT slice taken 6 months after surgery showing no evidence of osteoma

Radiographically, a well-circumscribed round or oval radiopaque mass is seen. These tumors are most frequently diagnosed in middle age (20-50 years of age) and male to female ratio is approx 2:1.[6]

Pathogenesis of the osteomas is not completely known. The various etiological factors proposed are trauma, infection and the stimulation of embryological cartilaginous rests. Even minor trauma can trigger a reactive osteogenic process that initiates abnormal development of bone structure. Infection has also been suggested to stimulate bone turnover, resulting in osteoma formation. Some authors suggest that stimulation of embryological remains on the junctions between membranous and cartilaginous elements can predispose to formation of osteoma.[7]

Symptoms produced by the osteoma vary according to its location. A small osteoma within the sinus may be asymptomatic, whereas a peripheral osteoma can produce marked deformity of the face and neuralgias. In our patient, it occluded the sinonasal ostium and subsequently lead to sinusitis like picture. CT is considered as the gold standard imaging modality for the diagnosis of osteoma.[8] Osteoma is exhibited as a well-defined high-attenuation mass, with attenuation values similar to those of the normal bone.[9]

Histology of osteoma shows a dense, predominately mature, lamellar bone with variable amount of interosseus space and hematopoietic elements.[10] According to Fu and Perzin three histological patterns are recognized. Ivory osteoma made of compact and dense bone, mature osteoma composed of spongy, mature bone and mixed osteoma containing mixture of ivory and mature histology.[11]

Surgical treatment depends upon the site, size and severity of symptoms. A small and asymptomatic osteoma can be left untreated with regular follow-up, whereas a large osteoma requires endoscopic or external route for removal. In our patient, the osteoma was occupying almost whole of the maxillary sinus cavity, therefore, a sublabial approach was used. Recently large osteomas have been excised through the nose by cavitation, which consists of drilling the core of the lesion with a diamond bur, thus leaving a very thin shell of bone that can be easily fractured and dissected from the adjacent tissues.[12] The possibility of using a device inducing ultrasound bone emulsification has also been proposed.[13]

CONCLUSION

Maxillary sinus osteoma is a rare tumor to involve the maxillary sinuses. It can present as a diagnostic challenge

because of the late discovery and unpredictable behavior. The tumor leading to complications, like sinusitis surgical treatment is necessary to avoid short-term or long-term complications.

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