

Mastoid Osteoma: A Case Report

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Citation

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Abstract

Mastoid osteomas are benign, slow growing tumours which can arise from various sites in the temporal bone. These are rare and only 130 cases have been reported so far. They usually present with cosmetic deformity and sometimes with pain and hearing loss. These are readily excised and recurrence is rare after complete excision. A progressively enlarging osteoma of ten years is being presented.

INTRODUCTION

Osteoma in the mastoid is a rare benign osteogenic tumour which has been described in the literature in only 130 cases between 1861 and 2004¹. These are common in the fronto-ethmoid region^{2,3}, however these are very rare in the temporal bone in which the external auditory canal is the predominant location. Extra-canalicular osteomas of the temporal bone can present in the mastoid, squamous part of the temporal bone, internal auditory meatus and the middle ear⁴.

When located in the mastoid they are solitary, sessile or pedunculated and normally they progress to extra-cranial growth⁵. They may present with noticeable cosmetic alterations and sometimes result in hearing loss. Osteomas in general occur after puberty, and those of the mastoid process are seen more often in females. We report a case of temporal bone osteoma.

CASE REPORT

A 23 year-old female reported with a swelling behind the left ear of more than 10 years. It was gradually increasing in size. There was no history of trauma, headache, hearing impairment, otorrhoea, dizziness, vomiting, visual trouble or any neurological deficit. On examination, it was found to be about 3 x 3 cms, smooth, bony hard, non-tender and fixed to underlying bone. Skin over the swelling was free.

C.T. scan head with mastoid (Fig1) revealed a bony mass in the area of left mastoid. It originated from outer table of the skull with no evidence of invasion of the inner table or intracranial extension. A diagnosis of osteoma was made.

Figure 1

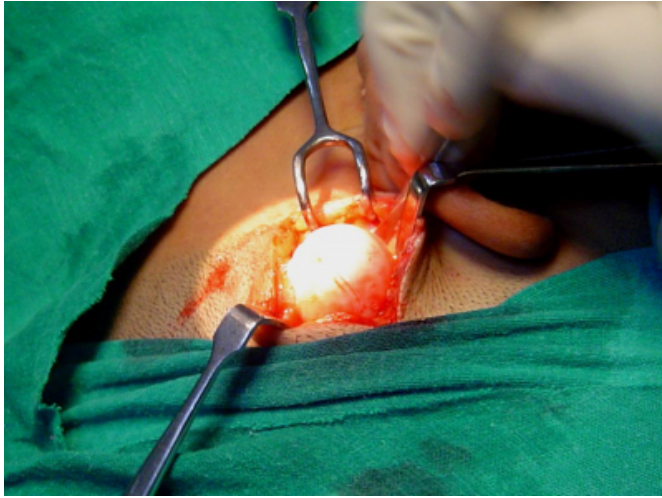
Figure 1: CT scan showing osteoma arising from left mastoid



The patient was taken up for the excision of the osteoma under general anesthesia. A modified post-aural incision was given behind the post-aural groove to expose the tumor. The periosteum over the central prominence of the tumor was circumcised and the remainder elevated (Fig 2).

Figure 2

Figure 2: Exposed mastoid osteoma



A chisel was placed at the junction of the tumor and the cortex. Light blows were applied using a mallet on all sides of the tumour and it was separated from the mastoid. The edges of the bone were polished with a diamond burr. The removed tumor measured 2.5 x 2.5 cms (Fig 3). The incision was closed in layers.

Figure 3

Figure 3: Excised osteoma measuring 2.5 x 2.5 cms



Post-operative period was uneventful. Histopathological examination report was osteoma. After twenty one months of follow up the patient is symptom free.

DISCUSSION

Osteoma of the mastoid is believed to be a rarity. It can be classified as a true osteoma, or bony neoplasm, rather than as an exostosis or hyperostosis².

Skull base osteomas are most commonly located in the frontoethmoid regions, but may also occur in the maxillary and sphenoid sinuses, mandible, and occasionally arise in the temporal bone⁶. The most common location of osteomas in the temporal bone is the external auditory meatus, followed by the mastoid and temporal squame with other sites being exceptional^{7,8}.

The etiology is not clear and various theories have been suggested, which include: trauma, infection and hereditary⁷. Stuart suggested that a pituitary dysfunction might influence this condition³. Excessive localized growth activity of the periosteal osteoblasts has also been suggested⁹. In the present case no such factor was found associated.

Temporal bone osteomas are rare before puberty and occur most commonly in females^{3,7,10} however osteomas of the middle ear are more common in males¹¹.

They are slow growing tumours and the size when first seen is variable, with the majority being smaller than 3cm. Mastoid osteomas are usually asymptomatic, but they may enlarge to cause cosmetic deformity such as external mass or protrusion and functional symptoms⁷. Pain occurs when the growth of the lesion involves the inner table of the temporal bone³. Pain may be localized in the ear region, the tympanic membrane or in the neck. The latter can be due to the irritation of the greater auricular or small occipital nerves⁵. Osteomas can cause functional symptoms. The neoplasm may infiltrate the cortex, causing posterior wall to be pushed forward, resulting in obstruction of the external auditory canal and conductive hearing loss^{3,5}.

Osteomas can arise from the inner table of squamous and petrous part of the temporal bone resulting in brain compression and generalized epileptic seizure¹².

Compact osteomas have a wider base and are slow growing whereas spongy osteomas are more likely to be pedunculated and grow relatively faster. Osteomas are composed mainly of mature bone. Microscopically, osteomas are characterized by dense lamellae with organized Haversian canals. The intratrabecular stroma contains osteoblasts, fibroblasts, and giant cells, with no hematopoietic cells¹³. Histologically there are three types of osteoma of the mastoid: osteoma compactum, osteoma cancellare, and osteoma cartilagineum. Clinically it is difficult to distinguish the type of osteoma because of the similarity of the symptoms and objective signs⁵.

On CT scan an osteoma is seen as a well-demarcated, hyperdense attenuating outgrowth tumor. Both coronal and axial scans are helpful in demonstrating the exact dimensions of the osteoma. Radiographically, the differential diagnosis of osteoma includes other bone forming lesions such as osteoid osteoma, benign osteoblastoma, ossifying fibroma, fibrous dysplasia, osteochondroma, chondroma, calcified meningioma, isolated eosinophilic granuloma, giant cell tumour, and malignant lesions such as osteosarcoma and osteoblastic metastasis^{6,14}.

Treatment is indicated for osteomas that are symptomatic or cosmetically unacceptable. Superficial lesions of the mastoid and squama are excised and drilled until underlying normal bone is exposed. In mastoid osteomas extending into the fallopian canal and bony labyrinth, complete excision is not indicated since there may be damage to these structures^{2,4,6}.

The periosteum over the osteoma is removed along with the tumor. If the tumor invades the diploe or the inner table, the lateral sinus and middle fossa dura may be exposed³. Gupta et al reported a case where sigmoid sinus was injured resulting in bleeding. The phlebitis of the sigmoid sinus resulted in ophthalmological complications like decreased vision, bilateral papilledema and paresis of right external rectus muscle⁸.

Follow-up is needed in cases where partial excision is done or where expectant treatment is adopted.

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