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# Extra Canalicular Osteoma of Temporal Bone: Chisel and Hammer has a Bearing?

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**Abstract**

Osteomas are benign tumors of bone seen most commonly in the frontoethmoidal region in head and neck. In temporal bone external auditory canal is the most common site of osteoma. However there are few cases of extra canalicular osteomas of temporal bone that have been reported in the literature. We present a case of a 13 year old child who presented to us with a hard swelling of post auricular region. Radiologic examination revealed features of osteoma arising out of mastoid part of temporal bone. This patient was operated with excision of the lesion for cosmetic reasons. Though rare, this is an important diagnosis for bony hard swellings of temporal bone and it needs to be in the list of differential diagnoses, Thus we present this case.

**Keywords:** Retro auricular swelling; Bony swelling of head and neck; Osteoma; Osteomas in head and neck; Mastoid osteoma; Temporal bone osteoma; Extra canalicular osteoma of temporal bone

## Introduction

Osteomas are benign tumors of lamellar bone seen rarely in head and neck region [1]. Common site for osteomas in head and neck region is frontal and ethmoids [2]. In the temporal bones, they are more common in external ear canal (EAC) [3]. There have also been few reports in the literature showing EAC cholesteatoma and even cerebellar abscess in cases of canalicular osteomas [4,5]. In the extra canalicular part they are rare and involve the mastoid part or the squamous part of the temporal bone [6]. They often present with bony hard swelling at time causing auricular protrusion [7]. In this report we have presented a case of mastoid bone osteoma in a teenager with its management and postoperative follow up.

## Case Report

A 13 year old male child presented to our outpatient department with complaints of a hard swelling behind his left ear for last 4 years which started as a peanut sized swelling and gradually progressed. He was concerned with the unsightly appearance though he had no pain, ear discharge or impairment of hearing. Child denied history of trauma. On examination there was 4x3 cm hard well defined swelling in the post aural region which was pushing the pinna anteriorly without causing any narrowing of EAC. Rest of otolaryngologic examination was normal. Audiometry was within normal limits. High resolution computerized tomography (HRCT) of temporal bone revealed a bony lesion confined only to the mastoid part of temporal bone (Figure 1).

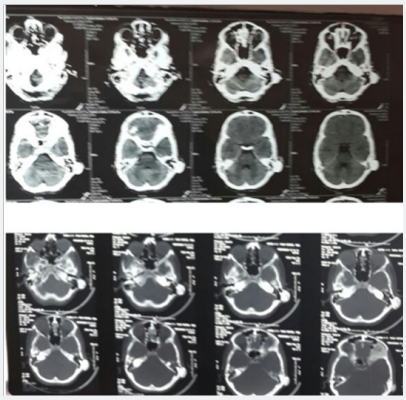

**Figure 1:** High resolution computerized to mographic image of the bony osteoma seen arising out of the mastoid part of the temporal bone.

Rest of the EAC, middle ear cleft, ossicles and inner ear were normal. Child was taken up for excision of the lesion under general anesthesia. A modified post aural incision (Figure 2) was made over the prominence of the lump. Soft tissues are

separated and lump was adequately exposed. With the help of chisel and hammer whole of the lump was excised with minimal bleeding. Remnant lesion was drilled out with diamond burr. Wound was closed in layers. Histopathologic examinationshowed proliferation of thick, mature, lamellar bony trabeculae (Figure 3). On subsequent follow up after three months child was doing well.

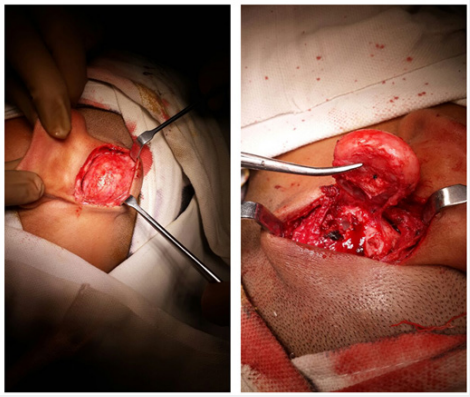

**Figure 2:** Clinical picture of the lesion and also seen is the incision marked.

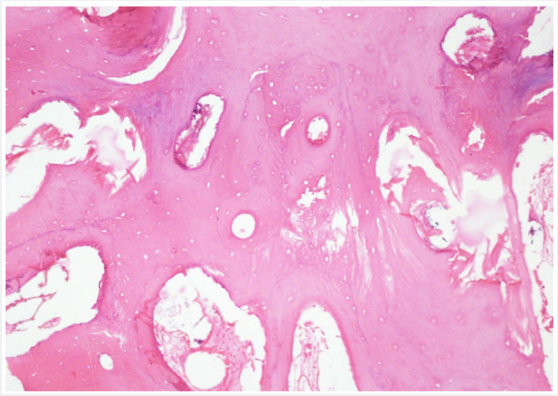

**Figure 3:** Photomicrograph showing proliferation of thick, mature, lamellar bony trabeculae (H & E, 100 X).

## Discussion

Osteomas are benign bone tumors, most common in long bones. In head and neck region, frontal and ethmoid regions are relatively common sites [8]. External auditory canal being the most common site in the temporal bone [9], few reports does mention about extra canalicular osteomas in the temporal bone mostly in the mastoid and the squamous part [10]. It has a female predominance [11] with 2nd and 3rd decade [12] being the most common age of presentation unlike the presented case who is in the early adolescent years. As described in this case, osteomas are mostly asymptomatic except for minimal complains of heaviness and cosmetic deformity [13].

Osteomas are very slow growing lesions and remain stable over long duration. Skin overlying is often free and swelling is bony hard in consistency. In the presented case the patient presented with a cosmetic deformity only. Temporal bone osteomas might lead to pain by stretching of the nerve fibers and widening of periosteum [14]. They can also produce canal cholesteatoma [15] with suppuration at times leading to intracranial complications also [16]. The most widely accepted theories on the etiopathogenesis of mastoid osteoma include: embryogenesis, metaplasia, inflammation, hormonal changes and trauma [10,17]. However in most of the cases etiology is unknown. There was no factor in our case which could have been attributed as an etiological factor.

Multiple osteomas may occur in Gardner's syndrome in which colonoscopy may be indicated to look for colonic polyposis. Small asymptomatic osteomas require no intervention. High resolution tomography of temporal bone is the imaging modality of choice to assess the extent of involvement. It reveals anatomical relationship with deeper vital structure [18]. In the absence of any complication, surgery is done for cosmetic reasons in mastoid osteomas as in our case. Osteomas can be easily chiseled out with chisel and hammer [19]. The remnant lesion can be drilled with diamond burr till the normal bone appears. Drilling of the attachment till normal mastoid bone prevents further recurrences [20]. Histologically osteomas show dense lamellae with organized haversian canals with the inter trabecular stroma containing osteoblasts, fibroblasts, and giant cells in the absence of hematopoietic marrow.

Osteomas can be of four types based on cellular contents in histology such as compact, cartilaginous, spongiotic, and mixed. Compact osteomas are dense, ivory-like, round and the most common type [21] which is either pedicled or wide based; in contrast the spongiotic types [22] are rare and formed by spongiotic bone and fibrous cellular tissue. In our case, post-operative histology showed features of compact osteoma with proliferation of thick, mature, lamellar bony trabeculae. Postoperative period was uneventful. Child is under follow up and is doing well.

## Conclusion

Mastoid osteomas are of rare occurrence. Unsightly appearance is the most common symptom for which surgery is indicated. High resolution computerized tomography of temporal bone confirms the diagnoses and guides during surgical excision. Differentials diagnoses like osteosarcoma and osteoblastic metastasis should be excluded. Asymptomatic small osteomas without any significant cosmetic deformity do not require any intervention. Chiseling of osteomas with drilling of remnant lesion has given good results.

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