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CASE REPORT

Osteoma arising from temporal bone; a case report

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ABSTRACT:

BACKGROUND: Osteomas are benign slow-growing tumors, which typically arise on the surface of the bone. They rarely arise from the temporal bone, accounting for 0.1–1% of all benign tumors of the skull. The external auditory canal (EAC) is the most common site for osteomas in the temporal bone.

CASE REPORT: A 40-year-old male presented to the outpatient department (OPD) with a complaint of hard swelling behind left ear for past 5 years, initially it was asymptomatic, with gradually increased in size from past 1.5 years manifested the episodes of unconsciousness, aggressive behavior and irrelevant talk, for which he presented to psychiatrist and was being managed as manic psychosis but treatment was ineffective. He never had any otological complaints. However, on examination, there was a solitary, smooth, bony hard swelling just posterio-superior to the left pinna, and the overlying skin was unremarkable. The left EAC and tympanic membrane were normal. A non-contrast computed tomography (CT) scan of the temporal bone showed a 36?×?21 mm exophytic, bony lesion arising from the squamous part of the temporal bone suggestive of an osteoma. The patient was taken up for surgical excision under general anesthesia. The bony lesion was removed from its attachment to the skull using a gouge and a mallet. The base of the tumor was drilled using a polishing burr to ensure complete removal and prevent recurrence. The histopathology was confirmatory of compact osteoma. Postoperative period was uneventful, and follow-up at 3-month post-surgery did not reveal any recurrence clinically.

CONCLUSION: Osteoma of the temporal bone is rarely reported, and surgical excision is the definitive treatment if symptomatic. Usually patients with either hearing loss or tinnitus if origin is from external auditory canal. This case report highlights the that osteoma may arise from other parts of temporal bone other than external auditory canal.

Keywords: Osteoma, Osteoid, Temporal Bone, Skull, post aural approach, external auditory canal

INTRODUCTION:

Osteoma is a rare benign slow growing tumor (1-3) . It is composed of compact lamellar bone usually on craniofacial sites (2). It presents as a pedunculated growth leading to cranial deformity and rarely on appendicular parts (2-4). In otorhinolaryngologic practice, temporal bone osteomas have limited cases with an incidence of 0.1-1 % of all benign tumors (5). It has more occurrence among males with male to female ratio of about 1.3:1.0.(6) . Patients with temporal bone osteomas usually remain asymptomatic (7) or may presents with hearing loss, tinnitus, without involvement of parenchyma of brain . Some of intracranial osteoma cases with involvement of meninges, presents with neurological symptoms as intermittent dizziness, headache, epilepsy and other pressure symptoms (8).

Non contrast computed tomography is investigation of choice for temporal bone osteoma.. Surgical excision is a treatment of choice with usual indication of cosmetic deformity associated with otolaryngiological and neurological symptoms. . The temporal bone osteoma has excellent prognosis with least post operation complication and chance of recurrence..

Case presentation:

History:

A 40-year-old male presented to the outpatient department (OPD) of Jinnah Post Graduate Medical Center with a complaint of hard swelling behind left

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ear for past 5 years, initially asymptomatic, which gradually increased in size from past 1.5 years which manifested the episodes of unconsciousness, aggressive behavior and irrelevant talk, for which he presented to psychiatrist and was being managed as manic psychosis. For this psychiatrist illness, he was given anti-psychotic treatment followed by 2 sessions of Electroconvulsive Therapy but his condition was not improved. He never had any otological complaints. There was no other significant past medical, surgical, allergic or loud sound exposure history. There was no family history for such tumors.

Examination:

However, on examination, there was a solitary, smooth, bony hard swelling just posterio-superior to the left pinna, and the overlying skin was unremarkable. It was non-tender, non-pulsatile and immobile having no signs of inflammation. The left EAC and tympanic membrane were normal. Pure tone audiometry shows no hearing loss.

Radiology:

A non-contrast computed tomography (CT) scan of the temporal bone showed a 36?×?21 mm exophytic, bony lesion arising from the squamous part of the temporal bone suggestive of an osteoma. (Figure 1).

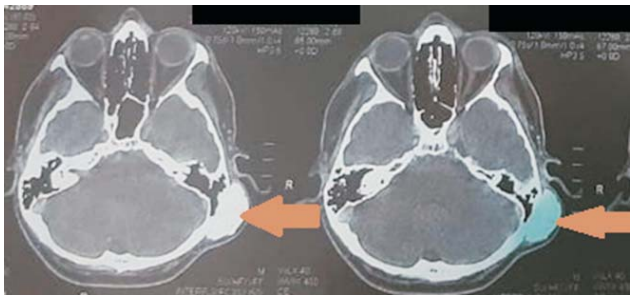

Figure 1: CT- scan showing temporal bone osteoma (brown arrow)

Surgical Procedure:

The patient was taken up for surgical excision under general anesthesia, as shown in Figure 2(A). Post auricular incision of 3-4 cm was given. Mass was exposed by raising skin and sub cutaneous flap as shown in Figure 2(B). The bony lesion was removed from its attachment to the skull using a gouge and a mallet. The base of the tumor was drilled using a polishing burr to ensure complete removal and prevent recurrence. The histopathology was confirmatory of compact osteoma.

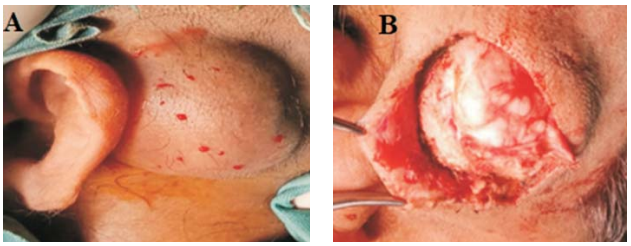

Figure 2. [A] Shows location of temporal bone oeteoma behind pinna of left ear; [B] shows osteoma after surgical incision with skin and subcutaneous flap retracted. (black arrow)

Follow up:

Postoperative period was uneventful, and follow-up at 3-month post-surgery did not reveal any recurrence clinically.

Discussion:

Temporal bone osteoma is a rarely occurring small, benign and slow growing tumor involving external auditory canal, middle ear, styloid process, temporomandibular joint, superior petrous temporal bone and internal auditory meatus (12, 14, 15) . It can presents with vast variety of symptoms like bony swelling associated with tinnitus, hearing loss, headache, stretch sensation, ear discharges, neurologically deficit and sometimes only with asymptomatic cosmetic deformity (16-19). In our case, patient had asymptomatic swelling having cosmetic deformity, although present on squamous part of temporal bone but still not causing any neurological deficit. There is only one case of temporal bone osteoma associated with dementia (20) , reported in literature, our case also has psychotic symptoms but its not clear if they are due to osteoma as no literature found regarding temporal bone osteoma associated with manic psychosis. Although osteomas are classified into 3 types clinically; Osteoma Compactum (21), Osteoma Cancellare and Osteoma Cartilagineum. . Osteoma is classified on basis of occurence into syndromic and non-syndromic osteomas (12). Syndromic Osteomas have various examples including Gardner's syndrome which is an autosomal dominant disorder consists of triad (22) mesenchymal tumors of skin , polyposis coli and osteomas . While Non-Syndromic Osteomas with risk factors including trauma, genetic origin, surgeries, chronic infections and radiotherapy (12). Our patient was not presented with such significant symptoms or predisposed to any of these risk factors.

Provisional diagnosis of mastoid osteoma includes osteoblastic metastasis, osteosarcoma,

osteoid osteoma, ossifying fibroma, Paget's disease, giant cell tumour, hemangioma, eosinophilic granuloma, calcified meningioma, fibrous dysplasia, calcified meningioma and hemangioma (24)wq. To differentiate among them, investigation is based on clinical presentations and scans. Temporal bone osteoma can be best excluded by Non Contrast Computed Tomography scan as in our case, which can be further confirmed by histopathology of excised tumor (19) . Treatment of choice is surgical resection of tumor to treat cosmetic deformity and relieve symptoms (37).

Temporal Bone Osteoma reported cases are enlisted in Table 1 that are found during literature review.

Table 1: Temporal bone osteoma reported cases from literature review

Case/Author/ Year/Ref	Age	Gender	Location	Site	Symptoms	Neurologic Involvement	Treatment	Post-opt condition
1.Dinakaran [2022],	36	F	EAC, MA	Lt	Otorrhea, Hearing loss	NO	SR	Hearing improved, NR
2.Wooi Keat [2019],	40	F	PAR	Rt	Painful Swelling	NO	SR	NA
3. Kumar Singh [2017],	40	F	PAR	Lt	Asymptomatic swelling	NO	SR	NR
4. T.Kandakure[2016],	30	F	Mastoid Bone	Rt	Asymptomatic swelling	NO	SR	NR
5. Our case	40	M	Squamous part of temporal bone	Lt	Asymptomatic swelling	No	SR	NR

EAC; External Auditory Canal, MA; Mastoid Antrum, PAR; Post Auricular Region, NA; Not Applicable, Rt; Right, Lt; Left, M; Male, F; Female, NR; No Recurrence, SR; Surgical Resection

Conclusion:

The literature review of previously reported cases of Temporal Bone Osteoma shows the patients with no neurological involvement. We have represented the rare case that shows the unique asymptomatic Temporal Bone Osteoma arising from squamous part of temporal bone which underwent surgical excision as usual resulting in complete resolution of symptoms

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