



Case Report

## A Case of Mastoid Osteoma

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### Abstract

**Objective:** We present a case report and systematic review of rare mastoid osteoma and discuss the differential diagnosis and treatment.

**Case report:** A 28-year-old woman presented with painless lump behind the right ear since couple of years. A general anesthesia surgical procedure was performed, in a retro auricular approach. Histopathology studies were consistent with osteoma. Post-operative period was uneventful.

**Discussion:** A literature review confirmed that the temporal bone, intracanalicular osteomas are more frequent while extracanalicular osteomas are rare and very rarely occur over the mastoid region. Surgical treatment is the gold standard mainly for cosmetic purposes.

**Conclusion:** Osteoma over the mastoid region is rare and mainly asymptomatic and observed excellent prognosis after complete removal of the lesion.

### Keywords

Osteoma; Temporal bone; Cranial neoplasms; Primary treatment

### Introduction

Osteomas are osteoblastic tumors of the lamellar bones. Paranasal sinuses (frontal-ethmoid region) are the most common site of osteomas arising from head and neck. However, Osteoma of the temporal bone are very rare and when they occur is seen most commonly in the external ear canal, rarely present in the mastoid, the squamous portion of the temporal bone, inner ear canal and middle ear [1]. The etiology is not clear and various theories have been suggested [2]. They are often asymptomatic, slow-growing and usually cause cosmetic deformity such as external mass or and auricular protrusion but depending on the location can also cause symptoms like headache, localized pain, hearing loss and vertigo [3]. Three types of mastoid osteomas can be distinguished: compact osteomas, spongy osteomas and those with mixed characteristics [4]. Computed tomography is the gold standard exam for its diagnosis. The treatment for osteomas is surgical resection and recurrence is rare after complete removal.

### Case Report

A 28 year old female patient referred to our Otorhinolaryngology department, University Hospital Purpan Toulouse France, complaining of painless lump behind the right ear since 2009. The

lump gradually increased in size. She had no past medical or surgical history. She reported no history of hearing impairment, tinnitus, vertigo, auricular discharge, trauma or facial paralysis [5].

The physical examination showed isolated tumor of approximately 3 cm in diameter on the right retroauricular region, hard, non-tender and not movable. On otoscopy external auditory canal and tympanic membrane were normal. Audiometry revealed normal hearing in both ears. Blood investigations revealed all components within the normal range.

The radiological assessment was made by temporal bone CT scan showing an irregular hyper dense formation of the right mastoid process, measuring approximately 3 cm, spherical, with cleavage areas between the tumor and the mastoid external cortex (Figure 1).

A general anesthesia surgical procedure was performed, in a retroauricular approach; mastoid tip was exposed as for simple mastoidectomy. The osteoma was identified and the drilling around it was performed, caring for facial nerve; the resection was completed by using a chisel to separate the remaining attachment.

Findings on histopathology examination were consistent with osteoma. Post-operative period was uneventful.

### Discussion

Osteoma is a slow growing benign mesenchymal osteoblastic tumor formed by mature bone tissue. They accounts for 2.6 per cent of primary bone tumors. The highest incidence occurs in the long bones like proximal shaft of femur 19% followed by proximal tibia 10%, head and neck osteomas 0.1% to 1% [6].

Head and neck osteomas are most commonly located in the front ethmoid regions, the incidence of osteomas highest in frontal followed by, ethmoid and maxillary sinuses, extremely rare in the temporal bone. Among them, the external auditory canal is the most common location of osteomas in the temporal bone, followed by the mastoid and temporal squama [7-10].

The first publication of mastoid osteoma in the literature by Adam Politzer in 1887 and by 2012, there were about 137-150 cases of mastoid osteoma reported in the literature [10-12].

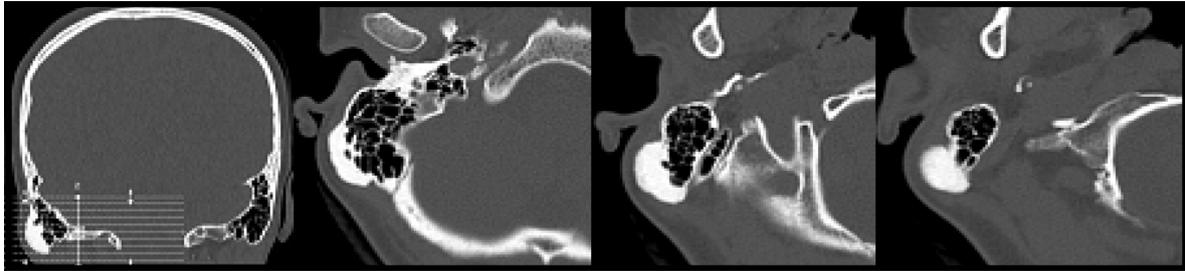
Mastoid osteomas are characterized by single lesion, slow growth, show benign features and remain stable for some years. They are usually asymptomatic with incidental finding and may present esthetic deformities, such as external bulging of the mass or auricular protrusion. Furthermore, they can present with symptoms by invasion of neighboring structures [3].

The etiology is not clear and various theories have been proposed which are; congenital theory, based on facts that some osteomas occurs in male patients in puberty; infectious theory, reported in patients with recurrent suppurative otitis media; and traumatic theory, in cases with micro trauma of subperiosteal hematoma [13].

Three types of mastoid osteoma have been described based on bone composition; compact osteomas (osteoma eburneum) which is the most frequent one, spongy (osteoma spongiosum), and mixed (osteoma mixta) [4,5,7]

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**Figure 1:** Temporal bone CT scan showing an irregular hyper dense formation of the right mastoid process.

Differential diagnosis of mastoid osteoma should include osteosarcoma, osteoblastic metastasis, eosinophilic granuloma, Paget's disease, giant cell tumor, osteoid osteoma, calcified meningioma, monostotic fibrous dysplasia and Gardner's syndrome (in patients presenting with large skull multiple osteomas) [14].

Computed tomography (CT) with 3D reconstruction is the gold standard exam for its diagnosis, The osteoma presents as a well circumscribed mass with soft tissue density, eggshell like density or bone density in CT scan [11].

The treatment of choice for mastoid osteoma is a surgical resection via retroauricular approach. It is indicated for osteomas that are symptomatic, cosmetically unacceptable, to prevent voluminous growth and possible risk of complications in the surgical procedure and to confirm the diagnosis. The osteoma must completely be excised until normal mastoid air cells are exposed. Complications of surgery including facial nerve damage, tearing of the sigmoid sinus, and postoperative auricular discharge, have been reported [8].

Prognosis has been considered to be good after complete removal of the osteoma. However, there were 2 cases with recurrence after treatment has been reported in the medical literature [9].

## Conclusion

Any lump or mass behind the ear should be removed for the histological diagnosis. Mastoid osteomas are very rare in head and neck and their management depends upon the symptomatology and cosmetic problem. Surgical treatment with total removal has excellent prognosis.

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