

Osteoma of external auditory canal – a rare case report

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Abstract

Osteoma is a benign, slow growing tumour which is most commonly located in the fronto-ethmoid regions, but may also occur in maxillary and sphenoid sinuses, mandible and occasionally arise in temporal bone. Osteoma of the external auditory canal should be differentiated from exostoses. These can produce similar clinical picture. The various differentiating clinical features between osteoma and exostoses of the external auditory canal, the controversies of histological features and management are presented.

Key Word: Exostoses, External auditory canal (EAC), Osteoma.

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INTRODUCTION

Osteomas of the external auditory canal are considered clinically to be discrete, pedunculated bone lesions arising along the tympano-squamous suture while exostoses of external auditory canal are broad based elevations of bone usually multiple and bilaterally

symmetric, involving the tympanic bone. The clinical features usually overlap in the two conditions but the histological studies do not agree on the differentiating features. A rare case of external auditory canal osteoma along with a review of the differentiating features and management is being presented.

CASE REPORT

A 24 year-old male reported with a swelling in the left ear of 2 years duration. It was gradually increasing in size. The patient gave history of intermittent earache and hearing impairment. There was no history of swimming, trauma, dizziness, vomiting, visual disturbance and neurological deficit. On Otoscopic examination, the swelling was found to arise from the anterior wall of the external auditory canal. It was about 1 x 1 cm, smooth, bony hard, non-tender swelling fixed to underlying bone.



Image 1: Osteoma EAC case

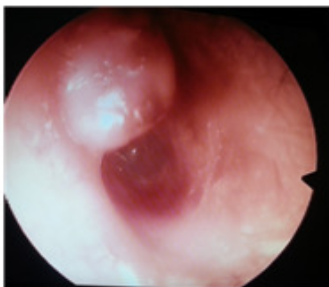


Image 2: Left and right otoscopic views



Image 3: HRCT Temporal bone (bilateral) suggestive of left EAC osteoma

OPERATIVE PROCEDURE

The patient was taken up for the excision of the osteoma under local anesthesia. 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 bony external auditory canal. The edges of the bone were polished with a diamond burr. The removed specimen was measured as 6 to 7 mm in size. After placing back the elevated skin the external auditory canal was packed with betadine impregnated gelfoam. Post-operative period was uneventful.

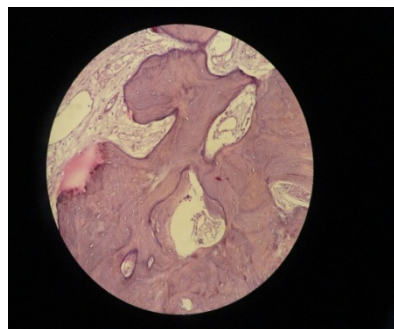


Image 5: Histopathology Slide

Histopathology report showing osteoma was covered by squamous epithelium with an underlying periosteum. The internal structure was characterized by discrete fibrovascular channels surrounded by lamellated bone.



Image 4: Removed surgical specimen

Removed specimen was measured as 6 to 7 mm in size. It was hard and bony in consistency and globular in shape with no distinguishable peduncle.

DISCUSSION

Skull base osteomas are most commonly located in the fronto-ethmoid regions, but may also occur in the maxillary and sphenoid sinuses, mandible, and occasionally arise in the temporal bone. The 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. It is widely accepted that external auditory canal (EAC) exostoses and osteomata are separate clinical entities that differ in their gross appearance. The age and sex incidence of these distinct clinical entities are similar. Exostoses are a benign growth of bone originating from periosteum. These are multiple, bilateral often with anterior and

posterior sessile lesions, broad based and are found medial to the sutures on the tympanic bone. These are thought to be a reactive condition secondary to multiple cold water immersions, or recurrent otitis externa. Ears with exostoses have been called surfer's ear. Exostoses are generally asymptomatic, unless it grows to large size or there are multiple exostoses in the ear canal, trapping water and debris or impinging on the motion of the ossicular chain. Most common symptom of exostoses is conductive hearing loss. Water and debris trapped medial to it can cause otitis externa, otorrhea and otalgia while complete obstruction o can cause complications like acquired post-obstructive cholesteatoma that can extend medially into the middle ear cavity, superiorly through the tegmen into middle cranial fossa or posteriorly to involve the mastoid air cells. Osteoma are true bony tumours that are single, unilateral and pedunculated and arise from the tympano-squamous or tympano-mastoid suture line, often found at the anterior aspect of the bony-cartilaginous junction of external auditory canal. Osteomas present with similar symptoms as exostoses including conductive hearing loss, otorrhea, otalgia, otitis externa and cholesteatoma. Unusual presentations of osteoma include unilateral headache and as an EAC polyp. On CT scan findings of exostoses appear as broad based lesion with no deep extension, while an osteoma is seen as a well-demarcated, hyper-dense attenuating outgrowth tumour. Graham reported histological findings of osteoma and exostoses. Osteoma is covered by a dense squamous epithelium with an underlying periosteum. The internal structure is characterized by a great abundance of discrete fibro-vascular channels surrounded by lamellated bone. The appearance of bone between these channels varies considerably, being primarily dense and oriented in different directions. Exostoses are covered by a squamous epithelium with underlying periosteum. The internal structure of the lesion is characterized by parallel concentric dense layers of sub-periosteal bone abundant in osteocytes and devoid of fibro-vascular channels and their contents so characteristic of osteomas. The newly

formed, mature bone is arranged in layers, suggesting periodic growth. A concentric, lamellar bony organization gives rise to the classic 'onion-skin' histologic appearance. The treatment options for both exostoses and osteoma are similar. For small lesions frequent cleaning of debris from the EAC is needed, while large lesions causing EAC obstruction and hearing impairment require surgical removal. The skin of EAC should be preserved and injury to the tympanic membrane should be prevented. Anterior lesions should be treated first, because their removal is less likely to damage the facial nerve or dura. Further, removing anterior lesions enables the surgeon to better visualize the posterior lesions of the ear canal. During removal of anterior lesions the temporomandibular joint can be violated resulting in temporomandibular joint prolapse and sub-cutaneous emphysema secondary to air entry into the joint through a bony defect. Other complications include canal stenosis, sensori-neural hearing loss, tympanic membrane perforation and facial nerve injury.

REFERENCES

1. Fenton JE, Turner J, Fagan PA. A histopathologic review of temporal bone exostoses and osteoma. *Laryngoscope* 1996; 106: 624-28.
2. Graham MD. Osteoma and exostoses of the external auditory canal: A clinical, histopathological and scanning electronic microscopic study. *Ann Otol Rhinol Laryngol* 1979; 88:566-72.
3. Ben-yaakov A, Wohlgelernter J, Gross M. Osteoma of the lateral semicircular canal. *Acta Oto-laryngologica* 2006; 126: 1005-7.
4. Denia A, Perez F, Canalis RR, Graham MD. Extracanalicular osteomas of the temporal bone. *Arch Otolaryngol Head Neck Surg* 1979; 105: 706-9.
5. Camacho RR, Vicente J, Cajal SR. Imaging quiz case 2. *Arch Otolaryngol Head Neck Surg* 1999; 125: 349, 351-52.
6. Wong BJ, Cervantis W, Doyle KJ, Karamzadeh AM, Boys P, Brauel G et al. Prevalence of external auditory canal exostoses in surfers. *Arch Otolaryngol Head Neck Surg* 1999; 125: 969-72.