

Osteoma of the External Auditory Canal Masquerading as an Aural Polyp: Case Report and Review of Literature

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Abstract Osteoma of external auditory canal is a rare benign tumour. Usually slow growing, found incidentally and often symptomless. Rarely an osteoma may present as a simple aural polyp and may be mistaken as polyps arising secondary to tuberculous, chronic otitis media or carcinoma. The presentation of an osteoma as an aural polyp is extremely rare, and there have been very few reports published. Here we have a case of osteoma in an eighteen years old male arising from the postero-superior wall of the external auditory canal masquerading as an aural polyp, causing decreased hearing and aural fullness which was relieved by removal of the tumour.

Keywords: osteoma, aural polyp, external auditory canal

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1. Introduction

An osteoma of the external auditory canal (EAC) is an uncommon benign tumor with an incidence estimated to be 0.05% of total Otologic surgery. [1] In the head and neck, they most often arise in the fronto-ethmoidal region and rarely in the temporal bone. [2] Osteomas have been described in all regions of the temporal bone, including the middle ear, internal auditory canal, semicircular canals, squamous temporal bone, mastoid and in the external auditory canal. [3] Because it is solitary, unilateral and slow-growing, it usually is asymptomatic and discovered incidentally. It may rarely present with conductive hearing loss, recurrent otitis externa, headache or a mass in the EAC. Aural polyps are commonly a consequence of chronic suppurative otitis media, tuberculous otitis media or neoplastic as in adenoma or a carcinoma. Osteomas presenting as a polyp have rarely been reported in the literature. A case of osteoma of the EAC in an eighteen years old male mimicking an aural polyp is being reported. A brief review of the literature follows thereafter.

2. Case Report

A 18 year-old man presented to the ENT Outpatient Department with decreased hearing and aural fullness in the right ear for one and a half year. There was no history of ear discharge, ringing in the ears, vertigo or earache. He denied ear pricking, trauma or swimming. A physical examination revealed that the right EAC was almost

completely occluded by a single, about 0.5x0.5cm, pinkish, spherical, pedunculated polypoidal mass arising from the postero-superior wall. It was non tender, firm, did not bleed on touch and the probe could be passed anteriorly, inferiorly but not postero- superiorly. The almost complete occlusion of the EAC did not enable examination of the tympanic membrane. A pure tone audiogram revealed 35 db conductive hearing loss while the other ear was normal. High resolution computed tomography of the Temporal bone revealed a bony outgrowth 7x7mm in the Rt. EAC (Figure 1). The mass was excised under general anaesthesia through a postauricular approach. After partial elevation of the tympanomeatal flap, an 8x8 mm bony mass was identified arising from the postero-superior wall of the EAC (Figure 2). The peduncle was drilled out with a small diamond burr from its attachment by micro-drill and micro-curette. Medially were scanty wax and debris on removal of which revealed a normal tympanic membrane. The patient had an uneventful postoperative period without any signs of facial palsy after surgery or any other complications, and was discharged 3 days later. Histopathologic examination revealed fine trabeculae of lamellar bone and prominent intertrabecular fibrovascular tissue consistent with osteoma (Figure 3). The patient is on follow up and no recurrence has been detected.

3. Discussion

Temporal bone osteomas are rare entities that can present in any portion of the temporal bone. Among them, the EAC is the most common site. Osteoma of the EAC usually arises from the site lateral to the isthmus of the

EAC, and its base is located at the tympanosquamous or tympanomastoid suture lines adjacent to the bony-cartilaginous junction in most cases. This was also seen in our case where the osteoma seemed to originate from the postero-superior wall of the canal. An osteoma originates from the preosseous connective tissue in these suture lines because they have a thicker subcutaneous layer and a richer blood supply than the other bony canal. [2,4,5] There are also reports of osteomas located in the cartilaginous portion of the external auditory canal [6].

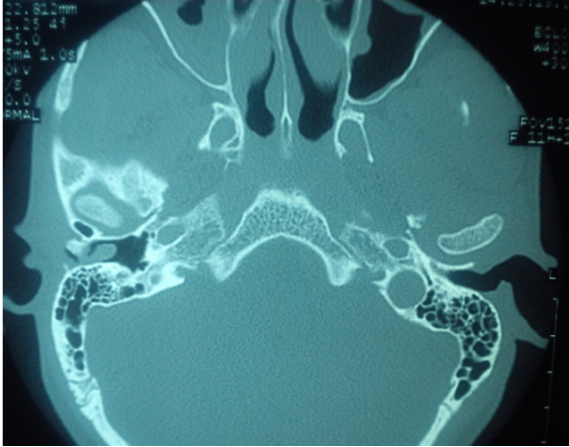


Figure 1. HRCT Temporal bone showing osteoma in the Rt. EAC

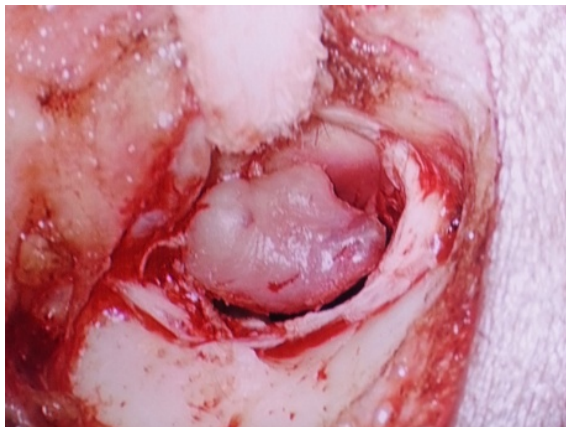


Figure 2. Osteoma in the EAC on Post aural Approach.

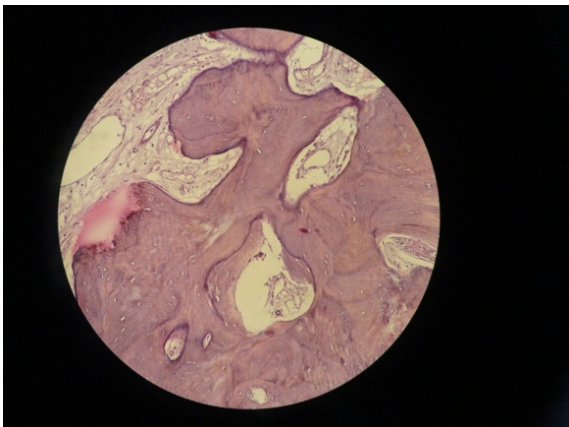


Figure 3. Histopathology showing fine trabeculae of lamellar bone and prominent intertrabecular fibrovascular tissue consistent with osteoma

Its incidence peaks in the fourth decades of life, and a male-to-female ratio is known to be 2–3:1. However in our case the age of presentation was much earlier in the

second decade of life. Although its etiology includes trauma, surgery, radiotherapy, chronic infection, and glandular factors such as a pituitary dysfunction, the precise etiology is still unknown and considered to be a true bone tumor [2,4,5]. No such etiology was detected in our case.

Although an osteoma of the EAC grows slowly and remains stable for many years, symptoms such as conductive hearing impairment, repeated external otitis or earfullness can arise, if the growth is large enough to mechanically obstruct the sound waves in the external auditory canal, or to trap wax between it and the drum. However in most cases, they are discovered accidentally during otoscopic or radiographic examination. Rarely they may present as aural polyp as in our case which could be due to reactive change in the skin overlying the osteoma or headache in the temporal region perhaps due to tumour encroaching on the branches of auriculotemporal nerve causing referred pain to the temporal region, the anterior wall of the external auditory canal being supplied by branches from auriculotemporal nerve. [7] The association of an osteoma with a cholesteatoma is extremely rare, and has also been described in few reports [8,9].

The main treatment for an EAC osteoma is a surgical excision. The size and location of the osteoma as well as the severity of symptoms determine the treatment. [10] The major surgical challenges of removing obstructive EAC osteoma are related to proximity of the temporomandibular joint, facial nerve injury, inability to visualize the medial EAC landmarks, the thin skin covering the osteoma and contact with the tympanic membrane. [1,8,11] Recently piezoelectric device are being increasing used in the excision of symptomatic osteoma of the EAC. The piezoelectric device is a new bony scalpel using the microvibrations at ultrasonic frequency so that soft tissue (nerve, vessel, dura mater, skin, etc.) will not be damaged even on accidental contact with the cutting tip [12].

Controversy exists as to whether external auditory canal exostoses and osteomas should be considered similar or separate histopathologic entities. Pulec and Deguine, [13] categorize osteoma and exostoses as a single clinical group. Schuknechts classifies the lesions limited to the external auditory canal as exostoses and lesions that extend beyond the canal as osteoma. [14] Osteomas are usually solitary, pedunculated lesions attached to the tympanosquamous or tympanomastoid suture lines, whereas exostoses are usually multiple, bilateral (90%), broadly-based elevations of bone. Exostoses are relatively common as compared to the rare incidence of osteomata. Osteomata are considered to be true bone tumors, and exostoses are thought to be a reactive condition secondary to multiple cold-water immersions [15] or recurrent otitis externa [16] although they are also observed in individuals who routinely use stethoscopes (e.g., cardiologists) [6].

Osteomas are also a common feature associated with Gardner's syndrome, which is an autosomal dominant disease characterized by multiple intestinal polyps, epidermoid inclusion cysts, fibromas of the skin and mesentery and osteomas. [16] Osteomas in Gardner's syndrome are frequently found in the mandible and maxilla. In our case, the patient did not have any other skin lesions, family history of Gardner's syndrome, or gastrointestinal symptoms.

Histologically, osteoma have an internal structure of abundant, discrete, fibrovascular channels surrounded by irregularly oriented lamellae of bone. Exostoses, in contrast, show parallel concentric layers of subperiosteal bone with numerous osteocytes and absent fibrovascular channels. Three differentiated types of osteoma have been described histologically: compact, spongiotic, and mixed. Compact osteoma is dense, ivory-like, round neoplasm. The spongiotic type is formed by spongiotic bone and fibrous cellular tissue and is rarely found [3].

The otologic surgeon may run in to a trouble when encountering an apparent aural polyp, if he does not have the differential diagnosis of osteoma however rare in mind since this may be a nidus for a more deeply situated sinister pathology, which may not necessarily be a chronic or tuberculous otitis media so frequent in the developing world.

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