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CASE REPORT

Keratosis Obturans – A Case Report

P Shanmugavadivu

Author Affiliation: [1]Ph D Scholar, School of Health Science, Indira Gandhi National Open University, New Delhi

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Abstract

Keratosis obturans is a rare external ear disorder characterized by accumulation of desquamated keratin which gets impacted with sebum and cerumen in the external auditory canal .The disease condition is manifested by means of Otalgia, conductive hearing loss, may be associated with rhinitis and sinusitis and temporomandibular joint syndrome. It can be treated with mechanical removal of wax by ear syringing and topical ear drops and for the pain management topical analgesics. Very rarely surgical treatment is necessary.

Keywords: Cerumen; Cholesteatoma; Keratosis obturans; Otalgia; Otorrhoea.

Introduction

Ear wax, about which we may think it as nuisance and its presence, indicates that we are not hygienic. But truly speaking it is naturally lubricating and protecting our ears and it also prevents the entry of harmful things like bugs, dust, and other dirt. Hence it acts as a filter. Its pH and lysosomal properties helps in antimicrobial action.[10] Movement of the temporomandibular joint helps the ears' natural cleaning process. Earwax also helps in migration of shed skin and debris out to the ear canal opening. Failure in this migration process results in piling up of dead skin with the ear wax in the inner half of the ear canal, eventually forming a semi-hard plug. An increase in the rate of the skin production and shedding cycle results in localized ear condition called keratosis obturans that obstruct the ear canal. The presence of a keratin plug occluding the deep external auditory canal was first noted and documented in the 19th century.

Case presentation

A 12 years boy came with complaints of recurrent bilateral ear pain for the last 2 months. He had an on and off history of rhinitis, Otalgia pain in the left side of the face due to which he neglected to chew in the left side. He refused symptoms of otorrhoea, tinnitus, vertigo, vomiting, and headache. He couldn't recognize any hearing loss .He was visiting various clinics and was treated conservatively, but was not benefited out of it. Instead his schooling was affected out of it. With this visit in the otolaryngological outpatient clinic on otoscopic examination of the boy's right external auditory canal indicates irregular canal with exposed bone in the posterior wall floor. The left

Corresponding Author: P Shanmugavadivu, Ph D, School of Health Science Nursing, Indira Gandhi National Open University, New Delhi, Delhi.

E-mail: vadivushri@gmail.com.

ear indicates accumulation of desquamated cells and the impacted wax. Tympanic membrane intact with myringitis in the right year and it was not seen in the left year. CT SCAN report from outside clinic suggested cholesteatoma.some other otoscopic report says chronic suppurative otitis media. Both the ear pure tone audiometric test implies mild conductive hearing loss in the left ear. Then he was treated with Auraphene-B, (carbamide peroxide) ear drops for 15 days Tid for the right ear. Otorex ear drops (Dexamethasone; Framycetin sulfate; Gramicidin) for the left ear for 15 days Tid.For temporomandibular joint syndrome he was treated with Nobel gel (diclofenac diethylamine 1.16% topical). Tab supradyn for calcium and vitamin supplement for 15 days. After 15 days in the second visit ear cleansing with ceruminolytic agent (docusate sodium, 3% hydrogen peroxide, 2.5% acetic acid, 10% sodium bicarbonate, and water or saline) was done for the manual removal of the debris. Now the boy shows a bit of improvement and he was advised for the follow up checkups in the next one month.

Keratosis: Meaning

Kerato refers to keratinocytes, the prominent cell type in the epidermis, and -osis, abnormal) is a growth of keratin on the skin or on mucous membranes

Keratosis Obturans: Definition

Keratosis obturans is accumulation of desquamated keratin in the external auditory meatus. It is common in young patient population.[1]

Keratosis obturans is a rare condition characterized by the accumulation of desquamated keratin material in the bony portion of the external auditory canal, mainly in its inferior or posterior part. It occurs as a result of faulty migration of squamous epithelial cells which usually arise from surface of tympanic membrane and adjacent part of canal wall and get mixed with cerumen to form dense plug.[1,2,5]

Etiology

Exact cause is unknown. But it may be due to a problem with faulty migration of squamous epithelial cells from the tympanic membrane and adjacent canal wall, or, it may be caused by overstimulation of the wax glands by the nervous system.

Risk Factors

Previous history of sinusitis and bronchiectasis.[3]

Inflammation caused by virus, fungus and parasite.[3]

Regular use of cotton buds to clean the ear wax.[3]

Pathogenesis

Impairment in the natural migration of desquamated skin results in its accumulation in the bony portion of the external auditory canal. Also it gets mixed with cerumen to form a dense plug of keratin. This ends up with hyperplasia of underlying epithelium, chronic inflammation of sub epithelial tissue and a generalised widening of bony canal that may cause smooth erosion of medial canal rarely posing some danger to deep structures.[1,5]

Clinical manifestations

Symptoms of fullness, uneasiness and sometimes conductive hearing loss especially in children, global widening of the canal.[3] Otorrhoea is also seen in patients, though rarely.[5]

Table 1: Keratosis obturans (KO) (grades I–IV).

Grade I	Mild pain ± ear block with the presence of accumulated keratin enveloped by a tightly adherent matrix; no discernible expansion of external canal
Grade II	Moderate to severe pain ± conductive deafness; presence of accumulated keratin enveloped by a tightly adherent matrix with mild expansion of the bony canal (arrow) in the presence of keratosis obturans
Grade III	Moderate to severe pain ± conductive deafness; presence of accumulated keratin enveloped by a tightly adherent matrix with expanded bony canal (arrow a) with granulation tissue (arrow b) at the osteo-cartilaginous junction
Grade IV	Presence of accumulated keratin enveloped by a tightly adherent matrix (grade III) with exposure of the mastoid air cells with/without facial nerve involvement

Diagnostic Evaluation

Ear examination

CT scan or x-ray of temporal bones may reveal canal erosion and widening.[4]

Differential diagnosis: external ear canal Cholesteatoma. (Have previously been considered to represent the same disease process.) However, review of the literature reveal these to be two different clinical and pathological processes.[4]

Treatment[6]

1. Mechanical removal of the epidermal plug and periodic cleansing of the canal, by means of wax syringing Granulation tissue may be managed by removal, cauterization, or the use of topical steroid drops.[5]
2. Use of keratolytic agents like 2% salicylic acid in alcohol.
3. Rarely Surgical removal under General Anaesthesia.
4. Canal plasty in recurrent cases.

Prevention

Stop using the cotton swabs to probe the ear. Plug the ear while taking bath to prevent entry of water into the ear.

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