



Keratositis Obturans: How Can Excruciating and Agonising Otagia Be Deceptive and Illusive???

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Abstract

Keratositis obturans is a relatively uncommon condition characterized by accumulation of desquamated keratin debris in the bony portion of the external auditory canal. Patients with this condition present with severe otalgia, conductive hearing loss, aural fullness and inclusive widening of the canal. Here is this patient who presents to ENT OPD after visiting many clinics with unbearable otalgia which was mistaken and mixt as impacted cerumen and diffuse otitis externa at those places.

Keywords: Keratositis Obturans; Otagia; Keratin Debris; Epidermal Plug

Introduction

Keratositis obturans is a murky entity of the external auditory meatus defined by accumulation of densely accumulated keratin debris in a lamellar arrangement that causes broadening and blockage of the ear canal. The characteristic clinical features include primarily excruciating otalgia with hearing loss due to the collection of this epidermal plug in the canal while secondarily causing aural fullness. The incidence is 4 - 5 patients in every 1000 patients of new otology cases.

Case Report

33 year old male comes to ENT OPD after quite a few "hospital hopping" visits with austere, unbearable otalgia in the left ear since > 20 days. His symptoms also accompanied ipsilateral reduced hearing with aural fullness. He was diagnosed to have impacted wax to diffuse otitis externa at various ENT clinics along with multiple failed trials for its clearance as well as conclusion. On clinical examination, patient was stable and comfortable with vitals within normal limits. There were no abnormal findings detected on systemic examination. On local otoscopic examination of the left ear, skin overgrowth was seen all around the ear canal like a polypoidal pouch containing keratin debris within it as shown

in figure 1. The tympanic membrane could not be visualised with its status unknown. While otoscopic examination of right ear was unremarkable. Nose, Throat and Head and Neck examination findings were within normal limits. HRCT Temporal bone was done to rule out external ear canal cholesteatoma. HRCT showed soft tissue attenuation in the left external ear and middle ear cavity with mild erosion of adjacent bony wall. Rest of the features on the HRCT Temporal bone in the left ear appeared to be normal as shown in figure 2 and 3. After taking necessary consent for the procedure, he underwent oto-microscopic guided examination under sedation; soft tissue with debris removed was sent for histo-pathological examination. The tympanic membrane was intact following the clearance of the debris. He was diagnosed to have Keratositis Obturans with confirmation from histopathology report and was managed conservatively. Patient on follow up after 10 days had no complaints to offer and was symptomatically better. The oto-endoscopic picture of the left ear showed healing canal mucosa as shown in figure 4. The next plan of management was a second look surgery; to do Exploratory Tympanotomy so as to clear the minimal accumulated keratin debris in the middle ear as well as the mastoid system. The patient was asked to visit OPD after 15 days after the first follow up. But the patient was lost to follow up probably because he was symptomatically relieved from his symptoms.

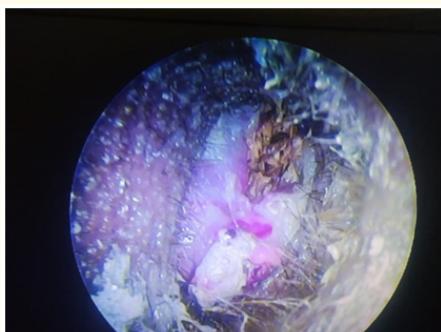


Figure 1: Oto-endoscopic picture of left ear.

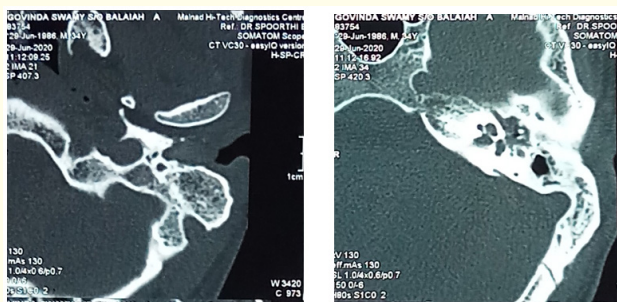


Figure 2 and 3: HRCT images of the left ear.

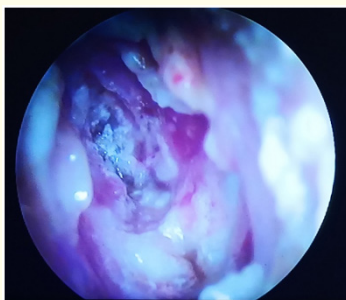


Figure 4: Oto-endoscopic picture of the left ear showing healing ear canal mucosa after 10 days of follow-up.

Discussion

Keratositis obturans (KO) is one of the rare external auditory/acoustic canal (EAC) disease characterized by abnormal build-up with consequential expansion and occlusion of bony portion of the canal by dense plug of desquamated keratin debris. KO and EAC cholesteatoma were thought to represent same disease, but both have varied clinical presentation with few overlapping characteristics making diagnosis thought-provoking with a totally diverse management [1]. KO manifests usually in < 40 years of age group and is bilateral in 50% of cases most commonly in children. Patients

with KO can present with enormously wide, circumferentially well-expanded ear canal with intact annulus “suspended in the air” [10]. Otorrhoea is a rare finding in KO. Keratin forms a protective barrier on the skin and is released by skin cells that form hair and nails.

Patients present with severe, unbearable otalgia because of accumulation of keratin in the ear, conductive hearing loss, itching in the ears, aural fullness, inflammation and widened ear canal with thickened tympanic membrane, which was seen in this case too [2]. While the characteristic features of KO are: dense deposition of epithelial debris within deep meatus, hyperplastic changes of underlying epithelium, sub-epithelial tissue showing chronic inflammatory changes, expansion with remodelling of canal having no evidence of erosion or necrosis of the underlying bone. Patients with EAC cholesteatoma, show up with otorrhoea, U/L chronic dull-aching otalgia that is secondary to annexation of squamous tissue into a limited area of periostitis in the canal [9].

The pathogenesis of KO remains ambiguous, although eczema, seborrhoeic dermatitis and furunculosis are seen frequently associated. In addition, KO can occur with chronic PNS disease (i.e. sinusitis) or bronchiectasis, that accelerates reflex sympathetic stimulation of cerumen glands and subsequent formation of epidermal plug [5,7]. As per data, in EAC cholesteatoma, excessive production of epithelial cells or faulty epithelial migration can result in epidermal plug formation plus circumferential broadening of bony canal with no evidence of osteonecrosis or bony sequestration [7].

Radiologically, HRCT temporal bone shows well-defined soft tissue mass within bony EAC with evidence of ballooning of osseous part of EAC with no bony erosion [4], as opposed to EAC cholesteatoma which is seen in this case. The middle ear is usually spared but with slightly thickened drum which is seen in this case. Few differentials to this condition are: EAC debris that are partially filling canal showing air foci, EAC cholesteatoma: canal with soft tissue density and bone erosion, EAC carcinoma: irregular mass with or without bone erosion and Otitis externa (OE): fat stranding seen surrounded by inflammation [8].

The 2 types of KO are inflammatory or silent type [6]. Inflammatory type is an acute viral infection where epithelial migration can be transiently changed by inflammation. Removal of keratin can cure inflammatory type. Silent type is caused by abnormal separation of keratin causing continuous progression of disease even after first removal. Hence, regular aural toileting is a mandate to treat the disease [4]. In addition, patients with KO have no association with inflammation of canal skin and will need lifelong periodic aural toileting because of local metabolic deficiency that affects

normal migratory mechanism [8]. Regular aural toileting and application of topical medication are needed to remove keratin plug. For refractory cases of disease, split skin graft and canaloplasty have been adapted to treat such cases [9].

Several different types of ear drops are available to treat this condition which includes oil-based compounds (olive oil), water-based compounds (sodium bicarbonate or water itself) and non-water, non-oil-based solutions (hydrogen peroxide-urea compound) [2]. Dryness in the ear, mild stinging sensation are the possible side effects of sodium bicarbonate ear drops. While side effects such as unpleasant taste, temporary bubbling sensation, increased pain in ear, temporary loss of hearing, dizziness and tinnitus are for non-water, non-oil based ear drops. Some patients may experience a tingling/stinging sensation, mild temporary deafness with olive oil ear drops [7,11]. An impaired ear drum, discharge, tinnitus, signs of inflammation within 2-3 days of application are contraindications for hydrogen peroxide ear drops. On the other hand, contraindications to oil based ear drops are allergy, perforated ear drum, external eczema, seborrhoeic dermatitis. While there are no contraindications for sodium bicarbonate ear drops [6].

It is perplexing to discriminate KO and impacted wax at initial presentation. Only when there is intense pain with typical "silvery white peripheral matrix" in the deep ear canal diagnosis of KO is reached. Bleeding can occur due to shedding or detaching off the matrix which is a result of neovascularization that is formation of new capillaries around matrix is most likely outcome of inflammation or irritation of neighbouring skin of bony canal [1,3]. In treatment, usually aural toilet is sufficient but due to a high incidence of recurrence, it may need several repeated visits for clearance of keratin plugs. Therefore, it may rarely need any surgical intervention [4].

Conclusion

Keratoses obturans (KO) is regarded as a benign condition but can result in sombre snags. In our case, the condition was mistaken, misdiagnosed and mixt and the patient just ended up getting loaded with whole lot of unnecessary antibiotics and analgesics for > 1 month. Hence, it is essential for prompt recognition and precise management to prevent complications and provide symptomatic relief for any such condition.

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