Original Research Article

Clinical Study of Keratosis Obturans

Srikanth Myla[1*], K. Varsha[2]

[1]Professor, [2]Post Graduate
Department of ENT, S.V.S Medical College, Mahabubnagar, Telangana, India
[*]Corresponding author email: **myla.srikanth@gmail.com**

International Archives of Integrated Medicine, Vol. 8, Issue 1, January, 2021.
Available online at http://iaimjournal.com/
ISSN: 2394-0026 (P) **ISSN: 2394-0034 (O)**
Received on: 15-12-2020 **Accepted on:** 23-12-2020
Source of support: Nil **Conflict of interest:** None declared.
How to cite this article: Srikanth Myla, K. Varsha. Clinical Study of Keratosis Obturans. IAIM, 2021; 8(1): 28-31.

Abstract

Background: Keratosis obturans was considered as a variation of external ear canal cholesteatoma for more than century. Over the last 30 years, it has been considered separate entity from external ear canal cholesteatoma.

Aim: A study of 50 cases of keratosis obturans between the age group of 10 to 50 years including both males and females was done to study the clinical presentation and management of keratosis obturans.

Materials and methods: It was a prospective study of 50 patients who attended ENT department, from June 2017 to June 2019 in SVS Medical College and hospital, Mahabubnagar. The selection of the cases was based on the proper history taking, detailed ENT examination, and pure tone audiometry and plain X-ray bilateral mastoids.

Results: The most common presentation was ear pain and hearing impairment. All cases had whitish debris filling external auditory canal. In 45 cases widening of EAC was seen and granulations were seen in 46 cases.

Conclusion: Keratosis is not a very common entity and principally arises from desquamative process in the ear canal. Treatment of keratosis obturans is in the form of removal of desquamated squamous epithelium. In addition, surgery may be performed with general anesthesia for debridement.

Key words

Keratosis obturans, Keratin debris, External auditory canal cholesteatoma, Epithelial migration, Canalplasty, Ballooned external auditory canal.

Introduction

Keratosis obturans was considered as a variation of external ear canal cholesteatoma for more than century. Over the last 30 years, it has been considered separate entity from external ear canal cholesteatoma. Although they are different disorders, they have shared symptoms and signs. Keratosis obturans is a rare condition characterized by the accumulation of

desquamated keratin material in the bony portion of the external auditory canal (EAC). It is thought that keratosis obturans is due to abnormal epithelial migration of ear canal skin. Classically, it is reported to present with severe otalgia, conductive deafness and global widening of the canal. Infrequently the disease is bilateral. Pathologically keratosis obturans seems to be a compact plug of keratin debris bound with hyperplasia of underlying epithelium and chronic inflammation of subepithelial tissue [1].

Wareden first used the term keratosis obturans in 1874, when he noticed a compact mass in the external ear canal, which is different from impacted wax [2]. However, Toynbee was the first one who described it as a whitish mass in the posterior aspect of the external auditory meatus which he names it as molluscum contagiosum in 1850 [3].

Piepergedes and Behnke clarified the two conditions defining the distinction between the two, which until then had been considered different presentations of the same disease; keratosis obturans was defined as an accumulation of keratin plugs within the ear canal which may result in widening of the external auditory canal, and external auditory canal cholesteatoma as bone erosion resulting from squamous tissue at a specific site in the external auditory canal [4, 5, 6].

In 1956 Morrison reported the association of bronchiectasis and sinusitis with the occurrence of keratosis obturans [7].

In keratotis obturans, the ear canal can become grossly widened or ballooned such that the tympanic membrane is left standing out in relief in a widened ear canal. The diagnosis may require computed tomography (CT) scanning of the temporal bones to assess bony erosion or bony widening. Computed tomography (CT) is the first imaging method to evaluate the middle ear and bony structures of the petrosal bone. Due to severe pain and hearing loss in keratosis obturans, it needs to be removed under general anesthesia and requires regular aural toileting to prevent recurrence. Canalplasty can be attempted in recurrent cases of keratosis obturans with promising results.

Materials and methods

It was a prospective study of 50 patients who attended ENT department, from June 2017 to June 2019 in SVS Medical College and hospital, Mahabubnagar.

As inclusion criteria we used the accepted clinical features of

- Presentation of pain and/or deafness in the affected ear
- A plug of keratin debris
- A widened bony canal;
- The presence of granulation tissue within the external auditory canal
- Intact, mobile tympanic membrane.

Exclusion criteria were:

- Presence of bony erosion;
- Foul-smelling mucopurulent discharge.

Results and Discussion

Results were depicted as per **Table – 1** to **Table – 7**. It is difficult to differentiate between keratosis obturans and impacted wax at first presentation. Keratosis Obturans is a clinical entity which is often only diagnosed when attempts at removal of accumulated desquamated keratin from deep in the ear canal elicits excruciating pain and the visualisation of the silvery white matrix at its periphery.

Table – 1: Incidence.

Duration	Total No. of cases	No. of cases	Incidence
June 2017 to June 2019	11000	50	4.5/1000 cases

Table – 2: Age distribution.

Age in years	No. of patients	%
10 - 20	6	12
20 – 30	20	40
31 – 40	18	36
41 – 50	6	12

Table – 3: Sex distribution.

Sex	No. of patients	Percentage
Male	10	20
Female	40	80

Table – 4: Symptoms.

Ear Symptoms	No. of Patients	%
Ear Pain	48	96
Ear Discharge	12	24
Hard of Hearing	45	90
Ear blockade	29	58
Tinnitus	0	0
Giddiness	0	0
Facial weakness	0	0

Table – 5: Signs.

Ear signs	No. of Patients
Tragal sign	12
Keratin debris	50
Granulations in EAC	46
Widening of EAC	45
Facial nerve weakness	0

Table – 6: Complications.

Complications	No. of Patients
Tympanic membrane perforation	0
Automastoidectomy	0
Facial nerve palsy	0
Recurrence	0

Table – 7: Treatment.

Treatment	No. of Patients
Conservative Management	22
Surgery	28

In our study, incidence of keratosis obturans shows 4.5/1000 cases during study period. While it is commonly seen in younger persons, in the 2nd and 3rd decade, it may also occur less commonly in theyoung as well as in older population. Females outnumbered the males with 40 females for 10 male patients with ratio of 4:1. The most common presenting complaint in our patients is pain, ranging from a constant throbbing ache to such excruciating pain that the sufferer could not even sleep the entire night. The pain experienced by each of our patients is dependent on both the patient's tolerance of pain as well as the extent of the disease, i.e. the extent of bony expansion, and the activity of the inflammatory process [8]. Hearing impairment is the next common complaint which is mostly conductive type. Complications such as TM perforation, facial nerve palsy, automastoidectomy have been reported there was none observed in our series [9, 10].

In a case report of 12 years old female patient presenting with ear discharge and sensorineural type of hearing loss which is improved post operatively after removal of keratin debris with intact tympanic membrane [11].

Keratin debris is seen in all cases in our study, granulations are seen in 46 cases and widening of EAC is seen in 45 cases.

A case report of a 42 year old female patient with otalgia and left side facial weakness showed extensive erosion of the bony meatus, with exposure of the facial nerve causing facial palsy. Complications such as TM perforation, facial nerve palsy have been reported there was none observed in our series [12].

Conclusion

Keratosis is not a very common entity and principally arises from desquamative process in the ear canal. The clinical picture of External auditory canal cholesteatoma and Keratosis obturans is overlapping to a certain extent but Keratosis obturans is more common than External auditory canal cholesteatoma. Despite the relatively large number of patients who presented to our hospital who were subsequently found to have keratosis obturans, there is no typical presentation aside from it being common in young adults and pain as the main presenting complaint. Hearing deficit is of conductive type,but it is often only a secondary problem. Treatment of keratosis obturans is in the form of removal of desquamated squamous epithelium.

In addition, surgery may be performed with general anesthesia for debridement.

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