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# Cotton bud misuse in children: Cause of resistant otitis external.

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## Abstract

**Introduction; Otitis externa is an inflammation or infection of the external auditory canal which caused mainly due to trauma or moisture in external auditory canal. In every case of ear infection we usually give more emphasis on avoiding water to go into effected ear and forget to counsel patients / their parents about continuous trauma caused by use of ear buds for cleaning of ears ,which in turn lead to resistant otitis externa.children learn this bad habit of fiddling their external auditory canal with ear buds from their parents.**

**Material and method: this study was conducted in department of otorhinolaryngology, Govt medical college baramulla from March 2019 to February 2021. During this period 68 pediatric patients of resistant otitis externa where enrolled in this study .**

**Results: Majority of patients where in age group 11-15 yrs . Out of 68 patients 62 patients recovered completely within next 5 days after they stopped using ear buds for cleaning and without prescribing additional medication.**

**Conclusion: doctors treating otitis externa should give good emphasis on history taking and enquire about use of ear buds in such patients and advice them not to fiddle their canals with ear buds and only then medications will act properly.**

**Keywords:** Otitis Externa, Ear Buds , Trauma.

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## Introduction

Cotton buds were developed in the early 1920 and are widely used globally. Although they are easily acquired and easy to use, their misuse and complications, such as tympanic membrane perforation by direct penetration, otitis externa by external auditory canal (EAC) injury, and cerumen impaction by pushing ear wax deeper into the canal, have often been reported1-6 . Many cotton bud manufacturers display warnings against the use of these buds 3. However, misuse problems persist.

Adults generally use these cotton buds to remove was from their external auditory canals or to scratch their EAC in cases of otomycosis or other conditions which leads to itching. Children learn this habit of cleaning / scratching their EAC with ear buds from their parents. Some parents feel that they can clear ears of their children also with ear buds like they did for themselves but due to small size of EAC in children this ear buds misuse leads to injury in the EAC of children which later on gets infected and leads to otitis external.We have found that many parents use these cotton buds to clean ears of their children which in turn leads to otitis externa.we have observed that this otitis externa does not respond to usaual medication like antibiotics and analgesics unless this fiddling of external auditory canal with ear buds is stoped.

Otitis externa (OE), is an inflammation or infection of the external auditory canal. Many risk factors have been identified, mainly Excessive moisture and trauma, both of which impair the canal's natural defenses, are the two most common precipitants of otitis externa, and avoidance of these precipitants is the cornerstone of prevention.

Generally we have seen that in every ear disease patient himself or his relatives or general practitioners advice the patient to avoid water from going into ear thereby preventing moisture in the ear but unfortunately they often forget to advice patients/their parents not to fiddle external ear canals with cotton ear buds . this persistent use of cotton buds in EAC leads to persistent / recurrent resistant otitis externa. Such patients do not respond to even systemic medications unless they stop fiddling there EAC with ear buds.

## Procedure

This study was conducted in the Department of Otorhinolaryngolgy Government Medical College ,Baramulla, Jammu and Kashmir from March 2020 to February 2021. During this period 73pediatric patients of resistant otitis externa where referred to our department by either general practitioner, pediatricians or reported by their parents after taking over the counter medication ( antibiotics and NSAIDS) but there symptoms were either persisted or aggravated with time.

Detailed history was taken and general and otorhinolaryngological examination was done.68 patients out of 73 where not having any co morbidity and gave history of using ear buds during illness. They were enrolled for study and written consent was taken for the same from all patients. We advised these 68 patients/their parents to strictly stop fiddling with there EAC with ear buds and told them to continue with the medication they are using ( antibiotics and NSAIDS).

## Results

Among these 68 patients 46 where male and 22 females. Majority of patients where in age group 40-60 yrs (table 1) . Out of 68 patients 62 patients recovered completely within next 5 days, symptoms of three patients decreases but did not resolved completely (Table 2).on examination edema of EAC was found to be decreased and we retrieved cotton bud foreign body from there EAC. These cotton bud foreign bodies where most likely due to cotton ear buds. Other 3 patients had persistent symptoms and sign after 5 days of stopping fiddling with ear buds but on examination we found features of chronic suppurative otitis media associated with otomycosis , these patients were put on antifungal medication.

| Sex | **Sex** | **Number of patients** | **percentage** |
|---|---|---|---|
| | Male | 46 | 67.74 |
| | Female | 22 | 32.26 |
| Age | Age group in years | Number of patients | percentage |
| | <5 | 13 | 19.11 |
| | 05-10 | 18 | 26.47 |
| | 11-15 | 28 | 41.17 |
| | >15 | 11 | 16.17 |
| Residence | Residence | Number of patients | percentage |
| | Rural | 60 | 88.23 |
| | Urban | 8 | 11.76 |

***Table 1.*** Demography of patients.

| **Status of Signs and symptoms** | **Number of patients N=68** | **Percentage** | **P value** |
|---|---|---|---|
| Completely resolved | 62 | 91.17 | <0.001 |
| Partially resolved | 3 | 4.41 | |
| Persistent sign symptoms | 3 | 4.41 | |

***Table 2.*** Status of signs and symptoms after 5 days.

## Discussion

Manufacturers warn against the use of cotton buds in the EAC on the product packaging. However, the warnings may be discounted or ignored by the consumer3 . Despite the warning, only 5% of cotton ball users actually use the product in the ear canal on the advice of doctors or nurses3 . Nussinovitch et al5 reported that 70.1% in the otitis externa group had their ears cleaned with cotton buds during the 10 days preceding the diagnosis of otitis externa. Kravitz et al4 reported that cotton buds were a major cause of ear injury and hearing loss.

Gossypiboma is the technical term for a surgical complication resulting from retained foreign materials, such as a surgical sponge, which are accidentally left inside a patient's body. A retained foreign body can trigger a granulomatous reaction and may result in a mass within the body7

Due to small size of EAC in children ear buds misuse leads to injury in the EAC of children which later on gets infected and leads to otitis external .Like all skin, the external auditory canal has a normal bacterial flora and remains free of infection unless its defenses are disrupted. When disruption occurs, a new pathogenic flora develops that is dominated by Pseudomonas aeruginosa and Staphylococcus aureus. 8,9,10,11. In our study repeated breach if this defence by fiddling of EAC with ear buds was found to be main cause of resistant otitis externa.

The signs and symptoms of otitis externa with a bacterial etiology tend to be more intense than in other forms of the disease. Otalgia may be severe enough to require systemic analgesics such as codeine and nonsteroidal anti-inflammatory drugs (NSAIDs).6 Significant swelling of the canal is common. Fever may be present, but if it exceeds 38.3°C (101.0°F), more than simple local otitis externa should be considered. Lymphadenopathy just anterior to the tragus is common.

Once the external auditory canal has been cleansed as much as possible and a wick inserted if swelling is severe, topical antibacterial therapy should be started. Because topical agents can be placed in direct contact with the bacteria, simple acidification with 2 percent acetic acid is usually effective, but a wide spectrum of other agents is available 5,12 .The addition of steroids to the ear drops may decrease the inflammation and edema of the canal and resolve symptoms more quickly, but not all studies have shown a benefit. In addition, a topical steroid can be a topical sensitizer.6,12

Treatment recommendations vary somewhat, but it is most commonly recommended that drops be given for three days beyond the cessation of symptoms (typically five to seven days); however, in patients with more severe infections, 10 to 14 days of treatment may be required. There is no need for reevaluation unless the infection is not resolving. Usually, three to four drops are placed in the affected ear four times daily; fluoroquinolone agents, however, are applied twice daily. 12,13,14 Warming the bottle of drops in the hands before instillation minimizes dizziness.systemic antibiotics are given when infection is severe and not responding to topical medication.Whether oral or parenteral, empiric treatment should cover Pseudomonas and Staphylococcus species. This would include agents such as the cephalosporins, penicillinase resistant penicillins and fluoroquinolones 6. in addition to antibiotics and NSAIDS, advising patients about not to fiddle with your EAC with cotton ear buds etc is the main treatment modality in otitis externa.

## Conclusion

Excessive moisture and trauma, both of which impair the canal's natural defenses, are the two most common precipitants of otitis externa, and avoidance of these precipitants is the cornerstone of prevention and treatment of otitis externa. Treating doctors should give good emphasis on history taking and enquire about use of ear buds in otitis externa patients themselves or by their parents and advise them not to fiddle their canals/EAC of their children with ear buds in addition to preventing water from going into ear. All parents should be counseled about not to use ear buds in front of their children.

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