

ORIGINAL ARTICLE

Using Cotton Buds for Ear Cleaning: Self Care or Self Harm, A Cross-Sectional Study in a Tertiary Care Hospital, AbbottabadMuhammad Imran Shah¹, Shakeel Ahmed^{2*}, Tahira Sajid¹, Mohsin Raza², Sohail Ahmad Malik¹, Tahir Haroon¹**ABSTRACT**

Objective: To determine the common reasons and associated complications behind cotton bud usage for self-ear cleaning in patients presenting to a tertiary care hospital.

Study Design: Cross-sectional observational study.

Place and Duration of Study: This study was conducted at the Department of ENT, Combined Military Hospital, Abbottabad, Pakistan, from 1st April 2025 to 30th September 2025.

Methods: A total of 300 patients with a history of cotton bud usage were included in the study. Among them, 245 had some cotton bud-related problems. Data were collected using a structured proforma including demographic details, presenting complaints, and reasons for using a cotton bud, followed by a complete ENT examination. Data analysis for the findings was done using SPSS version 27.

Results: 56.7% were male, and the most common age group was 31–40 years (37.6%). Most participants (67.3%) had only primary or secondary education. The main reasons for cotton bud use were maintaining hygiene (27.3%) and removing wax (25.3%). The remaining 47.4% of patients used the cotton bud for ear irritation, removing water after bathing, ear blockage, hearing loss, ear discharge, and foreign bodies from the ears. Common presenting symptoms included itching (35.9%) and otalgia (33.9%), respectively. Other less frequent complaints included obstruction and bleeding from the ear canal, ear discharge, hearing loss, and a cotton bud retained as a foreign body. All these symptoms constituted 30.8%. The most frequent complications were wax impaction (34.7%) and otitis externa (29%), with a small proportion presenting with retained cotton fragments and canal trauma.

Conclusion: Cotton buds are commonly used to maintain ear hygiene and to remove earwax, and they are frequently associated with complications such as wax impaction and otitis externa.

Keywords: Cotton Buds, Ear Hygiene, Otitis Externa, Self-Ear Cleaning, Wax Impaction.

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Introduction

People often try to clean their ears with various tools like matchsticks, hairpins, and car keys, but mostly use cotton buds. A cotton bud is a simple plastic rod with tiny wads of cotton wrapped around both ends.

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It was developed by Leo Gerstenzang, a Polish-American inventor, in 1923.¹ These cotton buds are readily available over the counter at pharmacies and supermarkets and are not very expensive. Cotton buds (also known as Ear Buds) are commonly used to clean the ears, remove earwax, scratch the external ear canal to relieve irritation, and clear ear discharge.² Wax in the ears is widely recognized by most people as dirt and is the most common reason for which cotton buds are used, that is, to remove it.² Ears naturally clean themselves, and this physiological process acts on the principle of the conveyor belt mechanism. Through this process, the cells move from the tympanic membrane into the ear

canal and eventually exit the ear, carrying debris and earwax.³ The movements of the jaw assist this process. People who use cotton buds frequently disrupt this physiological process, leading to the accumulation of earwax and debris in the external auditory canal. The trauma from the cotton bud can cause chronic irritation and erosion of the epithelium, leading to inflammation. This often creates a cycle of irritation and causes constant itching, and people use cotton buds more and more to get rid of symptoms they got from using them in the first place, making the problem worse. Eventually, this becomes a habit, in which people depend on cotton buds to manage symptoms that were actually caused by their own wrong practices. This widespread misunderstanding about ear hygiene shows that people are unaware of how the ear cleans itself and the risks of using the wrong methods. Even though healthcare professionals have tried to teach people that, if at all, they have to use cotton buds, use them with light hands at the orifice only, and do not insert them inside the external auditory canal. The fact that they are often used incorrectly and heavily marketed for personal hygiene makes them more likely to be misused. This is especially important in developing countries, where people may not know much about health care and may not be able to access specialized care easily, so they may resort to risky self-care methods. Sometimes hearing impairment or ear canal obstruction due to other causes apart from ear wax misleads people to use cotton buds in the hope of cleaning the ears and getting relief. Parents also use cotton buds to clean their children's ears, and children often observe adults at home using them.⁴ Patients with chronic discharging ears are also in the habit of using cotton buds to clear the discharge. After bathing, people use cotton buds to remove the water that has entered their ears.⁵ Rarely, people use cotton buds to remove foreign objects or insects getting into the ear, or when they are suspicious of something getting into the ears.

Use of cotton buds is found to be of an injurious nature. People who use cotton can get infected with various external canal complications. Impaction of wax deeper in the external auditory canal, trauma to the lining of the canal, lodgment of a cotton ball or cotton bud in the external auditory canal, and

trauma to the tympanic membrane with or without perforation are a few of the common complications resulting from the misuse of cotton buds.^{6,7} In addition to physical trauma, habitual use of cotton swabs can also disturb the natural environment of the external auditory canal. The healthy ear canal has a slightly acidic pH and a lipid layer that protects it. This layer is made by ceruminous glands and sebaceous glands, which help protect against germs and infections. However, repeated use of cotton buds may remove this protective layer, exposing the ear to bacterial and fungal infections that present as otitis externa.⁸ Patients usually present with complaints of ear pain, hearing loss, ear canal obstruction, bleeding from the ear canal, discharging ear, severe itching, and sometimes with a history of a cotton wad or part of a Q-tip lost in the ear canal while they were using it.⁷ The use of cotton buds and other instruments like match stick or car keys are often associated with the dermatitis of the External Ear Canal.⁹

To plan targeted interventions, one needs to know how people behave, how culture affects them, and what they don't know about ear cleaning. These strategies may include community-based education through social and print media, raising awareness of the harmful effects of using cotton buds and discouraging self-ear cleaning. The main objectives of the study were to find the cause for the usage of cotton buds for ear cleaning and document any complications arising as a result of their use. This study also aims to raise awareness among the general public on the misuse of cotton buds and their resulting complications.

Methods

The cross-sectional observational study was conducted over a period of six months at the Department of ENT, Combined Military Hospital, Abbottabad, Pakistan, from 1st April 2025 to 30th September 2025. A total of 300 patients from Abbottabad city who presented to the ENT Department and had a positive history of earbud use were selected for the study using convenience sampling. Two hundred and forty-five out of 300 patients selected had complaints of irritation in the ears, earache, blockade of ears, wax impaction, hearing loss, bleeding from the ear canal, ear discharge, and retention of a piece of cotton bud as a

foreign body. Both males and females from various age groups were included to ensure diverse representation. The study population included patients aged 1 year and above who visited the ENT outpatient department, having a history of usage of cotton buds in the ear. The patients were distributed in seven age groups. Group one was 1 to 10 years, group two 11 to 20 years, Group three 21 to 30 years, Group four 31 to 40 years, Group five 41 to 50 Years, Group six 51 to 60 years, and Group seven had patients above 60 years. All selected patients provided consent and were included in the study. In case of children the consent was taken from either of the children. All patients above one year and both genders who reported in the ENT OPD during the specified period of study and gave a positive history of cotton bud usage were included in the study. Patients with chronic suppurative otitis media, Stenosis of the external auditory canal, anotia or microtia, and those who used items such as matchsticks, hairpins, or car keys for ear picking were excluded from the study. The study was approved by the Institutional Ethics Review Committee of the institute, vide letter no: CMH-Atd-ETH-213-ENT-25, dated: 25th March 2025. Collected data was kept confidential and used only for this study. All patients included in the study who received any form of treatment were counseled in detail about the medication, potential side effects, misuse of the cotton bud, and its complications.

Data were collected using a structured form, beginning with a brief history followed by a detailed clinical examination to assess for any physical trauma to the ear structures or resulting complications. The history covered, demographic information (age, gender, education level), reasons for using cotton buds, history of ear-related symptoms (pain, discharge, hearing loss), and any complications experienced after use.

Collected data was entered into and analyzed using SPSS version 27. Descriptive statistics were used to summarize findings.

Results

A total of 245 out of 300 patients from Abbottabad participated in the study and were interviewed, giving a positive history of using a cotton bud for any reason. The prevalence of positive cotton bud usage cases was 81.6%. Of 245 patients, 139 (56.73%) were

male, and 106 (43.27%) were female. The male-to-female ratio was 1.3:1.

Mostly young patients between 31 and 40 (Group 4, 92) were in the habit of using cotton buds, and 37.55% (92 patients) of the patients belonged to this age group.

It is followed by Group five (Age group 41 to 50 years), which was 16.73% (41 patients). The use of cotton buds was least common in Group seven (Age above 60 years), at only 4.08% (10 patients). Most patients who used cotton buds had only primary or secondary education, constituting 67.35% (165 patients).

The illiterate group and preschool children group was 10.2% (25 Patients) and 8.5% (21 Patients), respectively. Reasons for the use of cotton buds.

In most cases, it was used to maintain general ear hygiene and to remove earwax. 27.35% (67 patients) and 25.31% (62 patients) used cotton buds for the two reasons above, respectively. Use of cotton buds to remove water from the ears after a bath (11.84%, 29 patients) and ear irritation (11.43%, 28 patients) were the third and fourth most common factors. Ear blockage, hearing loss, removal of ear discharge, and removal of foreign bodies or insects were the other, less frequent reasons for cotton bud use.

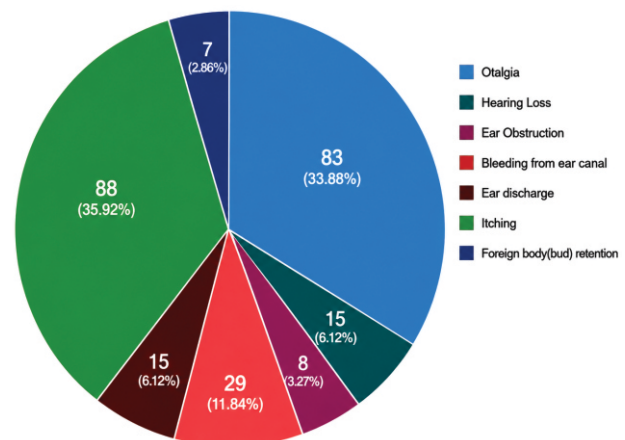


Fig.1: Clinical Features with which patients presented

Figure 1 shows the presenting complaints reported by patients to the ENT Outpatient Department. Severe itching in the ears was the most common presenting complaint, at 35.92% (88 patients), followed by otalgia at 33.88% (83 patients). Bleeding from the ear canal was the third most common presenting feature, which was 11.84% (29 Patients). Ear discharge and obstruction of the external

auditory canal were the fourth- and fifth-most common presenting features, with 6.12% (15 patients) and 3.27% (8 patients), respectively. The most frequent complication among the patients presented was wax impaction in the external auditory canal,

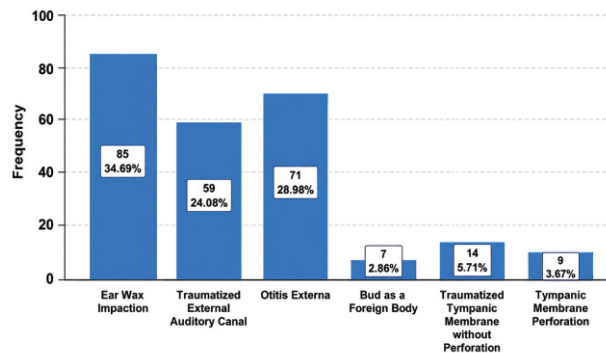


Fig.2: Complications related to Cotton Bud usage

accounting for 34.69% (85 patients). Otitis externa was the second most common diagnosis (28.98%, 71 patients) in the selected cases. The third and fourth most common complications were trauma to the external auditory canal, which was 24.08% (59 patients), and trauma to the tympanic membrane without perforation, 5.71% (14 Patients). Complications arising from the misuse of cotton buds are shown in Figure 2. A cotton bud as a retained foreign body was seen in 2.9% (7 patients).

Discussion

The aim of this hospital-based study was to evaluate the prevalence of ill-practices related to self-ear cleaning. Our findings suggest that ear picking is quite common in the general population. The high prevalence observed is due to deeply held, wrong beliefs about ear hygiene. This unwise use is prevalent in the population because most people are not aware of the complications associated with it. Our study reported a prevalence of 81.6% in the selected population, which is quite similar to that reported by Adegbiyi.⁷ Most patients in our study were male, comprising 56.7% (139), whereas female patients reported were 43.3% (106). Alrajhi MS et al. also found in their study that males are more involved in the use of cotton buds for ear-related reasons, with 53% using them and females 47%.⁸ Males were also found to be more involved in using cotton buds for ear problems and hygiene than females in a study conducted by Adegbiyi WA et al.,

who found it to be 58%.¹⁰

Young people between 31 and 40 years were more likely to use cotton buds for ear problems. 37.6% (92) of the people were found to be in this age group. This is quite similar to a study by Adegbiyi WA et al., which reported a rate of 37.4% among patients in this age group.¹⁰ The second common age group was 41 to 50 years of age, which was 16.7% (41 Patients). Interestingly, parents, especially mothers, are also in the habit of using cotton buds to clean the ears of their children, and 8.6% (21 patients) of our study population were children below the age of 10 years. Adegbiyi WA et al. also showed in their study that 8.1% of their study population were children less than 10 years of age, in which cotton buds were used for cleaning the ears by the parents.¹⁰

Our study also considers the education level of the patients included in the study, and 67.3% (165 patients) of the patients were only educated till primary/secondary levels and were involved in the use of cotton buds for ear care. Only 13.9% (34) of patients with higher education levels used cotton buds. Our results are similar to the study done by Adegbiyi WA et al., who showed that use of cotton bud is more common in people who are not highly educated.⁷ By these findings, we can assume that education can transform people's understanding about the misuse of cotton buds and the hazards associated with it. Dosemane D et al. also noted in their study that self-ear cleaning is more common among secondary-level educated people.¹¹

Our study also showed that the most frequent reasons for using the cotton bud were to maintain ear hygiene and to get rid of ear wax, which was 27.3% (67 patients) and 25.3% (62 patients) respectively. Adegbiyi WA et al. in their study also found that 25.5% patients of patients in their study population were using cotton buds for the purpose of personal hygiene.⁷ Shawish et al also reported in their study that the use of a cotton bud was mainly for the above two purposes.¹²

The study also notes that cotton bud use is not only for wax removal but also for relieving itching, clearing discharge, and routine cleaning. All these practices increase the risk of infections and trauma. After looking at the complications, such as wax impaction and otitis externa, this practice can cause serious health problems.^{13,14} The symptoms with

which patients who had been using earbuds for self-ear cleaning were manifold. The most common clinical features in our study were itching and earache. Both accounted for 35.9% (88) and 33.9% (83) of all patients respectively. In a study conducted by Khan et al., these two symptoms were found to be prevalent in most cases. According to their study, 62% (N=85/137) patients presented with itching, followed by otalgia in 57% (N=73/128) patients.¹³ Adegbiyi WA et al. had also reported earache and itching being the most common symptoms with which patients using cotton buds presented. They were 33.7% and 19.6%, respectively.⁷ The findings of our study are comparable with prior research conducted in similar circumstances, demonstrating that this is not an isolated issue, but a pervasive behavioral tendency.¹⁵ However, most of these complications can be prevented by following simple educational interventions. Healthcare professionals, especially those in primary care and otolaryngology, play an important role in counseling.^{16,17}

Deep impaction of wax in the external ear canal due to pushing with a cotton bud was the most common complication encountered. It was followed by the development of otitis externa after using a cotton bud for self-ear cleaning. Our study reported wax impaction in 34.7% (85) and otitis externa in 29% (71). Bukhari et al. also reported wax impaction (25.7%) and otitis externa (31.4%) as the main complications following misuse of cotton buds.¹⁸ Seven patients (2.9%) reported wads of cotton remaining in the external canal while they were using it.¹⁴ Almagribi also reported these complications in his study.¹⁵ The impacted earwax was treated by using soda glycerine for seven days, followed by removal through suction. For earache and otitis externa, pain killers and a combination of steroids and antibiotic ear drops were used. The use of cotton buds and other instruments, such as matchsticks or car keys, is often associated with dermatitis of the external ear canal.^{19,20} All the patients underwent a counseling session regarding the misuse and the side effects of using the cotton bud. All patients were told that using cotton is not the best method for removing ear wax, as it can cause impaction.²¹ Public health efforts should focus on boosting awareness through media campaigns, incorporating ear health education into school curriculum, and imposing stronger warning

labels on cotton bud packaging. Furthermore, policy-level actions may be required to prohibit misleading marketing tactics that promote cotton buds for ear cleaning. Encouraging safer alternatives and emphasizing the concept of minimal ear manipulation can dramatically reduce the prevalence of avoidable ear injuries and accompanying morbidity in the community. Public health measures, including community awareness campaigns and clinician-led counseling, are crucial for dispelling myths about ear cleanliness. Emphasis on the ear's self-cleansing mechanism and limiting cotton bud use can dramatically minimize unnecessary otological morbidity.

This study has shown that the practice of using cotton buds for self-ear cleaning is common in our society. This habit leads to several complications that can be prevented by educating the masses regarding the misuse of cotton buds.²⁰ Public health initiatives must focus on educating communities about the natural self-cleaning mechanism of the ear and the dangers of interfering with it. People should be encouraged to adopt safe ear cleaning practices. The limitation of our study was that we did not consider other methods of ear picking, such as using a matchstick or car keys, and those patients were excluded from the study. These unconventional methods can also cause complications and should be included in future studies.

Conclusion

The use of a cotton bud for ear cleaning is a common yet misguided practice that can lead to complications. The issue is more prevalent among individuals with lower educational backgrounds and is often practiced for routine hygiene and wax removal. Lack of awareness about its possible harm is a leading factor in its misuse. Otagia and itching in the external auditory canal are the most common presenting features, while wax impaction and otitis externa are the most frequent complications.

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Author Contributions

MIS: Conception, design of the work, and approval for final submission

SA: Writing the original draft, proofreading, and approval for final submission

TS: Manuscript writing for methodology design, investigation, and approval for final submission

MR: Validation of data, interpretation, write-up of results, and approval for final submission

SAM: Data acquisition, curation, statistical analysis, and approval for final submission

TH: Revising, editing, supervising for intellectual content, and approving for final submission

SA is the nominated guarantor and takes full responsibility for the overall content and integrity of the work