



# Itchy Ears: Evaluation of Predisposing Factors and Treatment Outcomes

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## ABSTRACT

### Introduction

Though itchy ears cause significant discomfort, patients generally do not consult a doctor till it becomes chronic. Moreover, itching as a symptom hardly receives any attention in non-dermatological clinics and is generally not considered as a condition worth evaluating. Thus, this study was performed to examine the predisposing factors of itchy ears and the outcomes of corresponding treatment.

### Materials and Methods

This was a prospective observational study carried out over a period of 12 months (July 2019 to June 2020). The study included 200 patients belonging to the age group ranging from toddler to elderly ( $\leq 70$  years) and presenting at the ENT OPD of a Tertiary Care Teaching Institute with the complaints of itching in one or both the ears. Following the diagnosis, appropriate treatment was started. The patients were then followed-up after 10 days, to note if symptom of itchiness in the ear(s) had relieved.

### Results

Out of 200 patients, 89 presented with itchy ears due to various etiology, of which most common were otomycosis ( $N=30$ ), allergic rhinitis ( $N=15$ ), and keratosis obturans ( $N=10$ ). However, majority of the patients ( $N=111$ ) had impacted wax as the predisposing factor (trauma ( $N=27$ ), abnormal anatomy ( $N=65$ ), or hereditary ( $N=19$ )), resulting in itchy ears. On the 10th day, complaint of itchy ears was relieved in majority of the patients. However, amongst 30 patients, 3 patients with fungal infection of the external auditory canal still complained of itchy ears and thus, were referred to dermatologist.

### Conclusion

Impacted wax was the most frequently observed predisposing factor and was commonly observed across all the age groups. Majority of the patients responded well to the treatment and were relieved of itchy ears.

### Keywords

Pruritus; Ear; Rhinitis, Allergic; Cerumen; Otomycosis; Keratosis

As per the recent data of Global Burden of Skin Diseases, skin disorders were responsible for 1.79% of the total global burden of disease and ranked 4th leading cause of non-fatal disease burden.<sup>1</sup> Amongst various skin disorders, itching is one of the most commonly reported symptoms and is defined as an undesirable sensation on the skin evoking an eagerness to scratch.<sup>2</sup> Itching has been known to adversely affect

the quality of life (QoL) in patients with both primary dermatoses and systemic disorders and lead to problems associated with anxiety, attention, sleep, and sexual functions.<sup>1</sup>

In an ENT out-patient department (OPD), an itchy ear is one the most common presenting symptom and patients of all age groups, ranging from infants to elderly, experience it during their lifetime.<sup>3</sup> The skin in the ear canal is richly supplied by nerve fibers, thereby making it very sensitive to the touch.<sup>4</sup> Thus, even a modest aggregation of debris or presence of a dead hair elicits a sensation of itch in the ear canal. Other scenarios resulting in patients turning up at ENT OPDs with itchy ears are patients with frequent and inappropriate cleaning in the form of getting water in their ear canals,

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**Table I: Distribution of males and females on the basis of age**

AGE	MALES (N=125)	FEMALES (N=75)
Toddlers	10 (8%)	15 (20%)
Pre-School kids	10 (8%)	15 (20%)
School going children	30 (24%)	10 (13.33%)
Adolescents	30 (24%)	15 (20%)
Adults	30 (24%)	10 (13.33%)
Elderly	15 (12%)	10 (13.33%)

or inserting paper clips, safety pins, ear buds or an assortment of other items.<sup>5</sup> Moreover, people with hearing aids often report itching in ears and this could be due to either increase in humidity, skin irritation due to occlusion, or allergic contact dermatitis.<sup>5,6</sup> Similarly, itchy ear canals could also be a result of inflammation, or infection (e.g., fungus).<sup>7,8</sup> In many patients, the cause of itching largely remains unknown, however, role of histamine and leukotrienes has been suggested.<sup>9</sup>

Available data suggest that patients generally do not consult a doctor for acute itch, but more commonly do for chronic itch.<sup>10</sup> Moreover, itching as a symptom receives only negligible consideration in non-dermatological specialties and is generally not recognised as a condition worth evaluating.<sup>11</sup> As a result, there is a relatively little literature available on this clinical condition. Thus, this study aimed to examine the causes of itchy ears and the effect of corresponding treatment.

## Materials and Methods

This was a prospective observational study performed, in the ENT OPD of a Tertiary Care Teaching Institute located in Southern India, over a period of 12 months (July 2019 to June 2020). The study included 200 patients belonging to the age group ranging from toddler to elderly ( $\leq 70$  years) and presenting with the complaints of itching in one or both the ears. While, the patients with perforation of tympanic membrane were

excluded from the study. Prior to initiation of the study, the study protocol was approved by the Institutional Ethics Committee and written informed consent was obtained from all the patients.

Amongst the randomly selected 200 patients, 125 were males and the remaining were females. A detailed history was taken and careful clinical examination was performed. Following the identification of causes resulting in itchy ears, based on the diagnosis, appropriate treatment was initiated. The patients were then followed up after 10 days, to note if symptom of itchiness in the ear(s) had reduced. During this visit, patients were counselled regarding the precautions to be followed to counteract itchiness in the ears, secondary to the disease they had been diagnosed.

## Results

Amongst males, majority of the patients belonged to the age group of school going children, adolescents, and adults [N = 30(24%) each]. While, amongst females, majority of the patients belonged to the age group of toddlers, pre-school kids, and adolescents [N=15(20%) each]. (Table I)

Distribution of patients according to age groups revealed that, amongst toddlers, impacted wax was the most common predisposing factors for itchiness in the ears. While, amongst pre-school and school going children, upper respiratory catarrh [allergic rhinitis (AR), otitis media with effusion (OME)] was the most common predisposing factors. However, amongst adolescents and adults, fungal infection of external auditory canal (EAC) was the most common reason resulting in itchy ears. While, in the elderly patients, itchy ear was frequently attributed to neurodermatitis. (Table II)

Amongst 200 patients, 89 patients had itching in the ears due to varied etiology, of which most common were otomycosis (N=30), AR (N=15), and keratosis obturans (N=10). However, majority of the patients (N=111) had impacted wax as the triggering factor, due to either trauma (N=27), abnormal anatomy (N=65), or hereditary (N=19), resulting in itchy ears. (Table III)

Treatment given to all the patients varied based

**Table II: Common predisposing factors for itchiness in ears with respect to age**

AGE	N	PREDISPOSING FACTORS FOR ITCHINESS IN EARS
Toddlers	25	Impacted wax
Pre-School kids	25	Upper respiratory Catarrh (Allergic rhinitis, otitis media with effusion), caries tooth, impacted wax
School going children	40	Upper respiratory Catarrh (Allergic rhinitis, otitis media with effusion), caries tooth , impacted wax
Adolescents	45	Fungal infection of EAC, Allergic rhinitis, impacted wax
Adults	40	Fungal infection of EAC, GERD, globus pharyngis, elongated styloid process, cancer hypopharynx, Allergic rhinitis, neurodermatitis, Use of ear buds, safety pins, impacted wax, keratosis obturans, psoriasis, atopic dermatitis, contact dermatitis, seborrhoeic dermatitis
Elderly	25	Neurodermatitis, use of hearing aids

on the predisposing factors identified for itchy ears. Subsequently, patients were asked to return for review on 10th day to find out the treatment outcome. On the 10th day, the patients with impacted wax, keratosis obturans, caries tooth, OME, AR, gastroesophageal reflux disorder (GERD), elongated styloid process, and globus pharynges had no complaints of itchy ears. However, amongst 30 patients with fungal infection of the EAC, 3 patients still had symptom of itchy ears and were referred to dermatologist. Similarly, patients with seborrhoeic dermatitis (N=1), and atopic dermatitis (N=1) continued to suffer and thus, were referred to dermatologist. However, a patient with hypopharyngeal carcinoma (N=1) was lost to follow-up. (Table III)

## Discussion

Amongst various symptoms of ear diseases, itching remains one of the most discomforting. In daily ENT practice, large number of patients present with incessant itching of the ears. While, some of them have an underlying pathological condition, the predisposing factor in others remain unknown. It may even be psychological. Itchy ears are generally associated with redness, swelling, flakes, and scarring in the adjoining area. Moreover, intense itch may drive the patient to use instrumentation, thus resulting in trauma to the EAC.<sup>12</sup>

In this study, impacted wax was the most common

predisposing for itchy ears and affected all the age groups. Symptoms as a result of impacted wax include dizziness, tinnitus, itching, pain, hearing loss, and increased risk of infection.<sup>13</sup> Ear wax is a combination of secretions from ceruminous and pilosebaceous glands with dust, squamous epithelium, and various foreign debris. Wax accumulation is a result of the inability of the secreted wax to be dislodged from the outer ear. This is frequently observed during the extremes of life, but probably due to variety of reasons.<sup>14</sup>

Retention of wax is a result of obstruction in its clearance and in both the extremes of ages, improper cleaning of ears with 'Q-tips' or 'cotton buds' result in impaction. Increase in age lead to decrease in both the number and the activity of ceruminous glands and thus, wax tends to become drier.<sup>14</sup> In a randomized controlled trial evaluating the effective of ear syringing reported that 29% of the participants had itchy ears due to impacted wax and upon syringing 39% of them reported improvement.<sup>15</sup> However, in this study, on 5th day, following the syringing, ear itch was relieved in all the patients (N=111). It is worth mentioning that ear wax drops were used for 5 days prior to syringing and thus, resulted in a significantly better outcome.

AR affects around on 10–30% of the normal population and is most frequently observed in children and adolescents.<sup>16</sup> Patients with AR frequently experience the itch not only in eye or nose, but also in

Table III: Treatment and outcomes in patients with itchy ears

PREDISPOSING CONDITIONS FOR ITCHY EARS	TREATMENT GIVEN	FOLLOW-UP VISIT ON 10TH DAY
Impacted wax (N=111)	Wax ear drops followed by syringing on 5th day	Satisfactory with nil itching in the ears
Keratitis obturans (N=10)	Aural toilet and debridement	Satisfactory with nil itching in the ears
Caries tooth (N=2)	Dental Reference	Satisfactory with nil itching in the ears
Otitis media with effusion (N=5)	Antibiotics and nasal decongestants	Satisfactory with nil itching in the ears
Allergic rhinitis (N=15)	Antihistamines, oral decongestant ( $\pm$ steroidal nasal spray)	Satisfactory with nil itching in the ears
Fungal infection of the EAC (N=30)	Thorough cleaning of the ears with prescription of otomycotic ear drops and antihistamines	97% patients had Satisfactory outcome with nil itching in the ears while 3 patients still had symptom of itching
GERD (N=5)	Anti-reflux medications	Satisfactory with nil itching in the ears
Hypopharyngeal Carcinoma (N=1)	Referral to Higher centre	Could not follow up
Elongated styloid process (N=1)	Removal of styloid process	Satisfactory with nil itching in the ears
Globus pharyngeus (N=5)	Reassurance, H2-blockers, $\pm$ Antacid suspension	Satisfactory with nil itching in the ears
Neurodermatitis (N=9), Psoriasis (N=1), Atopic dermatitis (N=1), Contact dermatitis (N=2), Seborrheic dermatitis (N=2)	Canal pack with ichthammol glycerine for 2 days followed by Neosporin H ointment for topical application daily with oral antihistamines for 10 days, dermatologist reference	Satisfactory with nil itching in the ears (N=13); patients with Seborrheic dermatitis (N=1), and Atopic dermatitis (N=1) were referred to dermatologist

the ears and palate. A recent survey involving patients with AR (N=3562) reported that majority of the patients (54%) experienced itch in the ear and palate and rated it as mild (23%), moderate (21%), or severe (10%).<sup>17</sup> In another study involving patients with AR, amongst patients with sneezing and rhinorrhoea as predominant symptoms, 43% and 67% experienced itch in ears and throat or palate, respectively. On comparison, it was found that patients with predominant symptoms of nasal congestion had significantly lower incidence of itch in ear (17%) or throat or palate (31%).<sup>18</sup>

Moreover, intranasal steroids have been found to be effective in treating itchy ears in patients with seasonal

AR.<sup>19</sup> Antihistamines by blocking H1 receptors relieve the symptoms of AR. They also retard the increase in vascular permeability. Studies have demonstrated that antihistamines decrease the AR symptoms by 50-60% in contrast to placebo (30-40%). They are more effective in relieving rhinorrhoea, nasal itch, and sneezing than in decreasing congestion. Simultaneously, they also decrease itching of the throat and ears; itching, watering and redness of the eyes; and other systemic symptoms.<sup>20</sup> Similarly, in this study, patients with AR (N=15) were treated with oral antihistamines, decongestant ( $\pm$  steroidal nasal spray) and on 10th day, all the patients were relieved of itchy ears.

Acute otitis media (AOM) and otitis media with effusion (OME) are frequently observed in the young children. In children under 5 years, the OME that lingers following the onset of AOM is more common (20% at 2 months) than the chronic OME (4.4 to 10%).<sup>21</sup> In this study, in all the patients, treatment of OME (N=5) with antibiotics and nasal decongestants was associated with significant relief in itchy ears.<sup>22</sup>

The treatment of otitis media and otitis externa with widespread and occasionally non-essential use of antibiotic eardrops has been related to the increase in the prevalence of otomycosis. Moreover, use of broad-spectrum antibiotics like quinolones is associated with the secondary overgrowth of fungi.<sup>23</sup> The most frequently observed fungal agents responsible for otomycosis are *Aspergillus niger* (80%), *Candida albicans* (second most common), *Actinomyces*, *Trichophyton*, *Aspergillus fumigatus*, and *Candida tropicalis*.<sup>24</sup> A study evaluating the microbiology of itchy ears reported that 48%, 33%, and 19% patients had growth of no microorganism, aerobic bacteria, and fungi, respectively.<sup>12</sup> Topical antifungals are potentially safe treatment options for the treatment of otomycosis, particularly in patients with a perforated eardrum.<sup>25</sup> In this study, we found that 30 patients had itchy ears of fungal origin and on treatment with anti-fungal ear drops and oral antihistamines, 97% patients were relieved of itchy ears.

In patients with GERD, with each episode of acid eructation, itching in both the ears and throat usually increases. Thus, treatment with antacids and/or proton pump inhibitors helps the patients significantly. This sensation of itching is mediated through the 9th, 10th, or 5th cranial nerve, particularly if the eructated acidic fluid reaches the pharynx or oral cavity.<sup>22</sup> Similarly, in this study, all the patients with GERD and itchy ears (N=5) were successfully treated with anti-reflux medication. Occasionally, globus pharyngeus with a stimulus in the pharynx, especially lateral pharyngeal bands, is linked with itchy ears.<sup>22</sup> In this subset of patients, in the absence of alarm symptoms, a trial of acid-suppressive therapy may be reasonable and successful.<sup>26</sup> Similarly, in this study, patients with globus pharyngeus (N=5) were successfully treated with reassurance, and H2-blockers ( $\pm$  antacid suspension).

In patients with tooth caries, ear itching may precede

or coexist with reflex otalgia. There may be a solitary complaint of itchy ears and is mediated through 5th cranial nerve. Dental treatment is helpful in these patients.<sup>22</sup> Similarly, in this study, children with tooth caries (N = 2) were referred to dental surgeon and the complaint of itchy ears was successfully relieved.

Rarely, 9th cranial nerve is stimulated by elongated styloid process that results in itchy ear, which may occur prior to or simultaneously with stylalgic pain. In these patients, non-response to medical treatment is an indication for styloidectomy.<sup>22</sup> Similarly, in this study, patient with elongated styloid process (N=1) underwent styloidectomy and was relieved of itchy ears.

Finally, non-organic causes of itchy ears should be considered and amongst them neurodermatitis is a well-known entity. In this study, ear canal of patients with neurodermatitis (N=9) was packed with ichthammol glycerine for 2 days followed by Neosporin H® ointment for daily topical application with oral antihistamines for 10 days.

In some patients with desquamated epithelial debris in the ear canal, use of keratolytic and/or antibiotic-steroid drops following cleaning is useful. In patients with no observed predisposing factors, empirical antihistaminic drugs may be successfully tried. Moreover, reassurance is beneficial.<sup>22</sup>

## Conclusion

We observed that impacted wax remains the most common predisposing factor resulting in itchy ears and was commonly observed across all the age groups. Amongst infectious causes, fungal infections were found to be most prevalent amongst adolescents and adults. Majority of the patients responded well to the treatment and were relieved of itchy ears. However, certain patients required dermatologic consultation. Thus, in order to accomplish quick relief and have a stress free life, it is vital for the patients with itchy ears to consult the ENT specialist to get diagnosed and treated without neglect.

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## Ethical Standards

The authors assert that all procedures contributing to this work comply with the ethical standards laid down by the Indian Council for Medical Research (ICMR) on human experimentation and with the Helsinki Declaration of 1975, as revised in 2008.

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