

Original Research Article

Evaluation and management of ear itching: our experience

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ABSTRACT

Background: Itching of ear is a common presenting symptom in clinical practice. Ear itching has many underlying causes which needs detailed evaluation. The aim of the study was to determine the incidence of ear itch and the aetiological factors and various management options associated with ear itch.

Methods: A retrospective observational cohort study was done in two centres over a period of one year in patients with ear itch in ENT outpatient were included. Sampling method used was systematic sampling. The details regarding the age, gender and co-morbidities of the patients were recorded. The ear was clinically examined.

Results: A total of 2143 patients presented to outpatient, 210 (9.8%) presented with ear itching. The mean age (SD) of the study patients were 46.8 years (15.6). The gender distribution showed a male:female of 1:1. Comorbidities included hypertension (27.14%), diabetes (8.57%) and combination of both in 8.1%. Mean±SD of duration of study subjects was 4.3±1.6 months. The common aetiologies were otomycosis (30%), wax deposition (25.24%) and otitis externa (14.29%). Diabetes was predominantly associated with otomycosis (68.57%, p<0.0001). In our study, prevalence of ear itching was 9.8% with common aetiologies were otomycosis, wax deposition and otitis externa. There was significant association of diabetes mellitus with otomycosis.

Conclusions: Ear itching is a symptom that needs detailed history, careful clinical evaluation and management. Patient's quality of life will largely improve if ear itching is dealt with all possible aetiologies and appropriate management.

Keywords: Aetiology, Ear itching, Management, Diabetes

INTRODUCTION

Occurrence of ear itching is so common that it is being experienced once or multiple times by every human being in his lifetime. To our relief, not every ear itching is a symptom of an underlying pathology.

For that matter, itch is a perception that can be sensed on healthy/unhealthy skin all over body surface. It is unpleasant urge to scratch.¹ Sensation of skin itch arises due to stimulation of free nerve endings mediated by mechanical, thermal or chemical mediators.² The causes

for an ear itching could be local or systemic and varied in aetiology. Common causes are impacted wax, infection, inflammation, dry skin, hearing aids and allergies.³⁻⁹ Treatment of an ear itching is often being attempted first at home with remedies like putting oil. Only if there is no relief from home treatments and accompanied by other symptoms like pain or hearing impairment, patients come for doctor consult. Common treatments implied are wax removal, ear drops, antibiotic drops or antihistamines.^{10,11} Though a common symptom, literature is scarce on this problem with only few case reports.³ Even, textbooks of ENT don't cover this entity as a separate chapter. So, we made the first attempt to capture and highlight the

incidence, aetiology and management of ear itching in two tertiary care hospitals of North India.

Our study drew attention of medical fraternity towards this left out entity, so that in future physicians are able to treat patient of ‘itchy ear symptom’ with a clear, efficient management approach considering all the possible aetiologies.

METHODS

A retrospective observational cohort study was done over a period of one year (January 2020 to December 2020) where the data pertaining to the patients presenting with ear itching were obtained among the two hospitals in Meerut and Gorakhpur. Patients who presented to the OPD with complaints of itch in the ear were included in the study. Sampling method used was systematic sampling. Patients of age less than 18 years were excluded from the study since many of the children must have been referred to paediatricians and thus were not followed up in the ENT department for the study.

The details regarding the age, gender and co-morbidities of the patients were recorded. History about duration of itch was also taken. The ear was examined for the symptomatic itch. Skin scraping was obtained in some cases to rule out fungal infection which was sent to lab to be examined for KOH wet mount. Clinically the cases of otomycosis were diagnosed by the present of black debris. Ear infection was diagnosed by taking a swab and culture. Ear canal was examined for the presence of any wax or foreign body. Patients’ blood sample was obtained for assessing random blood sugar levels and HbA1c. A dermatological opinion was obtained in cases of greasy or silvery scales on the ear, forehead or scalp to rule out dermatological conditions like psoriasis and seborrheic dermatitis. Psoriasis was characterized by silvery scales and itching on sites like ear, elbows, nails and knees while seborrheic dermatitis was characterized by greasy scales and itching on scalp, behind of ear and eyebrows.

The patients were followed up for 1 month to determine the symptomatic relief from the ear itch. The outcome

measures were incidence of ear itch and the factors associated with ear itch. The data entry was done in the MS excel and analysed using SPSS version 21.0. The data presentation was done as mean±SD, median (IQR, 25-75%) range and number (%). For determining association among variables, ANOVA test was used for quantitative parameters and Fisher’s exact test was used for qualitative parameters. For statistical significance, p<0.05 was considered as significant.

RESULTS

Among the total of 2143 patients, incidence of itching in the ear was seen in 210 (9.8%). The mean age (SD) of the study patients were 46.8 years (15.6). The gender distribution showed a M:F of 1:1 with 50.48% males and 49.52% females. Associated co-morbidities among the study patients included hypertension (24.76%), diabetes (6.19%) and combination of both in 10.48% (Table 1). The patients complained of ear itching on right side in 44.76% cases, left side in 44.29% cases and bilateral in 10.95% cases (Figure 1). Mean±SD of duration of study subjects was 4.3±1.6 months. The detailed investigation of the patients yielded varied diagnosis among which the common ones were otomycosis (30%), wax deposition (25.24%) and otitis externa (14.29%). Other causes present in <10% cases included eczema, eustachian tube dysfunction, foreign body impaction, use of hearing aid, psoriasis and seborrheic dermatitis (Figure 2). The treatment of the patients was specific for the aetiology (Table 2). A significant association of the diagnosis was seen with age and presence of comorbidities (p<0.05). Use of hearing aid was a significant cause of ear itch in elderly population (median age 66 years); foreign body impaction (median age 34 years) and psoriasis (median age 33 years) was common in younger population of thirties; while rest of the diagnosis were common in forties which were normally distributed around the mean age of the study patients. The gender distribution showed no association with the diagnosis. Diabetes was predominantly associated with otomycosis (68.57%, p<0.0001) while hypertension was distributed among various diagnosis without any statistical association (Table 3).

Table 1: Distribution of socio-demographic characteristics of study subjects.

Socio-demographic characteristics	Frequency	Percentage (%)
Age (in years)		
Mean±SD	46.8±15.6	
Median (25-75 percentile)	47 (35-59)	
Range	21-84	
Gender		
Female	104	49.52
Male	106	50.48
Comorbidities		
Nil	123	58.57
Diabetes	13	6.19
Hypertension	52	24.76
Both	22	10.48

Table 2: Aetiology and management of ear itch in the study.

Aetiologies	Managements
Otitis externa	Single use of mometasone+soframycin or ichthamol glycerine ear wick for 48 hours (to decrease edema and pain) along with amoxycyclavulate 625 mg TDS for 5 days
Ear wax deposition	Syringing and suction clearance
Otomycosis	Aural toilet followed by clotrimazole ear drops 1% twice a day for 10 days (stored at 22-30°C)
Foreign body ear	Foreign body removal under vision
Eustachian tube dysfunction	Treat cause
Hearing aid use	Regular cleaning of hearing aid (weekly once) along and taking off hearing aid at night/ when not in use.
Eczema	Emollients, antihistamines (LCZ, allegra), removal of irritating factors (if any), topical corticosteroids (beclomethasone twice daily for 2-4 weeks as per the response with tapering dose to stop it).
Psoriasis	Topical corticosteroids (beclomethasone twice daily for 2-4 weeks as per the response with tapering dose to stop it), vitamin D analogues, cyclosporine/methotrexate.
Seborrheic dermatitis	Ketoconazole shampoo, topical corticosteroids (beclomethasone twice daily for 2-4 weeks as per the response with tapering dose to stop it), oral itraconazole 100-200 mg bd for 7 days

Table 3: Association of socio-demographic characteristics with diagnosis.

Socio-demographic characteristics	Ecze-ma (n=14)	ET dysf-unction (n=8)	Foreign body (n=10)	Hearing aid use (n=16)	Otitis exte-rnal (n=30)	Otom-ycosis (n=63)	Psori-asis (n=6)	Sebor-rheic derma-titis (n=10)	Wax (n=53)	P value	
Age (in years)											
Mean±SD	43.36±14.81	42±13.27	37.1±12.38	67.19±8.1	47.7±13.3	46.54±15.17	38.33±15.69	45.1±13.69	45.21±16.05	<0.001*	
Median (25-75 percentile)	44 (31-55.5)	40.5 (34.75-46.5)	34 (26.75-48.25)	66 (62.5-72)	46 (37-57)	47 (32-58)	33 (26-49.75)	43 (36.75-75.50)	43 (33-58)		
Range	22-68	27-69	21-55	55-84	28-76	21-78	24-61	28-69	21-78		
Gender											
Fem ale	N	5	2	5	8	13	35	3	8	25	0.423#
	%	4.81	1.92	4.81	7.69	12.50	33.65	2.88	7.69	24.04	
Mal e	N	9	6	5	8	17	28	3	2	28	<0.001#
	%	8.49	5.66	4.72	7.69	16.04	26.42	2.88	1.89	26.42	
Diabetes											
No	N	10	8	10	14	28	39	6	9	51	<0.001#
	%	5.71	4.57	5.71	8	16	22.29	3.43	5.14	29.14	
Yes	N	4	0	0	2	2	24	0	1	2	<0.001#
	%	11.31	0	0	5.71	5.71	68.57	0	2.86	5.71	
Hypertension											
No	N	9	6	7	14	17	39	4	8	32	0.579#
	%	64.29	75	70	87.50	56.67	61.90	66.67	80	60.38	
Yes	N	5	2	3	2	13	24	2	2	21	0.579#
	%	35.71	25	30	12.50	43.33	38.10	33.33	20	39.62	

Note: *- ANOVA test, #- Fischer exact test.

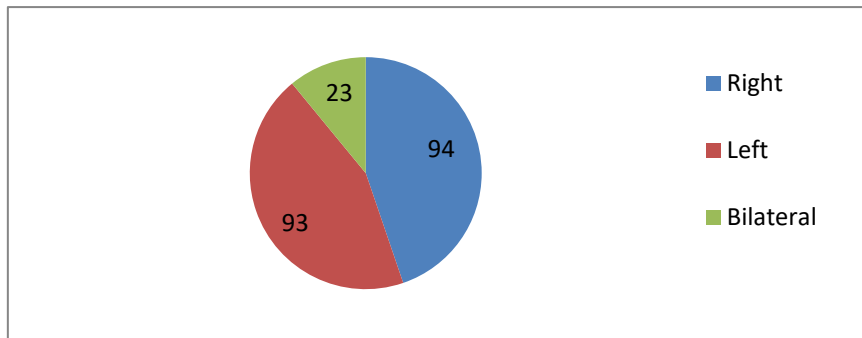


Figure 1: Distribution of side of study subjects.

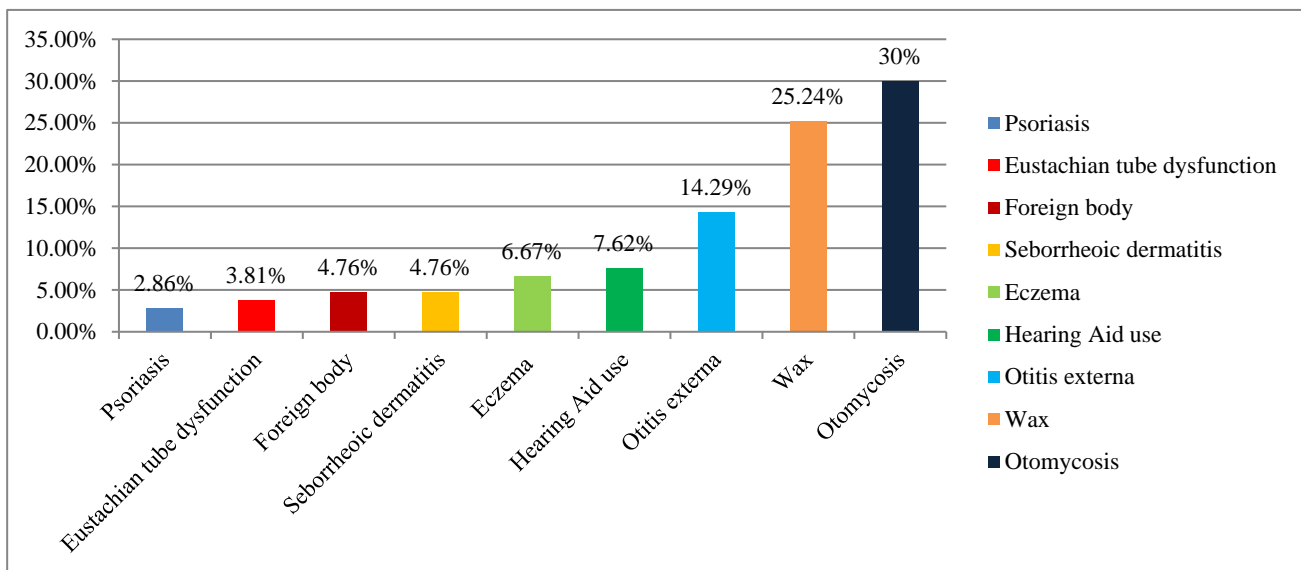


Figure 2: Distribution of diagnosis of study subjects.

DISCUSSION

In these two centre case series, we reported a prevalence of 9.8% for ear itching. The predominant etiologies included otomycosis (30%), wax deposition (25.24%), otitis externa (14.29%) and use of hearing aid (7.62%). Like our study, the main symptom of itch ear associated with similar pathologies in other studies.^{12,13}

Taheri et al studied 362 ENT outdoor patients and found itching as the most prevalent symptom in aural foreign body users (78%) and non-users (45.5%).¹⁴ Madsen et al found external auditory meatus itch in 39% of total 76 patients using hearing aids.¹⁵ Sarwestani et al found itch ear was predominant symptom in 105 (89.74%) cases out of 117 otomycosis cases.¹⁶ The low prevalence percentage as seen in the present study was mainly because we included all consecutive patients coming to ENT department while other studies included patients with specific aetiologies. Besides our aetiology spectrum, there are case reports in literature showing ear itching caused by much more wider aetiology spectrum, than commonly known. Lee et al reported trichofolliculoma (benign adnexal tumor) presenting as itchy, enlarging mass of left

auricle.¹⁷ Loss of immature hair at tumor site resulted in itching sensation.

Kosec et al reported a case of lichen planus who had the only complaint of intense pruritus in left ear.¹⁸ Previously, such case was reported in 10 years review by Valinotti et al and Kassi K et al recently reported pruritus in 95% of 120 keloid cases with commonest site being ears (29.17%).^{19,20} Pilot survey by Huang et al found 80% patients of ichthyosis with ear pruritus.²¹

In the literature, Pentyala et al first-time reported pruritus associated with temporomandibular joint dysfunction in the inner ear.²² He et al reported cholesteatoma associated itch ear in 4 out of 35 patients.²³ A rare case of ear itching was of mites infestation and Puri et al reported persistent pruritus over the cochlear implantation site.^{24,25}

Recently, localized pruritic rash of the ear is reported in COVID-19 case. This added to growing data of COVID-19 diverse manifestations.²⁶

Pruritus mainly occurs in skin over cartilaginous portion of external auditory canal. This skin is thick and has

ceruminous glands. Normally, ear wax is produced in ear canal to protect inner ear from infection as it acts as a mechanical barrier and also traps microbes. Repeated, deep cleaning of external auditory canal takes away required lubrication and protective sebum, exposing underlying skin to dryness and infections respectively. In majority of the cases, itch ear is triggered by dryness, infections and wax impaction pressure. Sensation of itch in ear canal is a defensive response to remove entered foreign body in ear canal or immune reaction to harmful secretions and chemicals extruded by microbes. Itch can be caused by allergic response mediated by eosinophils; as in case of local irritation caused by plastic coating of hearing aids or in systemic allergic diseases. Treatment of ear itching is varied; according to the cause of itch: lubrication, antibiotic ear drops, impacted wax removal, foreign body removal and antihistamines.²⁷⁻²⁹

The mean duration of study subjects for ear itch was 4.3 ± 1.6 months. It showed that the itch became chronic enough causing trouble to visit a specialist. The itching was on right side in 44.76% cases, left side in 44.29% cases and bilateral in 10.95% cases. In our study, wide disparity among laterality of itch ear with majority cases being unilateral may be attributable to varied etiologies in our study among which otomycosis (30%), wax deposition (25.24%) and otitis externa (14.29%) are localized and predominantly unilateral in presentation, without any significant association and Adoga et al also found only 17% otomycosis cases (6/35) bilateral.^{30,31}

The age distribution varied around forties with a mean age of 46.8 years. Similar to our study, Adoga et al found commonest age group 41-50 years (25.71%) among 35 otomycosis cases.³¹ Sarwestani et al found maximum cases (30.77%) in age group 46-55 years among 117 otomycosis cases.¹⁶

Age showed significant association with the aetiology as the use of hearing aid was main cause of ear itching in elderly population (median age 66 years); foreign body impaction (median age 34 years) and psoriasis (median age 33 years) was common in younger population of thirties; while rest of the diagnosis were common in forties which were normally distributed around the mean age of the study patients.

Elderly people use hearing aid the most and have highest prevalence of predisposing diseases like diabetes mellitus and weak immunity, all these add up for association of comorbidities and hearing aid use in elderly.¹⁵ Since the population was middle age to elderly, they had comorbidities such as hypertension and type 2 diabetes. Diabetes mellitus was predominantly associated with otomycosis (68.57%, $p < 0.0001$) while hypertension was distributed among various diagnosis without any statistical association.

Association of diabetes with otomycosis is mainly due to altered cerumen acidity, which alters the normal flora and

provides growing conditions for fungus. In addition, dark and warm environment of auditory canal if aided by moisture, results in ideal condition, supportive for fungal growth.^{3,11}

Unlike our findings, other studies found lower association of diabetes mellitus with otomycosis. Jia et al found in a total of 108 otomycosis patients, diabetes was associated in 11.11%.⁹ Whereas, Adoga et al found diabetic mellitus in one patient out of 35 otomycosis patients.³¹ However, Anwar et al found association of diabetes mellitus with otomycosis; makes eradication of disease difficult.³²

Side effects of itching can be mechanical trauma to skin damaging its integrity, enhancing dryness leading to vicious cycle of itch and dryness, hindrance in focus, continuous discomfort, social embarrassment in public, and loss of confidence and fear of group interaction.¹¹

In our study, the ear itching was diagnosed and treated based on the individual diagnosis and the patients responded well after 1 month of follow up with resolution of the itch. This shows that approaching patient with knowledge of all possible etiologies and treatment options really show up appreciable improved results. So, ear itching can be considered as a group of diseases which if diagnosed in a proper manner, can be treated effectively.

Our study had potential to serve as a first stepping stone to draw attention of medical fraternity towards this left out entity, which will aid in efficient management approach considering all the aetiology possibilities. Large, multicentric data across globe needs to be captured so that aetiology spectrum specific to particular geographical area can be highlighted and utilized in clinical treatment.

Limitations

We may have missed out some cases of ear itching associated with other underlying or accompanying medical problem, as the patients may have presented to dermatologists, family practitioners, general physicians, pediatricians and plastic surgeons instead of coming to ENT specialist. Association of incidence of ear itching and swimming in summer months was not done separately, though it could have definitely increased study value. We didn't note separately left/right handed persons in unilateral itch ear, this could have helped in foreign body insertion aetiology.

CONCLUSION

Ear itching is a symptom which needs detailed history, careful clinical evaluation and management. We reported a prevalence of ear itching as 9.8% with common aetiologies such as otomycosis, wax deposition and otitis externa. There was significant association of diabetes mellitus with otomycosis. Patient's quality of life will largely improve if ear itching is dealt by clinicians with

background of all possible aetiologies and appropriate management.

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Ethical approval: The study was approved by the Institutional Ethics Committee

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