

Otorhinolaryngology Morbidity Pattern among Patients Attending Outpatient Clinic of Suez General Hospital, Egypt

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Abstract

Background: Otorhinolaryngological disorders constitutes to one of the major causes of morbidity in any hilly area. Morbidity pattern has several determining factors like socio-economic status, basic education, occupation of parents, socio-cultural practices, living environment. Ear, nose and throat emergencies are common in all communities. Early diagnosis and management will result in reduction of morbidity and mortality.

Aim: To describe the incidence of otorhinolaryngological disorder in Suez city to help in dealing with them.

Subjects and Methods: A Retrospective record-based study was carried in otorhinolaryngology outpatient clinic of the general hospital of Suez city. Total population was 11890 patients and this study included 4455 patients from January 2019 to December 2019. Full history of the disease and history of any other disease was taken from all patients.

Results: The otorhinolaryngological disorders found to have the highest incidence among >15 age group. Females were more affected than males. Most of patients had acute otitis media. There was predominance of male patients to female patients in age group less than 15 years old and between 25 and 45 years old, while between 15 and 24 old and more than 45 years old females were more predominant than males. The difference was statistically significant. There was predominance of male patients to female patients with ear and throat diseases. While there was predominance of female patients to male patients with nose diseases.

Conclusion: the incidence of otorhinolaryngological disorder highest among females, >15 age group, otitis media is the most common disorder.

Keywords: Allergic rhinitis; Otitis media; Tonsillitis; Sinusitis.

Introduction

Otorhinolaryngological disorders are amongst the common reason for seeking medical advice in health care setup. Otorhinolaryngological disorders constitutes to one of the major causes of morbidity in any hilly area. Poor socio-economic condition of general population and lack of proper medical facilities further aggravate Otorhinolaryngological problems [1]. The burden of disease on health care system and its impact on general wellbeing is very high and the analysis of 2000 for Global Burden of Disease (GBD) study stated that cause of morbidity (excluding injuries) is most commonly due to infectious diseases and common tropical diseases 60%, 27% due to life-style disorders and 13% due to potentially preventable

per-natal conditions. It has been stated that non-communicable diseases are leading cause of death globally [5]. It has been implicated that 40% of hospital stay and 35% of outpatient visits are due to NCDs [2].

It has been noted that Otitis Media and its sequelae are the most common cause of preventable hearing loss in children in developing countries. The major burden reports in India & other developing countries by WHO is due to Chronic Suppurative Otitis Media [3].

There is indirect relationship between age of onset and chronicity of the disease, and hence risk factors that can be targeted should be identified. Overcrowding should be reduced. Health-education messages in relation to personal hygiene

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is developed to target known risk factors. Universal immunization practice is emphasized in view of increased risk with multiple types of H. influenzae and S. pneumoniae and a beneficial effect in reducing the number of recurrent attacks [4].

Allergic rhinitis is showing an upward trend in rural communities due to an increase in pollution, it is associated with significant comorbidities and health care costs and has been identified as one of the top ten reasons for visits to primary care clinics. Nasal polyposis was also seen in 10% of the patients which was related to chronic allergic rhinitis [5].

Oral mucosal ulcers may be related to a temporary weakness in immune system (cold or flu), hormonal changes, mechanical irritation, stress, low levels of vitamin B12, folate, iron, and ferritin [6].

Study showed that ear diseases is the most common in seeking medical advice especially in younger age group. The most common disease was impacted wax 16.51% [7].

In the general hospital of Suez city in past January there were 65% of cases had otitis media aged (20-40) years old, 40% of them had suppurative otitis media aged (1-12) years old. 25% of cases had allergic rhinitis. In past June, there were 58% of cases had suppurative otitis media and 12% of cases had vertigo aged (20-60) years.

Materials and Methods

Study design

A Retrospective record-based study design.

Study setting and Study population

This study was carried out in otorhinolaryngology outpatient clinic of the general hospital of Suez city. All patients who attended or referred to Otorhinolaryngology outpatient clinics of the general hospital of Suez city. Total population was 11890 patients and this study included 4455 patients from January 2019 to December 2019.

Inclusion criteria

1. Gender: male or female.
2. Age: all age groups.

Exclusion criteria

1. Subjects who were unable to ambulate.
2. Patients with pharmacological treatment for any other disease.

Sample Size Justification

Based on that the of allergic rhinitis = 19.58% (General Suez Hospital, 2019). The sample size was equal to 4010 subjects. Adding a drop-out proportion of 10% gives a total sample size of 4455 subjects. Patients were included by systematic random method from records.

Data collection tool

All patients were subjected to:-

Full history of the disease and history of any other disease was taken.

Statistical analysis

Using SPSS software - version 22 was used. Tables and graphs were used for data presentation according to need - frequency, percentage, and mean and stander deviation for the results were calculated. Dependent T test was used for comparison of discrete data. Student t test was used to compare continuous data. P value was set at < 0.05 for significant results and 0.005 for highly significant results.

Ethical Considerations

Local ethical committee faculty of medicine approved the study protocol.

Results

Age distribution of patients in the study population:

As shown in (figure 1), The department of ENT over one year managed a total number of 4010 patients. Among them, 1524 (38%) were less than 16 years old, 883 (22.02%) were between 16 and 28 years old, 802 (20%) were between 29 and 41 years old & 801 (19.98%) were more than 41 years old.

Gender distribution of patients

As shown in (figure 2), there was predominance of female patients to males, that 1724(42.99%) of patients were males & 2286(57.01%) of them were females.

Distribution of manifestations among ENT disorders in the study:

Table 1 showing that, the main symptom was fever in 1807(45.06%), then headache in 921(22.97%) & drainage from ear canal and runny nose in 641(15.99%) equally.

Distribution of ear, nose, and throat diseases in the study:

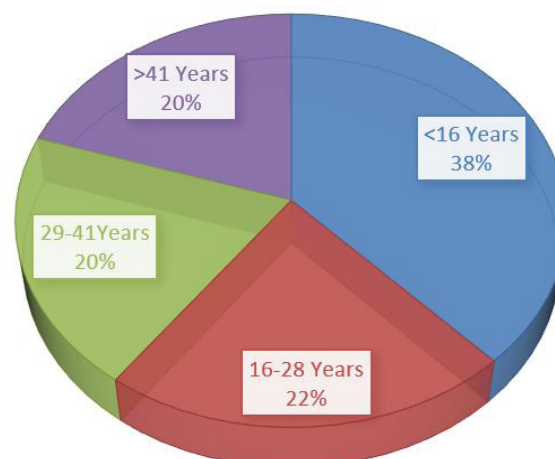


Figure 1: Age distribution among the study patients.

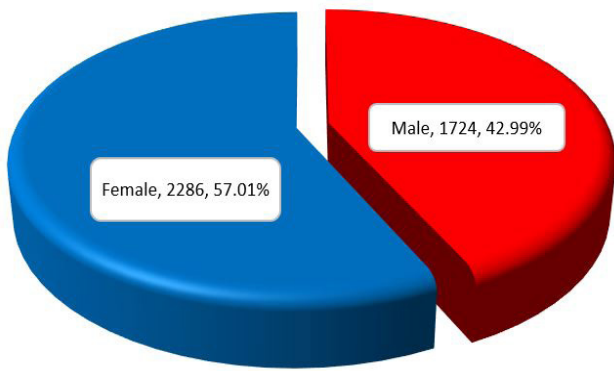


Figure 2: Gender distribution of the study patients.

Table 1: Distribution of manifestations among ENT disorders in the study.

Main manifestation	N	%
Fever	1807	45.06
Runny nose	641	15.99
Headache	921	22.97
Drainage from ear canal	641	15.99
Total	4010	100.00

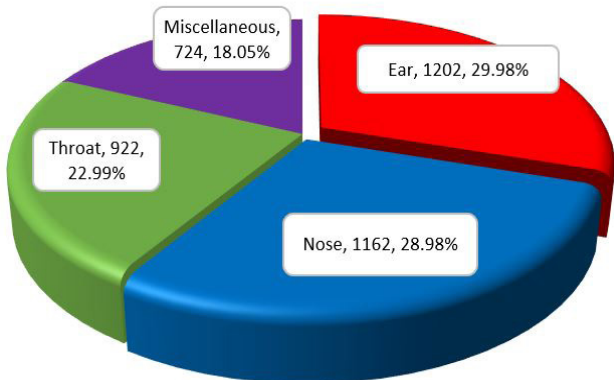


Figure 3: Respiratory distress characteristics in the neonate of both groups.

Figure 3 showing that patients with ear diseases were 1202 (29.98%), patients with nose diseases were 1162 (28.98%), patients with throat diseases were 922 (22.99%) and patients with Miscellaneous were 724 (18.05%).

Distribution of diagnosis in the study:

Table 2 shows that according to the study, patients which had acute otitis media were 321(8%), patients which had foreign body in ear were 160(3.99%), patients which had otitis media with effusion were 280(6.98%), patients which had excessive earwax were 321(8%), patients which had otomycosis were 40(1%), patients which had vertigo 80(2%), patients which had allergic rhinitis were 361(9%), patients which had sinusitis were 601(14.99%), patients which had nasal polyps were 200(4.99%), patients which had acute follicular tonsillitis were 440(10.97%), patients which had pharyngitis were 482(12.02), patients which had common cold were 361(9.05) and patients which had flu were 363(9.05).

Table 2: Distribution of diagnosis in the study.

Diagnosis		N	%
Ear	Acute otitis media	321	26.71
	Foreign body of ear	160	13.31
	O. media with effusion	280	23.29
	Excessive ear wax	321	26.71
	Otomycosis	40	3.33
	Vertigo	80	6.66
	Total	1202	100.00
Nose	Allergic rhinitis	361	31.07
	Sinusitis	601	51.72
	Nasal polyp	200	17.21
	Total	1162	100.00
Throat	Acute follicular tonsillitis	440	47.72
	Pharyngitis	482	52.28
	Total	922	100.00
Miscellaneous	Common cold	361	49.86
	Flu	363	50.14
	Total	724	100.00

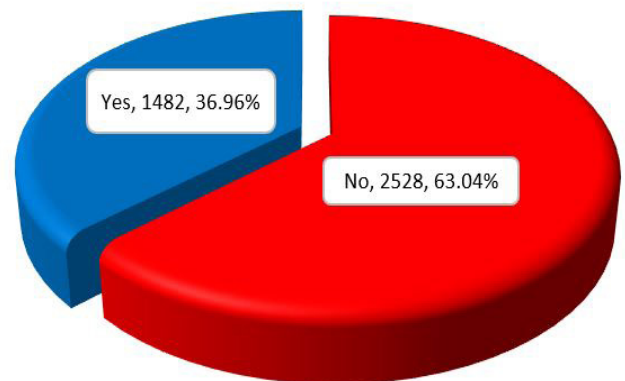


Figure 4: Comorbidity of ENT diseases.

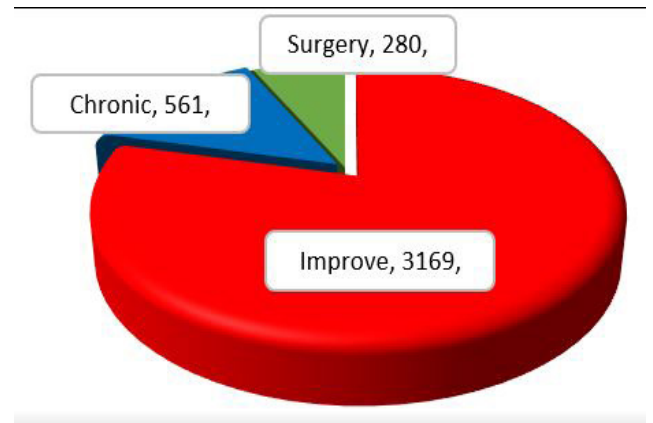


Figure 5: Prognosis of ENT diseases in the study.

Table 3: Relation between age & gender with ENT diseases.

Age group	Gender						Chi-Square	
	Male		Female		Total		X ²	P-value
	N	%	N	%	N	%		
>16 Years	721	41.82	803	35.13	1524	38.00	76.205	<0.001*
16-28 Years	281	16.30	602	26.33	883	22.02		
29-41 Years	402	23.32	400	17.50	802	20.00		
>41 Years	320	18.56	481	21.04	801	19.98		

Table 4: Relation between gender and main symptom in the study

Main symptom	Gender						Chi-Square	
	Male		Female		Total		X ²	P-value
	N	%	N	%	N	%		
Fever	803	46.58	1004	43.92	1807	45.06	9.859	0.020*
Runny nose	240	13.92	401	17.54	641	15.99		
Headache	400	23.20	521	22.79	921	22.97		
Drainage from ear canal	281	16.30	360	15.75	641	15.99		
Total	1724	100.00	2286	100.00	4010	100.00		

Table 5: Relation between gender and diagnosis of ENT diseases.

Diagnosis	Gender						Chi-Square	
	Male		Female		Total		X ²	P-value
	N	%	N	%	N	%		
Ear	562	32.60	640	28.00	1202	29.98	32.648	<0.001*
Nose	440	25.52	722	31.58	1162	28.98		
Throat	440	25.52	482	21.08	922	22.99		
Miscellaneous	282	16.36	442	19.34	724	18.05		

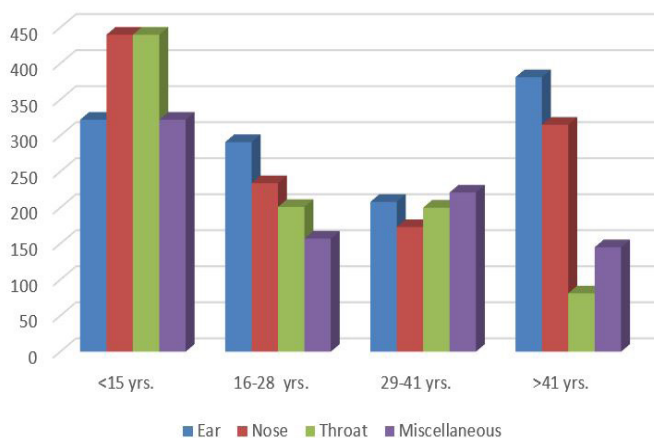


Figure 6: Relation between gender and diagnosis of ENT diseases.

Comorbidity of ENT diseases:

Figure (4) showing that, there were 1482 patients (36.96%), had comorbid diseases.

Prognosis of ENT diseases in the study:

Figure 5 demonstrates that according to the study, 3169(79.03%) of patients improved with treatment, 561(13.99%) of patients had chronic diseases and 280(6.98) of

them underwent surgical management.

Relation between age & gender with ENT diseases:

According to the study, there were predominance of male patients to female patients in age group less than 16 years old (41.82: 35.13%). There was predominance of female patients to male patients between 16 and 28 old (26.33: 16.30%). There was predominance of male patients to female patients between 29 and 41 years old (23.32: 17.50%). There was predominance of female patients to male patients more than 41 years old (21.04: 18.56%). The difference was statistically significant (p<0.001)., as shown in (table 3).

Relation between age & gender with ENT diseases:

Table 4 showing that according to the study, there were predominance of male patients to female patients with fever (46.58: 43.92%). There was predominance of female patients to male patients with runny nose (17.54: 13.92%). there was predominance of male patients to female patients with headache (23.20: 22.79%). there was predominance of male patients to female patients with drainage from ear canal (16.30: 15.75%). The difference was statistically significant (p=0.020).

Relation between gender and diagnosis of ENT diseases:

Table 6: Relation between gender and each disease among ENT diseases.

Diagnosis	Gender						Chi-Square	
	Male		Female		Total		X ²	P-value
	N	%	N	%	N	%		
Acute otitis media	161	9.34	160	7.00	321	8.00	174.122	<0.001*
Foreign body of ear	40	2.32	120	5.25	160	3.99		
O. media with effusion	120	6.96	160	7.00	280	6.98		
Excessive ear wax	161	9.34	160	7.00	321	8.00		
Otomycolosis	40	2.32	0	0.00	40	1.00		
Vertigo	40	2.32	40	1.75	80	2.00		
Allergic rhinitis	120	6.96	241	10.54	361	9.00		
Sinusitis	280	16.24	321	14.04	601	14.99		
Nasal polyp	40	2.32	160	7.00	200	4.99		
Acute follicular tonsillitis	200	11.60	240	10.50	440	10.97		
Pharyngitis	240	13.92	242	10.59	482	12.02		
Common cold	120	6.96	241	10.54	361	9.00		
Flu	162	9.40	201	8.79	363	9.05		

Table 7: Relation between gender and comorbidity with other diseases among the study.

Comorbidity	Gender						Chi-Square	
	Male		Female		Total		X ²	P-value
	N	%	N	%	N	%		
No	1044	60.56	1484	64.92	2528	63.04	8.019	0.005*
Yes	680	39.44	802	35.08	1482	36.96		

Table 8: Relation between gender and comorbidity with other diseases among the study.

Follow-up	Gender						Chi-Square	
	Male		Female		Total		X ²	P-value
	N	%	N	%	N	%		
Improved	1364	79.12	1805	78.96	3169	79.03	35.217	<0.001*
Medical treatment	200	11.60	361	15.79	561	13.99		
Surgical treatment	160	9.28	120	5.25	280	6.98		

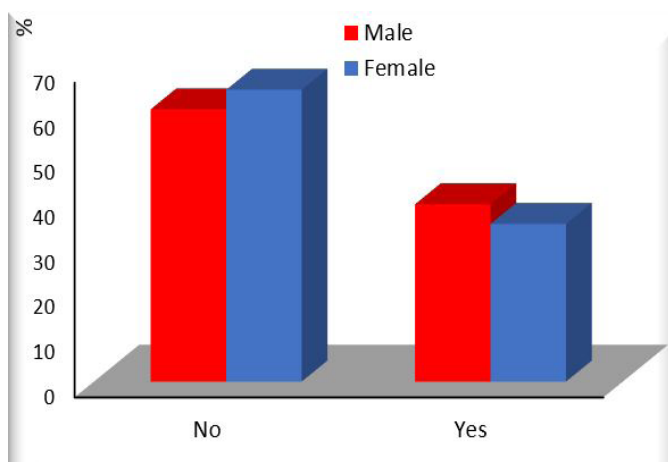


Figure 7: Relation between gender and comorbidity with other diseases among the study.

Table 5 showing that according to the study, there were predominance of male patients to female patients with ear diseases (32.60: 28.00%). There was predominance of female patients to male patients with nose diseases (31.58: 25.52%). There was predominance of male patients to female patients with throat diseases (25.52: 21.08%). There was predominance of female patients to male patients with Miscellaneous diseases (19.34: 16.36%). The difference was statistically significant ($p < 0.001$).

Relation between age and diagnosis of ENT diseases:

Figure 6 shows that, there were predominance of age group < 15 years old with nose and throat diseases. While ear disease was predominant among age >41 years old. The difference was statistically significant ($p < 0.001$).

Relation between gender and each disease among ENT diseases:

Table 6 showing that, there were predominance of male patients to female patients with Acute otitis media (9.34: 7.00%). There was predominance of female patients to male patients with Foreign body of ear (5.25: 2.32%). There was predominance of female patients to male patients with O. media with effusion (7.00: 6.96%). There was predominance of male patients to female patients with Excessive ear wax (9.34: 7.00%). Patients suffer from otomycosis were males (2.32%). There was predominance of male patients to female patients with Vertigo (2.32: 1.75%). There was predominance of female patients to male patients with Allergic rhinitis (10.54: 6.96%). There was predominance of male patients to female patients with Sinusitis (16.24: 14.04%). There was predominance of female patients to male patients with Nasal polyp (7.00: 2.32%). There was predominance of male patients to female patients with Acute follicular tonsillitis (11.60: 10.50%). There was predominance of male patients to female patients with Pharyngitis (13.92: 10.59%). There was predominance of female patients to male patients with Common cold (10.54: 6.96%). There was predominance of male patients to female patients with Flu (9.40: 8.79%). The difference was statistically significant ($p < 0.001$).

Relation between gender and investigations for patients in the study:

Table 7 showing that there were 964 patients had investigated for Complete blood count, 361 (20.94%) were males and 603(26.38%) were females. There were 842 patients had investigated for CT scan of sinuses, 360(20.88%) were males and 482(21.08%) were females. The difference was statistically significant ($p < 0.001$).

Relation between gender and comorbidity with other diseases among the study:

Figure 7 shows that, 680 (39.44%) male patients had comorbid diseases and 802 (35.08%) female patients had comorbid diseases. The difference was statistically significant ($p=0.005^*$).

Relation between gender and prognosis among the study:

Table 8 demonstrates that, the improved patients were 1364 (79.12%) males and 1805 (78.96%) females. Patients on medical treatment were 200 (11.60%) males and 361 (15.79%) females. Patients with surgical management were 160 (9.28%) males and 120 (5.25) females, which was statistically significant ($p < 0.001$).

Discussion

Otorhinolaryngological disorders are amongst the common reason for seeking medical advice in health care setup. Otorhinolaryngological disorders constitutes to one of the major causes of morbidity in any hilly area. Morbidity pattern has several determining factors like socio-economic status, basic education, occupation of parents, socio-cultural practices, living environment. Ear, nose and throat emergencies are common in all communities. Early diagnosis and management will result in reduction of morbidity and mortality [1].

The current study was carried in otorhinolaryngology outpa-

tient clinic of the general hospital of Suez city over one year and managed a total number of 4010 patients. Among them, 1524 (38%) were less than 15 years old, 883 (22.02%) were between 15 and 24 years old, 802 (20%) were between 25 and 45 years old & 801 (19.98%) were more than 45 years old.

In agreement with Surapaneni and Sisodia, study about incidence of ear, nose and throat disorders in which more than 45% cases who had disorders were concentrated in the 6-15 years age group [8]. In the same line with Anwar et al. study in which the age wise otorhinolaryngological morbidity among pediatric age group showed that no report of cases in the neonatal period and 1-4 age group was 2.63%, 5-9 age group was 36.26% and 10-14 age group was 61.11% [9].

The current study is supported by other study that there was predominance of female patients to males in ENT diseases as 13,393 (54.48%) were of female patients, and 11,190 (45.51%) were of male patients (117). The age groups were 0 to 15 years (22.71% of cases), 16 to 65 years (71.96%), and over 66 years (5.31%) (117).

In agreement with Surapaneni and Sisodia, [8] study in which the predominant gender was females compared to males although this distribution was not significant, though a similar distribution was found in another study by Yeli [10].

Similarly, Anwar et al. study found that the otorhinolaryngological disorder among male children constituted for 29.82% whereas female children accounted for 70.18%. The difference between male and female children was statistically significant ($p=0.0001$) [9]. Conversely to, a study done in 2009 by Abbas et al., which demonstrated predominance of male patients to females (2.5:1) [11].

In the present study, most of patients suffered from fever, then headache & drainage from ear canal and runny nose.

Conversely, ear pain due to an infection is the most common cause in children and can occur in babies, it may or may not be accompanied by other symptoms such as fever [2], [12]. Such a variation can be accounted for a more liberal and developed social culture and equal work opportunities and exposure for men and women in a developed country like UK.

In the study, patients with ear diseases were 1202(29.98%), patients with nose diseases were 1162(28.98%), patients with throat diseases were 922(22.99%) and patients with Miscellaneous were 724(18.05%).

Similar to another study in India in which a retrospective study was conducted in a rural tertiary care teaching hospital for a period of two years. Otolological, nasopharyngeal and oropharyngeal disorders were 73.67%, rhinological 7.31%, oropharyngeal 5.58% and oral cavity was 4.1% morbidity profile [9].

In Dogan et al. study in Nigar, the most common otorhinolaryngological disorders were pharyngitis ($n = 2713$; 38.6%), followed by tonsillitis ($n = 1302$; 18.5%) and rhinitis ($n = 1161$; 16.5%) [13].

An Egyptian study in South Sinai found that ear problems were found in 27.5% of the ears examined. The most common cause was secretory otitis media (10.8%) followed by occluded wax (9.5%). The most common cause of hearing loss in children is otitis media Secretory otitis media was highly prevalent in areas 1 (Abu Redeis) and 3 (Nuweiba) with 18.6% and 13.7% prevalence respectively [14].

In Egypt; the prevalence of hearing loss in schoolchildren (6-12 years) was reported to be 5.3% in Alexandria and 4.5% in rural areas. Another study in Ismailia governorate found hearing loss among 13.7% of schoolchildren, but they only used tympanometry to test for middle ear diseases. Recently, a national household survey reported a prevalence of hearing loss of almost 10% in children aged 5-14 years, 7;9.4% of which was mild, i.e. almost 8% of the study group had mild loss which is similar to our results, although their study was home-based and so did not only involve children in school [15].

The most common morbidity of the ear was due to Otitis media, both CSOM as well as that with effusion both together accounting for about 75% of the ear disorders. Impacted wax was seen in 18% of the ear disorders [9]. Biswas et al and Morris et al found the prevalence of CSOM to be 12.4% and 15 % respectively [16].

Similar was the case the most common ear disorder was Ear Wax which accounted for over 40% of the cases [10,17,18]. In Khan et al. study Ear wax was the most common ENT disorder encountered. As in majority of cases it is asymptomatic, so they don't seek medical attention. Reported the prevalence rates of impacted wax ranging from 8.6% to 28.2% [19,20,21]. Similar study results who found otomycosis to be present in 4.7% in the study population [18]. Presence of foreign bodies, whether animate or inanimate in the auditory canal and nasal cavity is a common feature among the preschoolers and comparatively uncommon in the older age group. This is probably these children tend to insert objects due to boredom or curiosity.

As regards nose disorders in this study, patients which had vertigo, allergic rhinitis, sinusitis and patients' nasal polyps.

Similar to study in which the most common was rhinitis which accounted for 55% of the overall cases and 60.7% of the nasal cases which was corroborated by other studies [8]. Allergic rhinitis was seen to be associated with other conditions like asthma and other allergic conditions. In our study, patients which had acute follicular tonsillitis, pharyngitis, common cold and flu [8]. While study found that pharyngitis was found most common followed by tonsillitis. The same was found in a study, whereas the prevalence of tonsillitis was more in a study [10,18].

In this study, more than third of patients had comorbid diseases with male predominance. The difference was statistically significant ($p=0.005^*$). Similar to study in which 22.1% had comorbid diseases most of them were males [9].

According to the study, there was predominance of male patients to female patients in age group less than 15 years old and between 25 and 45 years old, while between 15 and 24 old and more than 45 years old females were more predominant than males. The difference was statistically significant ($p < 0.001$).

Our study revealed gender variation in the morbidity pattern of otorhinolaryngological disorders. There was predominance of male patients to female patients with ear diseases. The difference was statistically significant ($p < 0.001$). Male patients with acute otitis media, excessive ear wax and otomycosis were significantly higher than females. Meanwhile female patients to with foreign body of ear, O. media with effusion were

higher than males. In Assiut during the period from October 2011 to August 2012 a total of 124 patients were clinically examined for mycotic otitis at the outpatient clinic of Otolaryngology Department, Assiut University Hospitals (AUH). 56 were males (60.9%) and 36 were females (39.1%) [22].

In study the otological and combined disorders in male children was 21.56% but in female it was 22.5% but difference between the gender was not statistically significant ($p=0.07$) [9]. In the present study, there was predominance of female patients to male patients with nose diseases (31.58: 25.52%). There was predominance of male patients to female patients with vertigo, sinusitis, acute follicular tonsillitis, pharyngitis and flu ($p < .001$). Whereas there was predominance of female patients to male patients with allergic rhinitis, nasal polyp and common cold.

In agreement to study in which nasopharyngeal and oropharyngeal disorders was higher in female (51%) but in male it was only 46% ($p=0.57$) which was not statistically significant [9]. In this study there was predominance of male patients to female patients with throat diseases. Other studies have found a similar male and female proportion [23]. There was a 1.19 female to male ratio - there were slightly more female patients [24]. According to the study, the improved patients were 1364 (79.12%) males and 1805 (78.96%) females. Chronic patients were 200 (11.60%) males and 361 (15.79%) females. Patients with surgical management were 160 (9.28%) males and 120 (5.25) females, which was statistically significant ($p < 0.001$). Similar to Italian study which found that there was also significant

sex differences in ENT, in terms of epidemiology, anatomy, audiology, inflammation, infectious diseases, pain and cancer. Female showed more chronic course than females, while male had the most ENT emergencies than females [25].

Conclusion

The otorhinolaryngological disorders have the highest incidence among >15 age group. Females were more affected than males. Regarding ear diseases, most of patients had acute otitis media, then foreign body in ear, otitis media with effusion, excessive earwax and then otomycosis. As regards nose disorders in this study, patients had vertigo, allergic rhinitis, sinusitis and nasal polyps. There was predominance of male patients to female patients in age group less than 15 years old and between 25 and 45 years old, while between 15 and 24 old and more than 45 years old females were more predominant than males. The difference was statistically significant. Our study revealed gender variation in the morbidity pattern of otorhinolaryngological disorders. There was predominance of male patients to female patients with ear and throat diseases. While there was predominance of female patients to male patients with nose diseases.

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