OBJECTIVE: To determine the frequency of ear diseases among the medical students of Isra University.

STUDY DESIGN: A Descriptive, Cross sectional study.

PLACE AND DURATION: E.N.T department Isra University Hospital Hyderabad, in two years; from 1st January 2011 to 31st December 2012.

METHODOLOGY: All medical students of Isra University Hyderabad who visited E.N.T department for complaints related to ears were selected for this study. We did a thorough ENT examination with particular emphasis on otological examination including pneumatic otoscopy, valsalva manoeuvre, hearing assessment with tuning fork (512 Hz). Data were extracted on especially designed proforma and Statistical analysis was carried out using SPSS version 16.

RESULTS: 500 students were included in the study; 303 (61%) were females and 197 (39%) were males. Mean age was 22.7 and standard. Deviation ± 1.521 range from 19 to 27 years. Majority of patients were diagnosed as having impacted wax (29%) or otomycosis (24%). Some patients (22%) presented with vague otological symptoms but after a complete examination, no ear pathology was found. Majority of patients complained of earache (57%), hearing Impairment (56%) and aural heaviness or blockage (38%).

CONCLUSION: Although traumatic and infectious diseases of external and middle ear were found, but impacted wax and otomycosis were the most common diseases among the medical students of Isra university.

KEY WORDS: Ear diseases, Medical students, Hearing Impairment.

INTRODUCTION

“Say it is He who has created you, and endowed you with hearing (ears), seeing (eyes) and hearts. Little thanks you give.” (A verse from the Holy Quran–Sura Al–Mulk). Hearing is a real blessing of sublime importance, so much so that ALLAH, the Almighty has mentioned it quite a few times in the Holy Quran. Ear diseases are common presentation in the ENT out-patient department. These diseases may have consequences if not treated early, causing increased morbidity, hearing disability and even mortality. Identifying these conditions early and treating them can reduce these unwanted consequences. Hearing impairment negatively impacts students' development of academic, language and social skills. Even minimal unilateral hearing impairment can have a negative impact as far as learning is concerned, while bilateral hearing impairment can result in learning difficulties as well as psychosocial problems.

The World Health Organization (WHO) estimated that 278 million people in the world, two-thirds of whom were in the developing countries, suffered from moderate to profound hearing impairment. It was also estimated that at least 68 million people have had hearing impairment since childhood. These problems produce surprisingly large economic burden on the society as a whole. Therefore, early otological diagnosis and treatment is important.

Impacted wax is the most common otological problem in local as well as international literature. It is usually a treatable cause of hearing impairment. Wax is a mixture of ceruminous gland secretions, squames of epithelium, dust and other foreign debris. It is expelled by epithelial migration from the tympanic membrane, aided by movements of the temporomandibular joint. This process renders the ear 'self-cleaned'. Unwise efforts with a cotton bud can produce, not only impaction, but, injury and resultant infection of the external and middle ear.

Otomycosis, also known as fungal otitis externa, often involves the external auditory meatus. It is also a common problem seen in daily practice. The prevalence of otomycosis is related to the geographical area, with higher rates in tropical and subtropical climates. Aspergillus and Candida albicans are the most commonly identified organisms in local as well as the international literature.

Furunculosis, foreign body (F.B), traumatic tympanic membrane (T.M) perforation, acute otitis media (AOM), otitis media with effusion (OME) and in the last but not least chronic suppurative otitis media (CSOM) are among the other otological problems encountered in E.N.T practice, especially in the developing countries.

METHODOLOGY

This is a descriptive, cross sectional study carried out in the department of ENT – Head & Neck Surgery, Isra University Hospital, Hyderabad (Sindh). The duration of study is two years, from 1st January 2011 to 31st December 2012. Five hundred
medical students of MBBS and BDS at Isra University Hyderabad, who visited ENT – Head & Neck Surgery department for complaints regarding their ears, i.e. earache, hearing impairment, aural blockage or heaviness, itching, discharge, tinnitus or vertigo, were selected for this study. After an informed consent regarding their participation in this study, we took a detailed history particularly about otological symptoms as well as any nose and throat problems. We did a thorough ENT examination with particular emphasis on otological examination including pneumatic otoscopy, valsalva manoeuvre, hearing assessment with tuning fork (512 Hz). Most of the cases were diagnosed on clinical grounds except a few, who required tympanometry, audiometry or a pus swab for culture and sensitivity. All medical students who have had ear surgery, heart, lungs, liver or kidney diseases were excluded from the study. Statistical software SPSS-16.0 was used for data analysis.

RESULTS

Out of 500 patients, 303 (61%) were females and 197 (39%) were males and ratio was 1.5:1 (Figure - I). Mean age was 22.7 years and standard. Deviation ±1.521, ranging from 19 to 27 years (Figure - II).

Most of the patients presented with complaints of earache 286 (57%), hearing impairment 280 (56%) and aural blockage or heaviness 189 (38%). Other symptoms were itching 126 (25%), discharge 101 (20%), tinnitus 05 (1%) and vertigo 05 (1%) (Table - I). Many of the patients presented with multiple and bilateral symptoms except for tinnitus, which was unilateral. Majority of patients had impacted wax 145 (29%) and otomycosis 120 (24%). Other conditions were furunculosis 30 (6%), foreign body 25 (5%), acute otitis media 25 (5%), traumatic tympanic membrane perforation 20 (4%), otitis media with effusion 14 (3%) and chronic suppurative otitis media 10 (2%) (Table - II).

111 (22.2%) patients presented with vague otological complaints, but, after a complete examination, no pathology was found (Table - II).

<table>
<thead>
<tr>
<th>S. No.</th>
<th>COMPLAINT</th>
<th>TOTAL</th>
<th>PERCENTAGE</th>
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<tbody>
<tr>
<td>1</td>
<td>EARACHE</td>
<td>286</td>
<td>57.20%</td>
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<td>2</td>
<td>HEARING IMPAIRMENT</td>
<td>280</td>
<td>56%</td>
</tr>
<tr>
<td>3</td>
<td>AURAL BLOCKAGE/HEAVINESS</td>
<td>189</td>
<td>37.60%</td>
</tr>
<tr>
<td>4</td>
<td>ITCHING</td>
<td>126</td>
<td>25.20%</td>
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<tr>
<td>5</td>
<td>DISCHARGE</td>
<td>101</td>
<td>2020%</td>
</tr>
<tr>
<td>6</td>
<td>TINNITUS</td>
<td>05</td>
<td>1%</td>
</tr>
<tr>
<td>7</td>
<td>VERTIGO</td>
<td>05</td>
<td>1%</td>
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Ear diseases may cause life long, or, sometimes life-threatening problems. Most of the otological disorders are preventable and treatable. Pathology of the external and middle ear is the third most common reason of visiting a general practitioner or a family doctor. This is the first study to estimate the prevalence of ear diseases among the medical students of Isra University Hyderabad (Sindh). Although, no former example of any such study exists in the local literature, the current situation of ear diseases among medical students in Hyderabad can be extrapolated.

In our study, we found a female preponderance of 61% as compared to male -39% with a ratio of 1.5:1. While this is consistent with one study in 2010, the situation is reversed in another. The mean age is 22.7 years and standard. Deviation ±1.521, ranging from 19 to 27 years.

We observed that seventy eight percent (78%) of patients had a variety of symptoms related to ear diseases. 56% (n=280) presented with earache and hearing impairment, 38% (n=189) with aural blockage or heaviness, 25% (n=126) with itching, 20% (n=101) with discharge and 1% (n=5) tinnitus and vertigo (Table - II). We also observed that 22% of patients did not suffer from any form of ear diseases, but, had otological symptoms due to various other reasons.

Aetiology of ear diseases can vary in different geographic regions of the world. Bacterial infections followed by fungal agents, tends to be the leading cause of otological problems, which can lead to hearing impairment or other associated symptoms, such as, earache, discharge, itching, aural blockage or heaviness. In an attempt to relieve symptoms, patients often introduce foreign materials, which, inadvertently harm rather than help the patient. Cotton buds are commonly used to clean the ears. Ear injuries caused by cotton buds are commonly seen in daily E.N.T practice.

In this study, majority of the patients presented with impacted wax 29% (n=145) (Table - II). Normally, ear wax is expelled by epithelial migration from the tympanic membrane, aided by movements of the temporomandibular joint. This process renders the ear 'self-cleaned'. Impacted wax is reasonably a common otological problem, as mentioned in various studies.

95% of impacted wax patients admitted to cleaning their ears with cotton buds, tissue papers or twisted towel corners in the form of a wisp. A few also ventured with ball point pens, car keys or pins. In the remaining 5% of patients although, no definite cause for wax impaction was found, but it could may well be due to the patient trying to shake the wax out by vigorous movement of his/her finger tip against the concha of the ear. It can be easily deduced from the result that self cleaning efforts disturb the natural wax expulsion from the ear and may in fact, push the wax further in inside the ear canal, leading to its impaction.

Otomycosis is the second most common ear disease in our study. It is more frequent in young age groups, has a higher incidence in females than males and common in tropical and subtropical climates because of heat and humidity. The human external auditory canal is an ideal environment for fungus to grow due to the abundance of proteins, carbohydrates, favorable humidity and temperature. Aspergillus Niger, Aspergillus fumigatus or Candida albicans, are the usual culprits. Diagnosis is usually made by a history (itching in the ears/ pain/ fullness in the ears, etc) and presence of fungus (filaments and spores or wet blotting paper like mass) in the ear. 90% of patients suffering from otomycosis had a history of water entering their ears, either during swimming (10%) or bathing (90%). Their attempts at drying their ears with cotton buds/ tissues etc, had failed, which eventually led to the growth of fungus in the external auditory canals. The role of heat and humidity in the development of otomycosis has already been endorsed in the literature. Our study corroborates this fact and hence, the need to take precautionary measures against it is emphasized.

Other external ear diseases included furunculosis 6%, F.B 5% and traumatic T.M perforation 4%, in our study (Table - II). These are again ascribed to the extensive usage of foreign materials i.e. cotton buds, hair pins, common pins or match sticks, etc for cleaning of the ears, all around the globe.

Middle ear diseases were represented mainly by AOM 5%, OME 3% and CSOM 2%. AOM is a common infection, especially in children, but not so common in young adults. In contrast, another study shows a higher incidence.

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<th>TOTAL</th>
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<tbody>
<tr>
<td>1</td>
<td>Impacted wax</td>
<td>145</td>
<td>29%</td>
</tr>
<tr>
<td>2</td>
<td>Otomycosis</td>
<td>120</td>
<td>24%</td>
</tr>
<tr>
<td>3</td>
<td>Furunculosasis</td>
<td>30</td>
<td>6%</td>
</tr>
<tr>
<td>4</td>
<td>F.B (Cotton bud; tissue paper; etc)</td>
<td>25</td>
<td>5%</td>
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<tr>
<td>5</td>
<td>AOM (Acute Ottitis Media)</td>
<td>25</td>
<td>5%</td>
</tr>
<tr>
<td>6</td>
<td>Traumatic T.M perforation</td>
<td>20</td>
<td>4%</td>
</tr>
<tr>
<td>7</td>
<td>OME (Ottitis Media with Effusion)</td>
<td>14</td>
<td>2.80%</td>
</tr>
<tr>
<td>8</td>
<td>CSOM (Chronic Suppurative Otitis Media)</td>
<td>10</td>
<td>2%</td>
</tr>
<tr>
<td>9</td>
<td>Normal Ear</td>
<td>111</td>
<td>22.20%</td>
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</tbody>
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DISCUSSION

Ear diseases may cause life long, or, sometimes life-threatening problems. Most of the otological disorders are preventable and treatable. Pathology of the external and middle ear is the third most common reason of visiting a general practitioner or a family doctor. This is the first study to estimate the prevalence of ear diseases among the medical students of Isra University Hyderabad (Sindh). Although, no former example of any such study exists in the local literature, the current situation of ear diseases among medical students in Hyderabad can be extrapolated.

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According to our study, OME was the sequelae of previous AOM, either due to inadequate treatment or recurrent infection of the upper respiratory tract. A fact, already realised by many authors.29

CSOM is also a common ear disease, mostly occurring among patients of low socio economic status, with poor hygiene and inadequate nutrition. Our results are consistent with a few previous studies20 22, while some workers have sown a higher prevalence in the normal population.32

In our study, most of the diseases were more common in females, except for Foreign Body and traumatic Tympanic Membrane perforation, which were more common in males. Majority of the patients presented with bilateral symptoms, except for the tinnitus, which was unilateral.

This study suggests that the education and popularization of health knowledge among adolescents should be prioritized. Otologists should reinforce the prevention and rehabilitation of hearing impairment among young people, while technical services and the appropriate help should be provided to people with hearing and speech disabilities. Non-medical wax removal by quacks, is very common in our part of the world. In addition to that, the practice of self cleaning can be futile, dangerous and must be discouraged. Wax, if significant in amount or impacted, must be removed in a hospital by a qualified person.

This study estimates the frequency of ear diseases among the medical students of Isra University, Hyderabad (Sindh) over a period of two years. On account of the small number of patients in our study, we are not in a position to apply results to the general population. There is a need to carry out similar studies more extensively, in order to be able to judge the incidence of various ear diseases in our part of the world.

**CONCLUSION:**

Although traumatic and infectious diseases of external and middle ear were found, but impacted wax and otomycosis were the most common diseases among the medical students of Isra University, Hyderabad.

**RECOMMENDATIONS**

We recommend that the normal population should be provided health care education and advised to use ear plugs during swimming and bathing – Ear probing and self cleaning must be avoided in all circumstances.

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