

Ear Diseases in Children Presenting at Shaheed Ziaur Rahman Medical College Hospital, Bogura, Bangladesh

A. Q. M. Mahmudul Haque^{1*}, Md. Abdul Wahed¹, Md. Shafiul Alam², Md. Khorshed Alam³

¹Assistant Professor, Department of ENT & Head-Neck Surgery, Shaheed Ziaur Rahman Medical College, Bogura, Bangladesh

²Residential Surgeon, Department of ENT & Head-Neck Surgery, Shaheed Ziaur Rahman Medical College Hospital, Bogura, Bangladesh

³Registrar, Department of ENT & Head-Neck Surgery, Shaheed Ziaur Rahman Medical College Hospital, Bogura, Bangladesh

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*Corresponding author: A. Q. M. Mahmudul Haque

Assistant Professor, Department of ENT & Head-Neck Surgery, Shaheed Ziaur Rahman Medical College, Bogura, Bangladesh

Abstract

Introduction: Ear diseases have been found to be important health problems among children. Nearly one third of Otorhinolaryngology outdoor attendance in the hospital comprised of paediatric age group. The problem is compounded by the fact that the children are economically dependent on their parents who are largely poor. However, the cause of hearing loss in children is more varied, including the etiologies. **Objective:** To find out ear diseases in children presenting at Shaheed Ziaur Rahman Medical College Hospital, Bogura, Bangladesh. **Materials and Methods:** This hospital-based prospective study was carried at Department of ENT & Head-Neck Surgery, Shaheed Ziaur Rahman Medical College Hospital, Bogura, Bangladesh from January to December 2021. 985 patients below sixteen years of age presented to the ENT OPD during the study period. Of them, 450 had ear disease. All patients aged 16 years or younger presenting with ear diseases to the ENT clinic of the hospital and seen by ENT surgeons were enrolled into the study. The diagnoses were made on the basis of history and clinical examination. Results were expressed in numbers and percentages. **Results:** Out of 985 patients below sixteen years of age presented to the ENT OPD during the study period. Of them, 450 had ear disease. Five hundred and sixty one (64.4%) were males. The male to female sex ratio was 1.8:1. Table 2 the various types of ear disease were as CSOM (Chronic Suppurative Otitis Media), ASOM (Acute Suppurative Otitis Media) and OME (Otitis Media with Effusion). Wax (33.6%) followed by CSOM (18.7%) and ASOM (13.8%) were the most common ear diseases in paediatric patients in tertiary care centre. Ear diseases commonly found in this study were in the age group of 6-10 years and most ear diseases were more common in boys. It was found that wax (33.6%) was the most common diagnosed ear disease. **Conclusion:** Ear diseases are most common condition in ENT OPD among paediatric age group. Wax, CSOM and ASOM were the three most common ear diseases. Improvement of health care facilities and awareness amongst health care providers would definitely be helpful in reducing the prevalence of ear diseases in developing countries.

Keywords: ASOM, CSOM, Paediatric ear disease, wax.

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INTRODUCTION

Ear diseases have been found to be important health problems among children [1]. Nearly one third of Otorhinolaryngology outdoor attendance in the hospital comprised of paediatric age group. The problem is compounded by the fact that the children are economically dependent on their parents who are largely poor. Population below the age of 14 years is 34.6% [2]. Health is vital for overall development of a child and determines his/her ability to acquire knowledge and skill. Otitis media is the most common disease in children mainly due to altered anatomy of

Eustachian tube which is straighter in children as compared to that in adults [3]. However, the cause of hearing loss in children is more varied, including the etiologies. Diseases of the ear can be diagnosed usually by taking a very good history. Asking the patients leading questions about the disorders of the sensory systems and the related structure is helpful in diagnosis [4]. Such leading questions include the presence or absence of the following symptoms: otalgia, otorrhoea, hearing impairment, high grade fever, tinnitus, vertigo, deep seated headache, pre or post auricular swelling and facial paralysis. Adequate examination of the entire

child with special attention to the head and neck, can lead to the identification of a condition that may predispose to or be associated with ear disease [5]. In the Bangladeshi context, approximately 16% of the population above the age of 5 years suffer from otitis media. More than 55% of these cases occur in school going children, most of them belonging to the lower socio-economic class [6]. However, despite the high prevalence rates of otologic diseases among paediatric age group and its possible consequences on psychosocial development of these children, there are very few studies carried out that compared ear diseases of children from high versus low socioeconomic classes; and most, if not all, of the studies were from Asia, and none of these available studies appear to have been carried out from the Northern part of the country [7, 8]. It therefore becomes imperative to estimate the magnitude and distribution of ear diseases that lead to hearing impairment in school-going children to enable them a better future and also for proper planning and implementation of health care measures.

MATERIALS AND METHODS

This hospital-based prospective study was carried at Department of ENT & Head-Neck Surgery, Shaheed Ziaur Rahman Medical College Hospital, Bogura, Bangladesh from January to December 2021. 985 patients below sixteen years of age presented to the ENT OPD during the study period. Of them, 450 had ear disease. All patients aged 16 years or younger presenting with ear diseases to the ENT clinic of the hospital and seen by ENT surgeons were enrolled into the study. The information included demographic data like age, sex, and history of ear disease was noted, and physical examination was also done. Otosopic examination was done using Welch Allyn otoscope

REF 71045 (USA). Wax obstructing at least one quadrant of pars tensa was considered as significant and included in the study. It was considered impacted when the wax covered the whole of external auditory canal and tympanic membrane was not visible at all. Chronic suppurative otitis media implies to a permanent abnormality of the pars tensa or pars flaccida. Acute otitis media was diagnosed with either history of earache, fever, impaired hearing or otorrhoea and examination of tympanic membrane showing intensely red or bulging or perforation. Cases were diagnosed as otitis media with effusion if there was visible retraction and change in colour (dull) of tympanic membrane and its mobility on pneumatic otoscopy. The data was analysed using the Statistical Product and Service Solutions (SPSS) software IBM SPSS Statistics for Windows, version 20 (IBM Corp., Armonk, N.Y., USA). Student t-test and Chi-square tests were used to test for possible difference or association. The level of statistical significance was set at p-value of <0.05.

RESULTS

985 patients below sixteen years of age presented to the ENT OPD during the study period. Of them, 450 had ear disease. Five hundred and sixty one (64.4%) were males. The male to female sex ratio was 1.8:1. Table 2 the various types of ear disease were as CSOM (Chronic Suppurative Otitis Media), ASOM (Acute Suppurative Otitis Media), OME (Otitis Media with Effusion). Wax (33.6%) followed by CSOM (18.7%) and ASOM (13.8%) were the most common ear diseases in paediatric patients in tertiary care centre. Ear diseases commonly found in this study were in the age group of 6-10 years and most ear diseases were more common in boys. It was found that wax (33.6%) was the most common diagnosed ear disease.

Table-1: Showing the Age and Sex distribution of patients with ear diseases (N=450)

Age (Years)	Male	Female	Total (%)
0-5	90	50	140(31.1%)
6-10	120	58	178(39.6%)
11- 16	80	52	132(29.3%)
Total	290(64.4%)	160(35.6%)	450(100%)

Table-2: Showing the various types of ear diseases according to age in children having ear disease (N=450)

Disease	Male	Female	0-5yrs	6-10yrs	11-16yrs	%)
Wax	86	65	31	62	58	151(33.6)
CSOM	55	29	28	32	24	84(18.7)
ASOM	39	23	19	24	19	62(13.8)
OME	36	16	14	20	18	52(11.6)
Otitis Externa	22	12	11	13	10	34(7.6)
Otomycosis	13	10	6	9	8	23(5.1)
Foreign Body	10	6	4	6	6	16(3.6)
Preauricular Sinus	7	4	4	4	3	11(2.5)
Others	14	3	3	10	4	17(3.8)
Total	282	168	120	180	150	450(100%)

DISCUSSION

Diseases of the ear in children are a major public health issue particularly in developing countries [8]. Wax (33.6%) followed by CSOM (18.7%) and ASOM (13.8%) were the most common ear diseases in paediatric patients in tertiary care centre. Wax impaction was the most common ear condition found in this study accounting for 33.6% of all the children. It was asymptomatic in most of the cases. Chishty *et al.*, [9] similarly reported ear wax as being the commonest finding accounting for 41.9% in their study population. Although many studies reported lower prevalence of ear wax compared to this present study, it was still the most common otologic disease in majority of the studies [3, 6, 8, 10-12]. Ear diseases commonly found in this study were in the age group of 6-10 years and most ear diseases were more common in boys. It was found that wax (33.6%) was the most common diagnosed ear disease. Even though our hospital is located in the city, it covers the rural hilly region where most of villages don't have facilities like syringing, suctioning and hook wax removal. Some studies revealed that about 30% to 50% of wax impaction caused hearing impairment [13, 14]. However, in this present study, there was no statistically significant association between those who had ear wax and hearing loss ($p = 0.302$). However, it is unknown whether cerumen lead to hearing loss as the hearing test was performed three days after cleaning the ears. Adhikari *et al.*, [15] found that wax impaction is the most common finding in paediatric population (62%), however Okafor⁶ in his study found wax impaction to be the third most common ear disease in the southeastern part of Nigeria. Hatcher *et al.*, [16], Elango *et al.*, [17] and Minza *et al.*, [18] reported prevalence rates of impacted wax ranging from 8.6% to 28.2%. It is said that humidity, temperature and racial differences play an important role in wax production and impaction. Impacted wax is mostly a silent condition and may not have been attended by the caregivers of the children at school age and possibly had influence even on hearing. Jacob *et al.*, [19] and Sharma *et al.*, [20] reported wax as the most common cause of hearing impairment, which accounted for 29.8% and 50.0% of cases respectively. Hearing impairment was not assessed in this study; thus the possible influence of hearing due to wax could not be ascertained. Chronic suppurative otitis media (CSOM) is a major health problem in developing countries throughout the world. It is the most common cause of persistent mild to moderate hearing impairment in children and young adults [21]. High rates of CSOM have been attributed to overcrowding, inadequate rates of nasopharyngeal colonization with potentially pathogenic bacteria and inadequate or unavailable health care. Poverty is a major risk factor in developing countries and certain neglected populations [23]. This study showed that 23.4% of children had CSOM. 72% had CSOM tubotympanic type and 28% had Attico-antral disease. The prevalence of CSOM was 6% as found by Rupa *et al.*, [24], Biswas *et al.*, 12.4% [21],

Maharjan *et al.*, 13.2%[24], and Akinpelu *et al.*, 33.9%[25]. Most of these studies were done in school children but our study was based on patients attending the hospital. Sixty-five to 95% of children would have suffered one or more attacks of acute suppurative otitis media or acute otitis media (ASOM/AOM) before the age of 7 years [26]. ASOM was the third most common ear diseases in our study and accounted for 13.0% of them all. Similarly it was also the third most common ear disease in the study done by Akinpelu and Amusa *et al.*, however the frequency was lower (7.0%) [25]. Otitis media with effusion (OME) is one of the most common causes of hearing impairment and one of the most frequent reasons for elective admission to hospital for surgery during childhood in the western world. The study found that 9.4% of cases had OME but Kishve *et al.*, found it to be in 20% in a rural medical college in India [27]. Otitis externa, otomycosis, and preauricular sinus are the least common diseases in descending order in our study. Our study showed 57.8% of paediatric ENT patients had ear diseases which is comparable to the study done by Awan Z *et al.*, (47%) [28]. This being of a small sample size and single centred study, might not reflect the actual prevalence and pattern of ear diseases as a whole. Multicentred and large sample sized study is further needed to find out the actual prevalence and pattern of ear diseases in this country. Various other diseases of external auditory canal, traumatic perforation of tympanic membrane, otosclerosis and vertigo were also detected. As this is a hospital based study, and it may not reflect the exact magnitude and pattern of ear diseases prevalent in the community. A community oriented, detailed study should be done for proper planning and implementation of programs to tackle this public health problem.

CONCLUSION

Ear diseases are one of the major health problems in Bangladesh. This study has found chronic otitis media and ear wax/otomycosis to be commonest problems in children and adults attending the Ear OPD of Biratnagar eye hospital. Eustachian tube dysfunction, Acutesuppurative otitis media, Otitis media with effusion, Presbycusis, Sensorineural hearing loss and other problems of external auditory canal were also detected. Improvement of ear health care and increasing the awareness about the disease and its management in health care providers and people should be one of the prime goal to reduce the prevalence of preventable ear disease and related morbidity. Improvement of health care facilities and awareness amongst health care providers would definitely be helpful in reducing the prevalence of ear diseases in developing countries.

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