



Pediatrics otological emergencies among Sudanese children

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Article History

Received: 18 July 2020

Reviewed: 20/July/2020 to 26/August/2020

Accepted: 27 August 2020

E-publication: 06 September 2020

P-Publication: September - October 2020

Citation

Shaimaa Salaheldeen Mahmoud, Amar Fathi Mohamed Khalifa. Pediatrics otological emergencies among Sudanese children. *Medical Science*, 2020, 24(105), 3353-3361

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General Note



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ABSTRACT

Background: Otological emergencies among children are very common in all communities. Swift recognition and prompt institution of management is very crucial to successful outcome of otological emergencies. **Objectives:** To determine the spectrum of pediatrics otological emergencies at Khartoum ENT hospital. **Patients and methods:** This is a cross-sectional; hospital based observational study conducted from September 2017 to May 2018. It included all pediatrics patients who presented to Khartoum ENT teaching hospital complaining of ear emergency. Pre coded pre tested questionnaire was used to collect data. Data was analyzed using Microsoft excel and SPSS version 22. **Results:** This study included 313 respondents. Their age was up to 16 years with mean age (1.87±0.75) years. The main affected age group of these patients was 6-10 years old as 131 patients (41.9%). Male to female ratio was 1.26:1. The commonest presenting symptom was ear pain in 236 patients (48.9%), followed by ear discharge in 120 patients (24.8%); Those symptoms were common on the right ear (136 patients) representing 43.5%, followed by left ear symptoms in 131 patients (41.9%), while only 46 patients had bilateral ear complaint (14.7%). Regarding commonest diagnosis; acute otitis media was the commonest which seen in 177 patients (56.5%), foreign body in the external ear canal in 55 patients (17.6%), the least frequent diagnosis were mastoid abscess in 5 patients (1.6%) and frunculosis in 5 patients (1.6%). **Conclusion:** The study concluded that the most commonly

affected age group 6-10 years, with slight male predominance. The commonest presenting symptom was ear pain followed by discharge. The commonest neuro-otological symptom associated with ear emergencies was fever. The commonest otological emergency was acute otitis media followed by foreign body ear.

Keywords: Otological emergencies, acute otitis, otorhinolaryngology

1. INTRODUCTION

Emergency services are an integral part of the disciplines of clinical medicine and it is considered as an indicator of the quality of health care system (Afolabi et al., 2008). Children are curious, ready to explore their environment and probe around the body orifices, especially within the head and neck region, Such actions may culminate in serious otorhinolaryngology (ORL), it stands to reason that greater challenges should be envisaged in the developing countries, where poverty, ignorance, insufficient personnel and lack of basic health facilities abound (Obuekwe et al., 2003). Ear, nose and throat emergencies are specialized job and special instruments & equipment are needed to manage the emergency situations. ENT emergencies can be of varied types ranging from trivial complaints to life threatening conditions (Saha et al., 2005)

A prospective observational analytic hospital- based study conducted in Emergency Department in Ahmed Gasim Pediatrics Hospital (Sudan) during the period December 2014 to May 2015). One thousand seven hundred and eighty-three was the total number of patients who presented to the Emergency Room, 651(36.5%) children were found to have various ENT diseases (Algalil et al., 2017). Upper aero-digestive tract foreign bodies are the most common indication for urgent surgical intervention. Public health education is essential in order to prevent these avoidable accidents (Wail & Osman, 2011). In a hospital based study done by (Sharma et al., 2014), studying the prevalence of ENT emergencies in pediatric age group and their management protocol as followed in a tertiary center, total of 251 patients were examined, Among these, 155 were males (61.75%) and 96 were females (38.25%), So there is an overall male preponderance.

A large multinational, retrospective, observational study conducted by (Mustafaa et al., 2017) in Saudi Arabia, turkey, Oman and Pakistan among children According-To-Protocol cohort, 191 AOM episodes. Results of this study revealed that AOM represent a considerable portion of ENT pathology in emergency department. Information on otological emergencies among children in Sudan is scarce. This study is intended to determining the commonest otological emergencies and spectrum of Sudanese children affected, to help in limiting the dangers of these conditions by decreasing the incidence rate.

2. PATIENTS AND METHODS

This is a cross-sectional; hospital based observational analytic study, conducted in Khartoum ENT Hospital. Data was collected from September 2017 to May 2018. Study population is Sudanese pediatric patients who presented to Khartoum ENT Teaching Hospital emergency room complaining of acute ear problem. As for sampling theTotal coverage to all pediatrics Sudanese patients who presented to Khartoum ENT Teaching Hospital emergency room with otological emergency from September to May were enrolled 313 patients. The response rate was 93%.

The study included allpediatrics 16 years and below whom presented with otological emergencies. And excluded mentally ill, Patients who underwent ear surgery, Patients with chronic disease and acute exacerbation, Patients with referred Otagia and those who refused to participate in the study.

Data was collected using a pretested pre-coded questionnaire developed specifically for the purpose of this study after consulting literature and epidemiologist. Data analyzed using Statistical Package for Social Sciences (SPSS) version 22, graph charts and tables were designed by the use of Microsoft Office Excel 2010. Consent obtained before data collection from and verbal consent was also obtained for all patients or their parents contributing in the study.

3. RESULTS

Three hundred and thirteen patients were enrolled in this study. Patient's up to 16 years old, with mean age 8.31(\pm 13.757 SD) years. The main affected age group of these patients was 6-10 years old as 131 patients (41.9%) followed by 0-5 years as 111 patients (35.5%) and least was age group 11-16 years as 71 patients (22.7%), (Figure 1). One hundred seventy-five patients were males (55.9%) and one hundred thirty eight patients were females (44.1%). Male to female ratio was 1.26:1, (Figure 2). Among these 313 patients, the commonest presenting symptom was ear pain in 236 patients (48.9%), followed by ear discharge in 120 patients

(24.8%), decrease hearing in 76 patients (15.7%), ear itching in 41 patients (8.5%). And the least was patients presented with ear canal swelling in 10 patients (2.1%), (Figure 3).

One hundred twenty-six patients presented with fever (37.3%), 30 patients with headache (8.9%), and only 10 patients with facial nerve palsy (3.0%), one hundred seventy-two patients (50.9%) had no neuro-otological symptoms (Figure 4). No patient had past history of chronic illness, dermatological, allergy, or exposure to radiation. Those patient's symptoms were common on the right ear (136 patients) representing 43.5%, followed by left ear symptoms in 131 patients (41.9%), while only 46 patients had bilateral ear complaint (14.7%), (Figure 5). On examination of those patients by inspecting pinna 298 patients showed normal pinna (95.2%), while 15 patients showed lacerations (4.8%), (Figure 6). By palpation 206 patients showed no findings (65.8%), while 62 suffers tenderness on pressure of tragus (19.8%), 35 patients with pain on traction of pinna (11.2%), and only 10 patients had tenderness over the mastoid area (3.2%), (Figure 7).

External auditory canal examination was normal in 87 patients (27.8%), others shows discharge on the canal in 95 patients (30.4%), foreign body in 55 patients (17.6%), impacted wax in 26 patients (8.3%), oedema of the canal in 20 patients (6.4%), fruncle in 15 patients (4.8), laceration in 10 patients (3.2%), and least was bleeding in 5 patients (1.6%), (Figure 8). Regarding tympanic membrane color it was grey in (40.3%) 126 patients, white in 111 patients (35.5%), and congested (red) in 76 patients (24.3%), (Figure 9). Tympanic membrane was intact in 177 patients (56.5%), and perforated in 136 patients (43.5%), (Figure 10).

Post auricular examination was normal in 283 patients (90.4%), redness over the area seen in 20 patients (6.4%), and post auricular swelling seen only in 10 patients (3.2%), (Figure 11). Audiological assessment was performed only in 15 patients (4.8%), while 298 patients (95.2%) were not assessed audiologicaly (Figure 12). Regarding diagnosis; acute otitis media was the commonest seen in 177 patients (56.5%), followed by foreign body in the external ear canal in 55 patients (17.6%), otitis externa in 30 patients (9.6%), impacted wax in 26 patients (8.3%), ear trauma in 15 patients (4.8%), mastoid abscess in 5 patients (1.6%), and frunculosis also in 5 patients (1.6%), (Figure 13). Correlation between age and diagnosis, sex and diagnosis are shown in table 1 and 2 respectively.

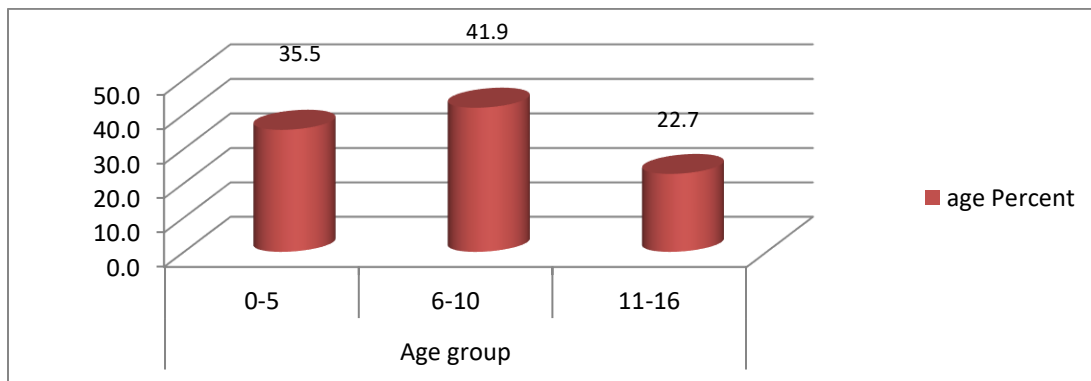


Figure 1 Age group distribution in the study of pediatric otological emergencies at Khartoum ENT Teaching Hospital

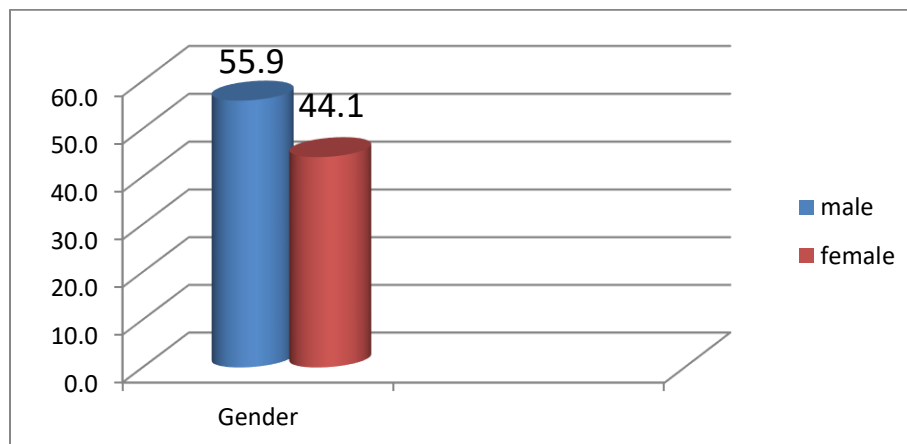


Figure 2 Gender distributions in the study of pediatric otological emergencies at Khartoum ENT Teaching Hospital

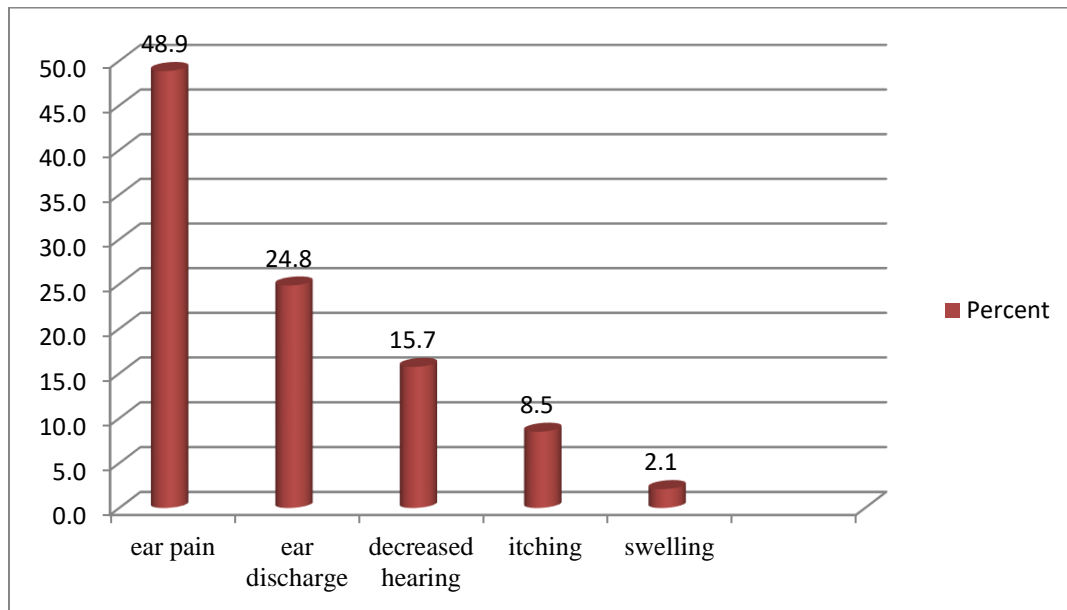


Figure 3 Presenting symptoms in the study of paediatric otological emergencies at Khartoum ENT teaching hospital

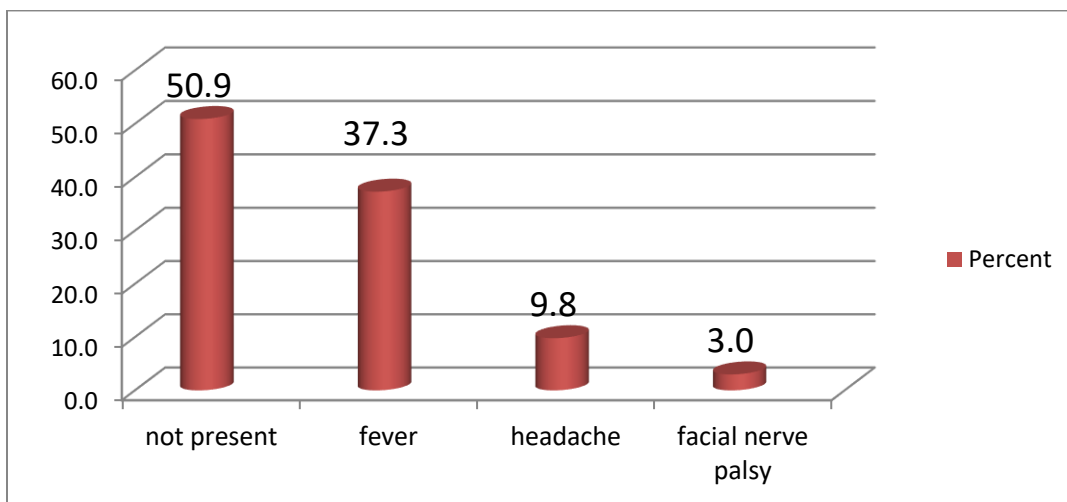


Figure 4 Neuro-otological symptoms in the study of pediatric otological emergencies at Khartoum ENT teaching hospital

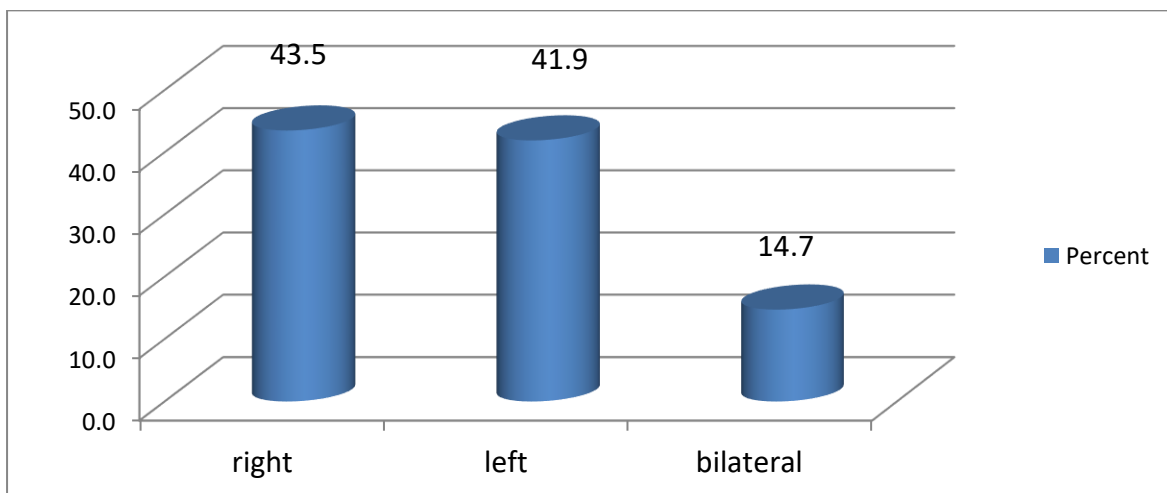


Figure 5 laterality of the disease in the study of pediatric otological emergencies at Khartoum ENT teaching hospital

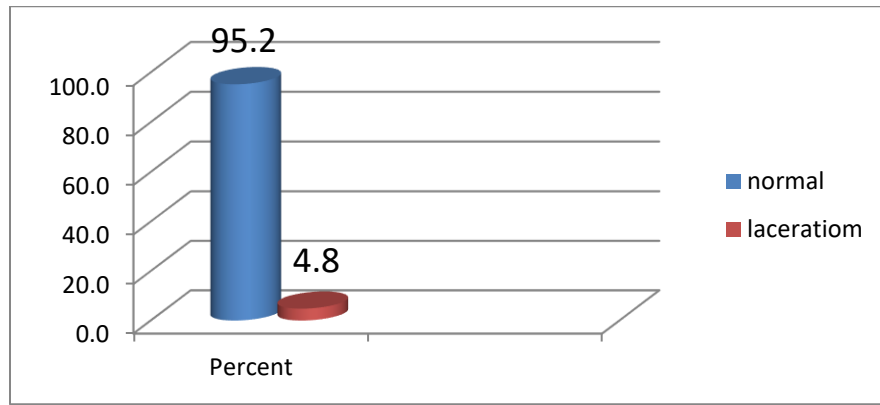


Figure 6 examination of pinna by inspection in the study of pediatric otological emergencies at Khartoum ENT teaching hospital

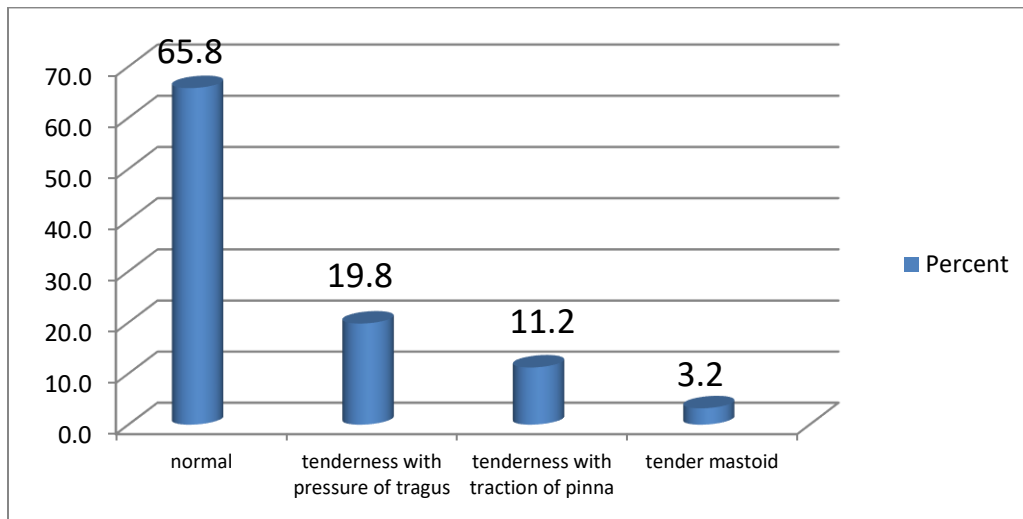


Figure 7 Examination by palpation in a study of pediatric otological emergencies at Khartoum ENT teaching hospital

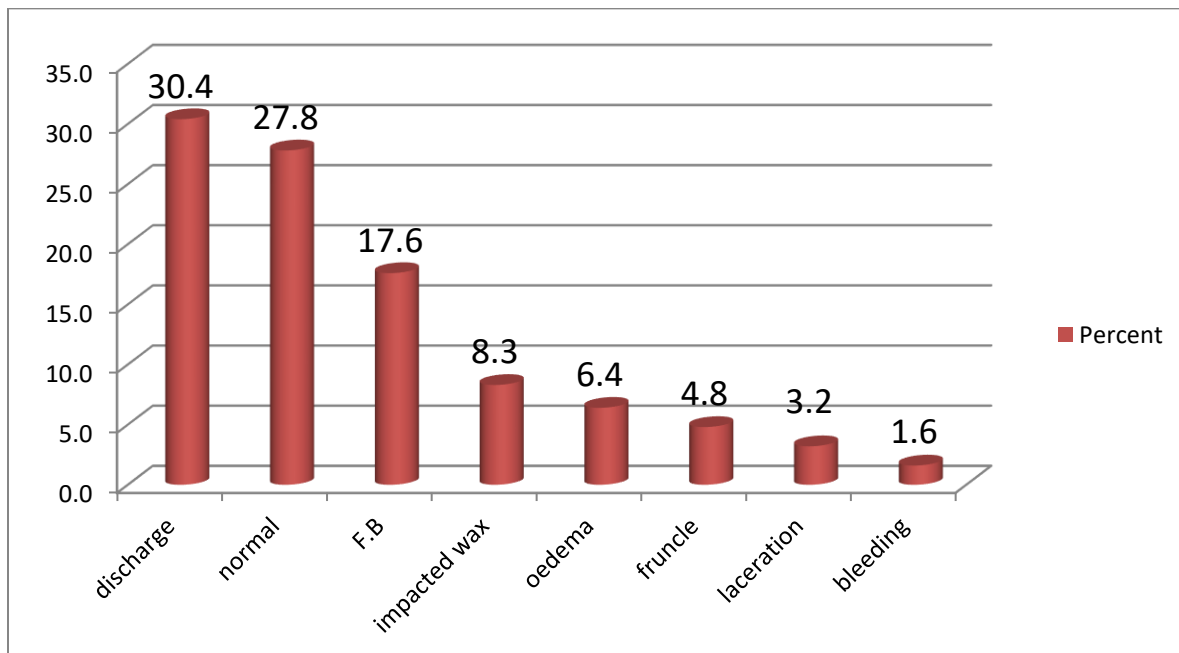


Figure 8 external auditory canal examinations in the study of pediatric otological emergencies at Khartoum ENT teaching hospital

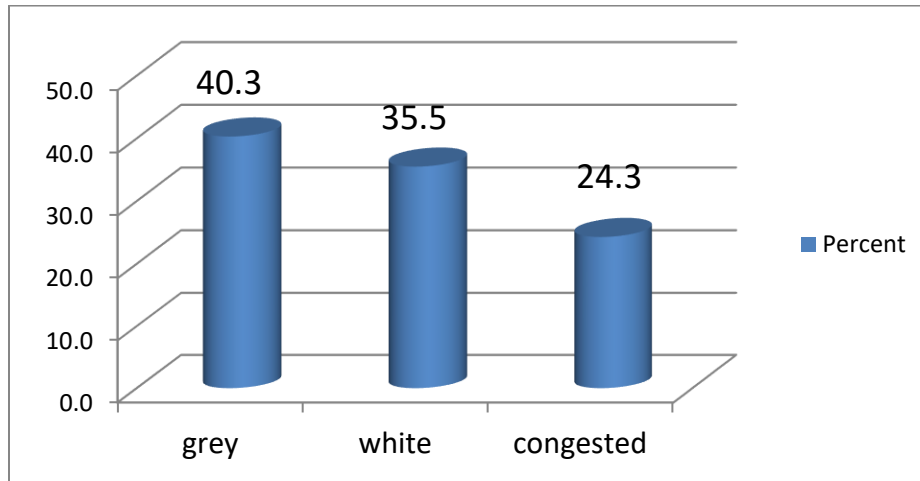


Figure 9 tympanic membrane colors in the study of pediatric otological emergencies at Khartoum ENT teaching hospital

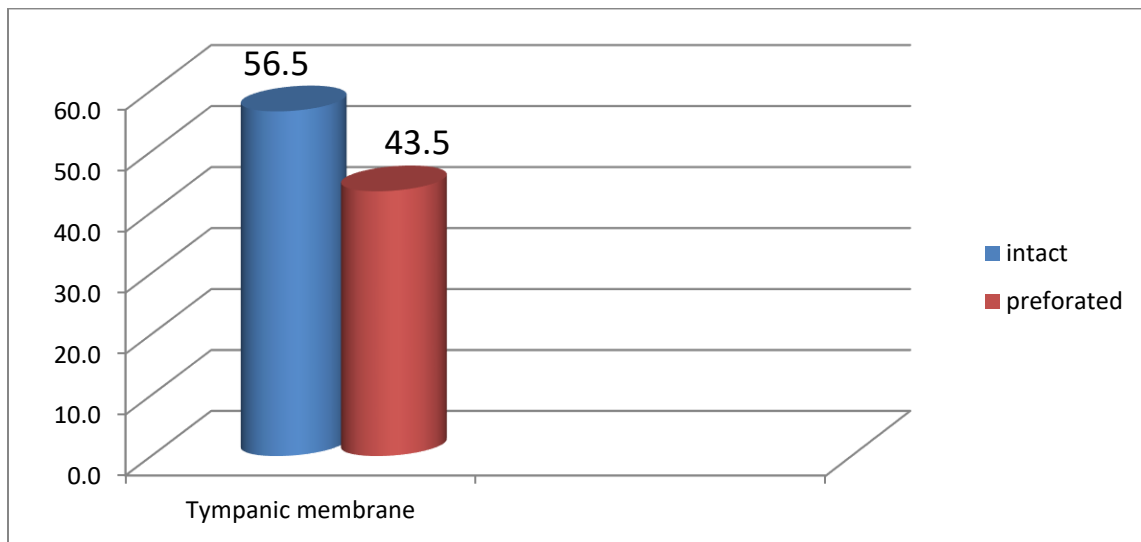


Figure 10 Tympanic membrane integrity in the study of pediatric otological emergencies at Khartoum ENT teaching hospital



Figure 11 post auricular examination in the study of pediatric otological emergencies at Khartoum ENT teaching hospital

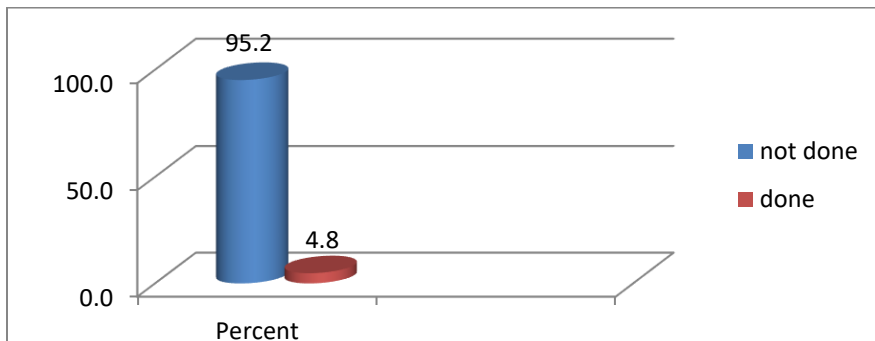


Figure 12 audio logical assessments in a study of pediatric otological emergencies at Khartoum ENT teaching hospital

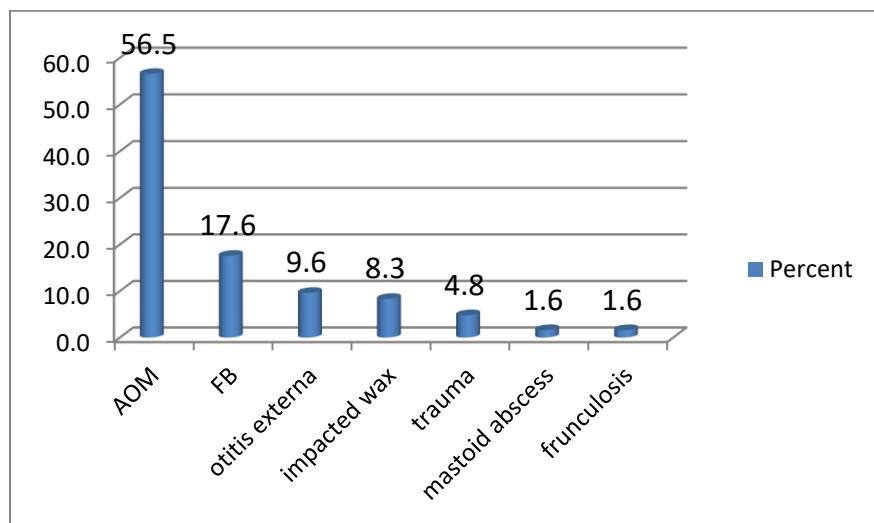


Figure 13 common diagnoses in a study of pediatric otological emergencies at Khartoum ENT teaching hospital

Table 1 Relation between Diagnosis and Age

		age			Total
		0-5	6-10	11-16	
Diagnosis	AOM	81	61	35	177
	FB	20	35	0	55
	mastoid abscess	0	5	0	5
	frunculosis	0	5	0	5
	trauma	5	10	0	15
	otitis externa	5	15	10	30
	impacted wax	0	0	26	26
Total		111	131	71	313

P value 0.0001

Table 2 Relation between Diagnosis and Gender

		sex		Total
		male	female	
diagnosis	AOM	98	79	177
	FB	35	20	55
	mastoid abscess	0	5	5
	frunculosis	0	5	5
	trauma	5	10	15
	otitis externa	22	8	30
	impacted wax	15	11	26
Total		175	138	313

P value 0.0001

4. DISCUSSION

This is a cross sectional, observational and analytic hospital based study conducted at Khartoum ENT hospital. The study enrolled (313) pediatrics patients, who presented to emergency department during 9 months period. The mean age agrees with a study done by (Mustafa et al., 2017) but disagrees with (Afolabi et al., 2008). The main affected age group in this study was 6-10 years old followed by 0-5 years and least was age group 11-16 years which disagrees with (Ologe et al., 2007) in their study who found that the most affected age group was 0-5 years, followed by 6-10 years, and the least was 11-15 years.

In this study the male to female ratio is 1.26:1 which agrees with (Algalil et al., 2017) and (Afolabi et al., 2008). It also agrees with (Osman W & El-Mustafa O, 2011) and with (Sharma et al., 2014), who all shows male predominance in their studies. The commonest presenting symptom was ear pain, which agrees with the result of (Saha et al., 2005). Those symptoms were common on the right ear representing, followed by left ear symptoms in, while bilateral ear complain was the least. This agrees with (Afolabi et al., 2008), who also had right ear predominance in their study. Audiological assessment was performed only in (4.8%), while (95.2%) were not assessed audiologicaly. Also in a study done by (Afolabi et al., 2008) no patient was audiologicaly assessed. This is most likely because it was not needed in most of the patients to reach the final diagnosis, or because most of patients are young and uncooperative for emergency assessment.

Regarding diagnoses; acute otitis media was the commonest seen in 177 patients (56.5%) , which was similar to (Afolabi et al., 2008) and (Khalifa & Khalifa, 2020) who also found that acute otitis media was the commonest otological emergency in 38.3% of patients, this result also agrees with (Saha et al., 2005), who also found the commonest diagnosis was acute otitis media. This high prevalence could be attributed to foreign body insertion into the ear by these children, also routine otoscopy is not carried out by pediatricians who are the first to see these children leading to further delay of diagnosis, when the ear discharge is obvious or when other complications would have set in.

The second most common otological emergency was foreign body in the external ear canal, this agreed with (Saha et al., 2005), also agreed with (Afolabi et al., 2008) who found it to be the second common diagnosis. This was found to be commoner on the right ear than the left ear as the majority of the patients are right handed and it is the most accessible. Otitis externa was encountered in (9.6%), as the third most diagnosis, this agrees with (Afolabi et al., 2008), while (Saha et al., 2005) found it in (24.61%) of patients. Otitis externa can be influenced by (narrow canal, extensive ear wax formation or inherited eczematous tendency); environmentally induced by heat, humidity and swimming; traumatic and self-induced match stick, cotton bud scratch with subsequent infection are all contributory factors in this study.

Impacted wax found in (8.3%), this diagnosis was included as impacted wax with otitis externa in a study by (Saha et al., 2005) with percentage of (16.83) this makes it difficult to compare between those diagnoses. Ear trauma, was the fifth most common diagnosis in this study, which agreed with (Saha et al., 2005), Trauma to the ear is on the rise because of increased violence in the society and increased incidence of road traffic accidents. Frunculosis was seen in (1.6%), which goes in contrary to a study by (Saha et al., 2005) in their study it was seen in 8.3 of cases. mastoid abscess is seen in (1.6%) in our study, this diagnosis wasn't seen in any of studies of otological emergencies.

5. CONCLUSION

This study concluded that Pediatrics otological emergencies are very common males show slight predominance, the commonest presenting symptom was ear pain followed by discharge, the commonest neuro-otological symptom associated with ear emergencies was fever, all symptoms were common on the right ear, and the commonest otological emergency was acute otitis media seconded by foreign body ear.

Acknowledgement

We thank the respondents who participated in and contributed samples to the study. Authors of this research would like to acknowledge Al Maarefa University management for providing facilities for conducting this study.

Funding

There are no financial conflicts of interest to disclose.

Conflict of Interest

The authors declare that there are no conflicts of interests.

Ethical approval

All procedures performed in studies involving human participants were in accordance with the ethical standards of the institutional research committee and with the 1964 Helsinki declaration and its later amendments or comparable ethical standards (ethical approval number 192/7).

Data and materials availability

All data associated with this study are present in the paper.

Peer-review

External peer-review was done through double-blind method.

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