

Original Article

PAEDIATRIC OTORHINOLARYNGOLOGY, HEAD AND NECK EMERGENCIES AT A TERTIARY HEALTH CARE CENTRE IN NIGERIA.¹Adebijij W.A, ²Olatunya O.S, ³Olajuyin O.A, ²Babatola A.O, ²Komolafe A.K.¹Department of Ear Nose & Throat, Ekiti State University Teaching Hospital, Ado Ekiti, Nigeria.²Department of Paediatrics, Ekiti State University Teaching Hospital, Ado Ekiti, Nigeria.**ABSTRACT**

Background: Paediatric otorhinolaryngology emergency is a common disorder worldwide which is poorly reported in most developing countries like Nigeria.

Methods: This study was a prospective hospital-based study of paediatric patients with otorhinolaryngology, head and neck emergency in the Ear, Nose and Throat (ENT) department carried out between June 2016 and May 2018. Data were obtained by using a pretested interviewer-assisted questionnaire. All data were analysed using SPSS version 18.0.

Results: Paediatric otorhinolaryngological emergencies accounted for 7.6% of all patients seen in the unit. There were more males (69.5%). Common aetiologies were foreign body impaction (43.3%), infection/inflammation (32.6%) and tumour (1.3%). Anatomically the emergencies involved the ear in 42.1%, 30.9% nasal and 23.2% throat respectively. The most common clinical features were foreign body impaction in 35.2%, pain in 31.3%, bleeding in 19.7%, difficulty breathing in 17.6% and nasal blockage in 15.9%.

Common sources of referral were paediatricians in 32.6%, casualty officers in 28.8%, a family physician in 22.3% and self-reporting in 15.0%. Complications at presentation include: 27.0% injury/bleeding, 18.0% otitis externa, 11.2% rhinosinusitis and 10.3% perforated tympanic membrane.

Conclusion: Paediatric otorhinolaryngology emergencies are common in our centre and were associated with complications at presentation due to wrong interventions.

Keywords: Paediatric, Head, Neck Otorhinolaryngology, Emergency, Nigeria

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INTRODUCTION

Paediatric otorhinolaryngologic emergencies are sudden serious disorders which require immediate otorhinolaryngologist, head and neck surgeon's action to avert grave consequences. There is associated psychological alarm to the victims, parents or guardians such as anxiety, depression, isolation and absenteeism.^{1,2}

Paediatric otorhinolaryngologic emergency service is an integral part of otorhinolaryngologic practice which is considered as an indicator of the quality of health care system worldwide.^{3,4}

There are major classifications of the aetiology of paediatric otorhinolaryngologic emergencies into traumatic, inflammatory, neoplastic and metabolic causes. The distribution varies from different geographical location. Otorhinolaryngological foreign bodies have been found to be the most common otorhinolaryngologic emergency in children within the African subtropical region while upper airway obstruction was found to be the commonest

otorhinolaryngologic emergency among the elderly.^{5,6}

Paediatric ear, nose and throat emergencies are common all over the world. Challenges faced by the patients and the otorhinolaryngologist, head and neck surgeon during treatment are enormous. Patients access to otorhinolaryngologic emergency cares may either be open access ear, nose and throat emergency clinic where patients do not require a referral to be seen as in our centre or a referral based ear, nose and throat emergency clinic where patients are usually seen by family physicians prior to the specialist. These may lead to delayed interventions with resultant morbidity and mortality. Poor accessibility to specialist and financial challenges for admissions and surgical interventions are common.

Moreover, there are various forms of clinical presentation of paediatric otorhinolaryngologic emergency which depends on the ear, nose, throat, Head and Neck location of the pathology.⁷⁻⁹ Challenges of associated complications from these emergency or wrong interventions are very rampant. Ear, nose and throat are in close proximity to the vital head and neck organs such as the brain and orbital contents. Apart from local complications, their extension may lead to intracranial spread or orbital complications resulting in avoidable mortality or morbidity.¹⁰⁻¹⁵

There is a paucity of the study on paediatric otorhinolaryngologic, head and neck emergencies in developing countries, especially Nigeria. This study aimed at determining the prevalence, sociodemographic features, aetiology, clinical features, complications and sources of

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referral of paediatric otorhinolaryngological, head and neck emergency in our centre.

Materials and Methods

This was a prospective hospital-based study of paediatric patients who presented with history and clinical features of otorhinolaryngology, head and neck emergency in the Ear, Nose and Throat Department of Ekiti State University Teaching Hospital, Ado Ekiti, Nigeria. The study was carried out between June 2016 and May 2018.

Written informed consent was obtained from the parents/caregivers. In addition, assent was obtained from patients aged 7 years and above. All the paediatric patients with ear, nose and throat emergency whose parent gave consent to participate were enrolled in the study. Data were obtained by using a pretested interviewers questionnaire. Data obtained from each patient during the study included sociodemographic data, presenting symptoms, duration of symptoms and pre-hospital and hospital management. These were followed by detailed ear, nose and throat examination. All findings on history and examinations were documented.

Treatment interventions for emergency cares were noted. Associated complications from the emergency or its pre-hospital and hospital treatments were also documented.

All data were collated and analyzed using SPSS version 18.0. The data were expressed by frequency tables, percentages, bar charts and pie charts.

Ethical clearance for this study was obtained from the ethical committee of the institution, and the study was in accordance with the ethical standards of the institution's research committee and Helsinki declaration of 1964 and its later amendments.

Results

Paediatric otorhinolaryngological, head and neck emergencies accounted for 233 (7.6%) of the 3071 patients seen in Ear, Nose and Throat department in the period under study.

The highest prevalence of 92 (39.5%) paediatric otorhinolaryngology emergency was in the age group (1-5) years, followed by 69 (29.6%) in the age group (6-10) years. Age group distribution of the patients is shown in Table 1. There were 162 (69.5%) males and 71 (30.5%) females with a male to female ratio of 2:1. Urban dwellers in 138 (59.2%) were commoner than rural dwellers in 95 (40.8%). The common forms of education among the parents were primary, secondary, and no formal education in 75 (32.2%), 72 (30.9%) and 62 (26.6%) respectively. Others included 24 (10.3%) post-secondary. Common parents occupations were 54 (23.2%) driving, 41 (17.6%) farming and 39 (16.7%) artisan. Other occupations were industrial workers in 37 (15.9%), civil servants in 33 (14.2%) and business in 29 (12.4%) (Table 1).

Commonest aetiology of paediatric otorhinolaryngology, head and neck emergency was foreign body impaction in 102 (43.3%). Other aetiologies included 76 (32.6%) infection/inflammation, 3 (1.3%) tumour. Others were sensorineural disorders, tumour and functional disorders in 21 (5.4%), 19 (4.9%) and 6 (1.5%), respectively (Table 2).

Anatomical distribution of Otorhinolaryngology, Head and Neck emergency were 98 (42.1%) ear, 72 (30.9%) nasal emergency and 54 (23.2%) throat emergency. Others

included head and neck emergency in 9 (3.9%). Figure 1 showed the anatomical distribution of the otorhinolaryngology emergency. The most common clinical presentations of paediatric otorhinolaryngology, head and neck emergency were foreign body impaction in 82 (35.2%), pain (ENT) in 73 (31.3%), bleeding in 46 (19.7%), difficulty breathing in 41 (17.6%) nasal blockage in 37 (15.9%). Additional clinical features were 36 (15.5%) discharge, 24 (10.3%) hearing loss and 19 (8.2%) odynophagia/dysphagia. (Table 3)

Acute presentation (<13 weeks) of paediatric otorhinolaryngology, head and neck emergency which occurred in 123 (52.8%) and 71 (30.5%) were commoner than chronic (≥13 weeks) in 39 (16.7%). Figure 2 illustrated the duration of emergency prior to the presentation. The commonest time of presentation of otorhinolaryngological emergency was daytime in 151 (64.8%). Other presentations were at night and late night in 65 (27.9%) and 17 (7.3%) respectively (Figure 3).

Commonest sources of referral were from paediatricians in 76 (32.6%). Other sources of referral were from casualty officers in 67 (28.8%), family physicians in 52 (22.3%) and self-referrals in 35 (15.0%) (Table 4). Associated complications of paediatric otorhinolaryngology, head and neck emergency comprised of 63 (27.0%) injury/bleeding, 42 (18.0%) otitis externa, 26 (11.2%) rhinosinusitis and 24 (10.3%) perforated tympanic membrane. (Table 5)

The place of presentation of the patients was at Ear, Nose and Throat outpatient clinic in 132 (56.7%), accident and emergency in 84 (36.1%) and hospital ward in 17 (7.3%) respectively.

Table 1: Sociodemographic features of paediatric otorhinolaryngology, head and neck emergency

Sociodemographic features	Total Number (N = 233)	Percentage (%)
Age group (year)	Number (n)	Percentage (%)
1-5	92	39.5
6-10	69	29.6
11-5	48	20.6
16-18	24	10.3
Sex		
Male	162	69.5
Female	71	30.5
Residential		
Urban	138	59.2
Rural	95	40.8
Parent Education level		
No formal education	62	26.6
Primary	75	32.2
Secondary	72	30.9
Postsecondary	24	10.3
Parents occupation		
Civil servants	33	14.2
Business	29	12.4
Driver	54	23.2
Industrial worker	37	15.9
Farming	41	17.6
Artisans	39	16.7

Table 2: Aetiology of emergency among patients

Aetiology	Number	Percentage (%)
Foreign body impaction	101	43.3
Trauma/Road traffic accident	43	18.5
Infection/inflammation	76	32.6
Tumour	3	1.3
Functional disorder	2	0.9
Sensorineural disorder	8	3.4

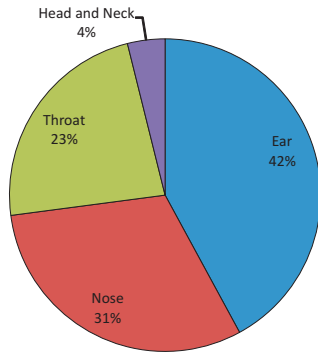


Figure 1: Anatomical distribution of the emergency

Table 3: Clinical features of the otorhinolaryngology emergency

Clinical features	Number	Percentage (%)
Foreign body impaction	82	35.2
Difficulty breathing	41	17.6
Pain	73	31.3
Discharge	36	15.5
Tinnitus	8	3.4
Hearing loss	24	10.3
Lacerations	13	5.6
Bleeding	46	19.7
Nasal blockage	37	15.9
Hoarseness	4	21.7
Odynophagia/dysphagia	19	8.2
Vertigo	3	1.3
Mass/swelling	8	3.4
Halitosis	11	4.7

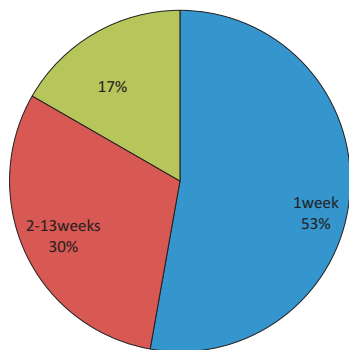


Figure 2: Duration of emergency prior to presentation

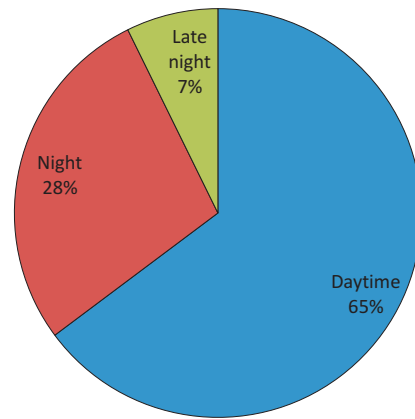


Figure 3 Time of presentation among the patients

Table 4: Sources of referral of the patients

Sources of referral	Number	Percentage (%)
Self-referred	35	15.0
Family physician	52	22.3
Casualty officer	67	28.8
Paediatrician	76	32.6
Others	3	1.3

Table 5 Complications of paediatric otorhinolaryngology, head and neck emergency

Complications	Number	Percentage (%)
Otitis media	19	8.2
Otitis externa	42	18.0
Perforated tympanic membrane	24	10.3
Injury/Bleeding	63	27.0
Rhinosinusitis	26	11.2
Mortality	2	0.9

Discussion

This study on paediatric emergency in otorhinolaryngology, head and neck shows a low prevalence rate of 7.6% among all patients seen at our Ear, Nose and Throat department during the study period. A study from the northern part of Nigeria in 2017 reported a higher prevalence rate of 63.5%.¹⁶ The difference between our study and the northern Nigerian study is probably because the northern Nigeria study involved only otorhinological emergencies cases while our study involved all patients seen at the ear, nose and throat department of our facility. That we observed a male preponderance (70%) in our study is in agreement with some other reports.¹⁶⁻¹⁸ This finding of a male preponderance may be because males are more adventurous and engage in more dangerous sports. We observed the highest prevalence of paediatric emergency in otorhinolaryngology, head and neck amongst children age 1-5 years. This finding is in consonance with the report of Adoga et al.¹⁶ from northern Nigeria. However, Aremu et al.¹⁷ in Ilorin, Nigeria, reported a contrary finding. More (60%) of our study participants were urban dwellers. Two studies from Nigeria reported similar observations.^{16,17} Common aetiology of paediatric

otorhinolaryngology emergency in this study were foreign body impaction, trauma/road traffic accident and infection/inflammation. This may be due to high rates of inserting objects into the head and neck orifices and high rate of fall from playing with peers.^{19,20} This is similar to the report of Aremu et al¹⁷ in Ilorin, Nigeria. Contrary findings revealed infections/inflammation of the ear, nose, throat, head and neck as the most common causes of pediatric otorhinolaryngology emergency.^{21,22} However, a study in India found similar patterns of paediatric ENT emergencies as in this study.²³ Lower prevalence of infection/inflammation in this study may be due to high rates of antibiotics abuses and family physician or paediatrician management of upper respiratory tract infection.^{21,22}

Anatomical distribution of paediatric otorhinolaryngology emergency is commonest in the ear followed by nose and throat. This may be due to imitation of maternal aural cleaning of the ear with objects.²⁴ Similar findings were reported from other studies in different parts of the world.^{23,25,26} and some Nigerian studies.^{6,17,27}

That the commonest clinical presentation of paediatric otorhinolaryngology emergency was foreign body impaction concurs with findings by other authors.^{25,26} This may be because children continually explore their surroundings and tend to place available objects into ear, nose, and throat passages with occasional resultant morbidity and mortality.

There are some similarities between paediatric otorhinolaryngology emergency conditions and other forms of medical or surgical emergencies which include early presentation, presentation during the day time and mostly referred primarily by paediatricians, general practitioners or casualty officers.²⁷ Majority of the paediatric otorhinolaryngology emergency was referred to our outpatient clinic due to ear, nose and throat department building contains clinic, procedures room and departmental offices. Other emergency cases were reviewed in the accident and emergency ward or hospital wards.

Injury/bleeding was the commonest complication of paediatric otorhinolaryngology emergency in this study. Others included otitis externa, rhinosinusitis and perforated tympanic membrane. Injuries occurred from unskilled hands in a bid to remove the impacted foreign bodies through inappropriate technique or instruments with consequent bleeding.^{28,29} Poorly treated wound or unidentified foreign body may be secondarily infected, leading to otitis externa and rhinosinusitis.

Conclusion

Pediatric otorhinolaryngology emergency is prevalent in our centre. Most cases were associated with complications at presentation due to wrong interventions. Training and health education of the family physician, casualty officers and paediatrician is recommended.

Compliance with Ethical Standards

Funding: The study was not funded by any grant, and it was solely sponsored by the authors

Ethical approval: All procedures performed in this study involving human participants were in accordance with the ethical standards of the institutional and national research committee and with the 1964 Helsinki declaration and its later amendments or comparable ethical standards

Informed consent: Informed consent was obtained from parents/caregivers of all individual participants included in the study. Also, assents were obtained from participants as applicable.

Conflicts of interest

There are no conflicts of interest to be declared by the authors.

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References

1. Barman D, Maridal S, Goswami S, Hembram R. Three years audit of the emergency patients in the department of ENT of a rural medical college. *J Indian Med Assoc.* 2012;110:370-374.
2. Ibekwe MU, Onotai LO, Nwosu C. Ear, nose and throat injuries in a tertiary institution in Niger delta region Nigeria. *J Med Res Prac* 2012;1:59-62.
3. Sogebi OA, Olaosun AO, Tobin JE, Adedeji TO, Adebola SO. Pattern of ear, nose and throat injuries in children at Ladoke Akintola University of technology teaching hospital, Osogbo, Nigeria. *Afr Paediatr Surg* 2006;3:61-3.
4. Bademosi O, Ogunlesi TO, Osuntokun BO. Clinical study of unilateral peripheral facial nerve paralysis in Nigerians. *Afr J Med Med Sci* 1987;16:197-201.
5. Ibekwe TS, Nwaorgu OG, Onakoya PA, Ibekwe PU. Spectrum of otorhinolaryngology emergencies in the elderly in Ibadan, Nigeria. *Niger J Med.* 2005;14:411-414.
6. Ijaluola GT, Okeowo PA () Foreign body in the ear and its importance: the Nigerian experience. *J Trop Pediatr.* 1986;32:4-6.
7. Timsit CA, Bouchene K, Olfatpour B, Herman P, Tran Ba Huy P. Epidemiology and clinical findings in 20,563 patients attending the Lariboisiere Hospital ENT adult Emergency Clinic. *Ann Otolaryngol Chir Cervicofac.* 2001;118(4):215-224.
8. Rivero VP, Ugena ER, Yanez KT, Fuentes MA, Garcia MM, Ruiz GT. The paper is Descriptive study of 21,804 ENT emergencies in a third level hospital. *Anales ORL Iber Am.* 2003;30:237-45.
9. Lopez Amando M, Garcia Sarandeses A, Herranz Gonzalez-Botas, Lopez Blanco G, Martinez Vidal J. Appropriateness of emergency hospital admissions at an ORL service of a third level hospital. *Acta Otorinolaringol Esp.* 1993;44(1):31-34.
10. Somnath S, Sudipta C, Prabir KM et al. Emergency Otorhinolaryngological Cases in Medical College Kolkata-A Statistical Analysis. *Indian J of Otolaryng Head and Neck Surg.* 2005;57(3):219-225.
11. Figueriedo RR, Azevedo AA, Kos AO, Tomita S. Complications of ear, nose and throat foreign bodies. *Braz J Otorhinolaryngol* 2008;74:7-15.
12. Gilyoma JM, Chalaya PL. Endoscopic procedures for removal of foreign bodies of the aerodigestive tract: the Bugando medical centre experiences.

- BMC Ear Nose Throat Disord 2011;11:2.
13. Vassiliu P, Baker J, Henderson S, Alo K, Velmahos G, Demetriades D. Aerodigestive injuries of the neck. *AM Surg* 2011;67:75-9.
 14. Rathlev NK, Medzon R, Bracken ME. Evaluation and management of neck trauma. *Emerg Med Clin N Am* 2007;25:679-94.
 15. Kitcher E, Jangu A, Baidoo K. Emergency ear, nose and throat admissions at the korle-bu teaching hospital. *Ghana Med J*. 2007;41(1):9-11.
 16. Adoga AA, Okwori ET, Yaro JP, Iduh AA. Pediatric otorhinolaryngology emergencies at the Jos University Teaching Hospital: Study of frequency, management, and outcomes. *Annals of African Medicine*. 2017;16(2):81-4.
 17. Aremu SK, Alabi BS, Segun-Busari S, Omotoso W. Audit of pediatric ENT injuries. *Int J Biomed Sci*. 2011;7:218-221
 18. Nisar J, Khaliq Bam Hanan A, pampori RA. Pediatric Ear, Nose and Throat emergencies-prevalence and management: A hospital based study. *Int J Adv Res*. 2016;4:1983-1987
 19. Adegbiyi WA, Olajide GT, Olajuyin OA, Olatoke F, Nwawolo CC. Pattern of Otological Injuries in Ekiti South West Nigeria. *Tropical Journal of Health Sciences*. 2018;25(3):41-5.
 20. Adegbiyi WA, Amutta SB. Prevalence of Foreign Body in the Otolaryngology Service in Ado Ekiti. *JAMMR*. 2018;27(6):1-8.
 21. Sharma K, Bhattacharjya D, Barman H, Goswami SC. Common ear, nose and throat problems in pediatric age group presenting to the emergency clinic- prevalence and management: A hospital-based study. *Indian J Clin Pract* 2014;24:756-60.
 22. Sih TM, Bricks LF. Optimizing the management of the main acute infections in pediatric ORL: Tonsillitis, sinusitis, otitis media. *Braz J Otorhinolaryngol* 2008;74:755-62.
 23. Dutta, S, Haldar, D, Aggarwal, N, Panja T, Ghosh T, Sinha R. *Indian J Otolaryngol Head Neck Surg* (2018) 70: 490. <https://doi.org/10.1007/s12070-018-1490-5>
 24. Adegbiyi WA, Olajide GT, Olubi O, Aluko AAA. A Study Profile of Self Ear Cleaning in Nigerian Rural Community. *Int J Recent Sci Res*. 2018;9(7):28181-5.
 25. Al-Mazrou KA, Makki FM, Allam OS, Al-Fayez AI. Surgical emergencies in pediatric otolaryngology. *Saudi Med J* 2009;30:932-6.
 26. Stoner MJ, Dulaurier M. Pediatric ENT emergencies. *Emerg Med Clin North Am* 2013;31:795-808.
 27. Ibekwe U M. Otorhinolaryngological emergencies in a Tertiary Hospital in Port Harcourt. *Niger J Clin Pract*. 2017;20:606-9.
 28. Adoga AA, Ozoilo KN. The epidemiology and type of injuries seen at the accident and emergency unit of a Nigerian referral center. *J Emerg Trauma Shock* 2014;7:77-82.
 29. Singh I, Gathwala G, Yadav SP. Ear, nose and throat injuries in children. *Pak J Otolaryngol* 1993;9:133-5.