

## FOREIGN BODIES IN THE EAR, NOSE AND THROAT AT THE FEDERAL TEACHING HOSPITAL, GOMBE - NORTH-EASTERN, NIGERIA

---

<sup>1</sup>Raji MM, <sup>2</sup>Adamu AS, <sup>3</sup>Yauba MS, <sup>1</sup>Ali A, <sup>4</sup>Ngamdu YB, <sup>5</sup>Sani G

---

<sup>1</sup>Department of Otorhinolaryngology, Federal Teaching Hospital, Gombe.<sup>2</sup>Department of Anaesthesia, Federal Teaching Hospital, Gombe.<sup>3</sup>Department of Paediatrics, University of Maiduguri College of Medical Sciences, Maiduguri.<sup>4</sup>Department of Otorhinolaryngology, University of Maiduguri Teaching Hospital, Maiduguri.<sup>5</sup>Department of Radiology, Federal Teaching Hospital, Gombe.

*Correspondence and reprint request to: Dr Adamu Sadiq Abubakar,*

Department of Anaesthesia and Intensive Care, University of Maiduguri Teaching Hospital,

P.M.B 1414, Maiduguri, Borno State, Nigeria

eMail:- adamusadiq48@gmail.com

GSM:- +234 8033702600

---

**ABSTRACT**

---

**Background:** Foreign bodies (FBs) are common ENT emergencies all over the world. Children have been found to be commonly affected due to their curiosity and desire to explore their environment. **Objective:** To evaluate the clinical presentations, management and the outcomes of ear, nose and throat foreign bodies in a tertiary hospital setting. **Method:** This a three-year retrospective study of patients presented with foreign bodies to the ENT department. The demographic information, sites and sides of foreign bodies, nature of foreign bodies, management and outcomes were extracted from their records and analysed. **Results:** There were 34 (45.9%) males and 40 (54.1%) females with Male to Female ratio of 1: 1.8. Inanimate objects 60 (81%) were the common FBs aspirated, while 4 (5.4%) were animate FBs aspirated. In 28.4% of the patients presented to the hospital in the first three days of aspiration. The symptoms include sensation/discomfort, accidental finding, Otagia, ear discharge, bleeding among others. Lodgment is more common in the left nostril 9 (56.2%), throat 11 (55.0%) and right ear 19 (50.0%) among those with nasal, throat and ear foreign bodies respectively. The complications included infection, bleeding among others. **Conclusion:** FBs aspiration was found to be commoner among children than in adults due to the fact that children explore their environment.

---

**Keywords:** Aspiration, Foreign bodies, Children, Adults, Gombe.**INTRODUCTION**

Foreign bodies (FBs) of the ear, nose and throat are common in children and less common in adults.<sup>1, 2, 3</sup> Ear and nasal foreign bodies are common on the right side because majority are right handed.<sup>2</sup> Airway FBs posed a challenge to the otolaryngologist especially in children and

requires prompt recognition and early treatment to minimize the potentially serious and sometimes fatal consequences.<sup>2</sup> FBs aspiration/inhalation is still a cause of death in children and adulthood.<sup>1,2</sup> In the United States of America, 5% of all accident-related deaths in children under the age of 4 are caused by FBs

aspiration, which is also the leading cause of accidental death in the home among children under the age of 6.<sup>4</sup> In Brazil, FBs aspiration is the third leading cause of accidents that result in death.<sup>5</sup> Small aspirated foreign bodies may lodge in the lobar or segmental bronchus leading to chronic nonspecific symptoms mimicking other lung diseases such as bronchial asthma and severe obstructive pneumonitis with abscess formation.

Foreign bodies in the Ear, Nose and Throat varies between different continents like in Asia and Western Europe.<sup>6,7</sup> However, in northern Nigeria, foreign bodies in the airway is one of the major indications for tracheostomy as reported by Kodiya *et al.*<sup>8</sup> It is pertinent to evaluate these condition in this part of the world. We present the clinical presentations, location, types, treatment choice, outcome and complications of Ear, Nose and Throat foreign bodies in a tertiary hospital in Nigeria.

## METHOD

We analysed records of 74 children and adult patients who were diagnosed with Ear, Nose and Throat foreign bodies between 1<sup>st</sup> July 2009 and 30<sup>th</sup> June 2012 in the department of ENT surgery, Federal Teaching Hospital, Gombe, Nigeria. The demographics data, clinical presentation, location and nature of foreign body, management and its outcome were extracted from the records. Their age ranges between 6 months to 65 years. For the purpose of this study, all subjects under the age of 18 years were considered as children and all those 18 years and above were considered as adults. The X-rays of the soft tissue neck and chest radiographs of the identified subjects were retrieved from radiology department and reviewed by an experience radiologist.

Statistical software for social sciences (SPSS) version 20 was used for the analyses and P value of <0.05 was considered statistically significant.

## RESULTS

### Socio-demographic characteristics and symptoms of foreign body aspiration

Total of 74 patients were studied, with 55 (74.3%) children and 19 (25.7%) adults with significant difference between the two age groups ( $\chi^2 = 35.0$ ,  $p = 0.001$ ). The males were 34 (45.9%) and females were 40 (54.1%) with male to female ratio of 1: 1.8. There was no gender difference between the two groups ( $\chi^2 = 0.973$ ,  $p = 0.324$ ). Among the 55 (100.0%) children studied, 20 (36.4%) were females while 35 (63.6%) were males and there was significant gender difference ( $\chi^2 = 8.18$ ,  $p = 0.004$ ). Among the 19 (100.0%) adults studied, 11 (57.9%) were males while 8 (42.1%) were females with no gender difference ( $\chi^2 = 0.947$ ,  $p = 0.330$ ) as in table I. The patients commonly had inanimate FBs, 60 (81%) while only 4 (5.4%) accounted for animate Fbs.

The commonest presentation was being sensation of foreign body in the nostrils, 38 (24.1%) followed by the discomfort in the affected sites 23 (16.3%). Other clinical features which includes: otalgia, ear discharge, bleeding, decrease hearing, itchiness, ear blockage, epistaxis, foul smelling unilateral nasal discharge, excessive salivation, odynophagia, dysphagia, noisy breathing, hoarseness, choking, dry cough, neck pain and fever. Incidental foreign body was found in the ear of a boy (0.01%) as showed in Table II

**Table I: Age and gender distribution of children and adults with ear, nose and throat foreign bodies**

Age (years)	Number, n (%)	P- value
<18	54 (73.0)	0.001
18-65	20 (27.0)	
<b>Sex</b>		
Female	40 (54.1)	0.324
Male	34 (45.9)	
<b>Total</b>	<b>74 (100.0)</b>	

Table II: Symptoms of ear, nose and throat foreign bodies among the study population

Symptoms	Number (n)	Per cent (%)
Sensation	38	52.78
Discomfort	23	31.94
Fever	9	12.50
Otalgia	7	9.72
Bleeding	7	9.72
Dyspnoea	6	8.33
Noisy breathing	4	5.56
Chocking	4	5.56
Ear discharge	3	4.17
Chest pain	2	2.78
Accidental finding	1	1.39
<b>Others</b>	<b>38</b>	<b>52.78</b>

#### Nature of ear, nose and throat foreign bodies

Our study revealed 60 (81%) of the patients presented with inanimate FBs, 4 (5.4%) came with animate, 5 (6.7%) has no foreign body and another 5 (6.7%) could not be ascertained. Of the 74 patients studied 52 (70.3%) were children with different types of foreign bodies out of which 3 had no foreign bodies detected and 5 had uncertain results. There were 19 adults with different types of foreign bodies out of which 2 had no detectable foreign body. The nature of foreign bodies is listed in Table III. Household and food materials were the commonly foreign bodies among the study subjects accounted for 37.8%.

Table III: Nature of ear, nose and throat foreign bodies among children and adults

Organic	Number, n (%)	Children, n	Adults, n (%)
Food materials	14 (18.9)	9 (12.2)	5 (6.7)
Household	14 (18.9)	10 (13.5)	4 (5.4)
Adornment	11 (14.9)	7 (9.5)	4 (5.4)
Plastic toys	7 (9.5)	6 (8.1)	1 (1.4)
Part of body	3 (4.1)	3 (4.1)	0
Others	15 (20.3)	9 (12.2)	6 (8.1)
No foreign body	5 (6.7)	3 (4.0)	2 (2.7)
Uncertain	5 (6.7)	5 (6.7)	0
<b>Total</b>	<b>74 (100.0)</b>	<b>52 (70.3)</b>	<b>22 (29.7)</b>

### Sites of lodgment and time of presentation

Table IV showed the location of foreign bodies among the study population. Sixteen (21.6%) subjects had foreign bodies in their nostrils, 20 (27.0%) had foreign bodies in their throats while 38 (51.4%) had foreign bodies in their ears. Lodgment were common in the left nostril 9 (56.2%), food way 11 (55.0%) and right ear 19 (50.0%) among those with nasal, throat and ear foreign bodies respectively. Twenty-one patients (28.4%) presented to the hospital in between one and three days, and only 7 (9.6%) subjects presented within the first 24 hours. Eleven (14.7%) patients had uncertain presentation? (Table V). The complications included infection, bleeding, perforation of the tympanic membrane, aspiration pneumonitis and atelectasis.

**Table IV: Sites of foreign bodies among children and adults**

Site	Number of FBs, n	Children n (%)	Adults' n (%)
Right nostril	7 (43.8)	5 (71.4%)	2 (28.6)
Left nostril	9 (56.2)	8 (88.89)	1(11.11)
Airway	20 (27.0)	19(95)	1(5)
Right ear	19 (50.0)	14 (73.68)	5 (26.31)
Left ear	14 (42.1)	12 (85.71)	2 (14.29)
Both ears	5 (7.9)	5 (100)	0
<b>Total</b>	<b>74 (100.0)</b>	<b>63 (85.14)</b>	<b>11 (14.85)</b>

### Disease-related complications

The complications occurring among the study population were classified as disease related (Table V). The most common ear, nose and throat foreign body associated complications were bleeding in the ear, purulent rhinitis in the nose and pneumo-mediasternum in the Aero-digestive way as 14.87%, 4.05% and 1.35% respectively.

Table VI: Disease-related complications

Complications	Number of cases	Per cent (%)
<b>Ear</b>		
Canal abrasions	7	9.09
Bleeding	11	14.87
Infection	4	5.41
Tympanic membrane perforation	1	1.35
Granuloma formation	1	1.35
<b>Nose</b>		
Aspiration pneumonias	1	1.35
Purulent rhinitis	3	4.05
Acute sinusitis	2	2.70
Nose bleeding	2	2.70
<b>Aero-digestive way</b>		
Mediastinal shift	0	0
Pneumothorax	0	0
Pneumo-mediastinum	1	1.35
Perforation	0	0
Atelectasis	0	0
Strictures	0	0
Bronchiectasis	0	0



Figure 1: An X-ray of a child showing an ear ring in the larynx



Figure 2: Chest radiograph showing a coin in the oesophagus

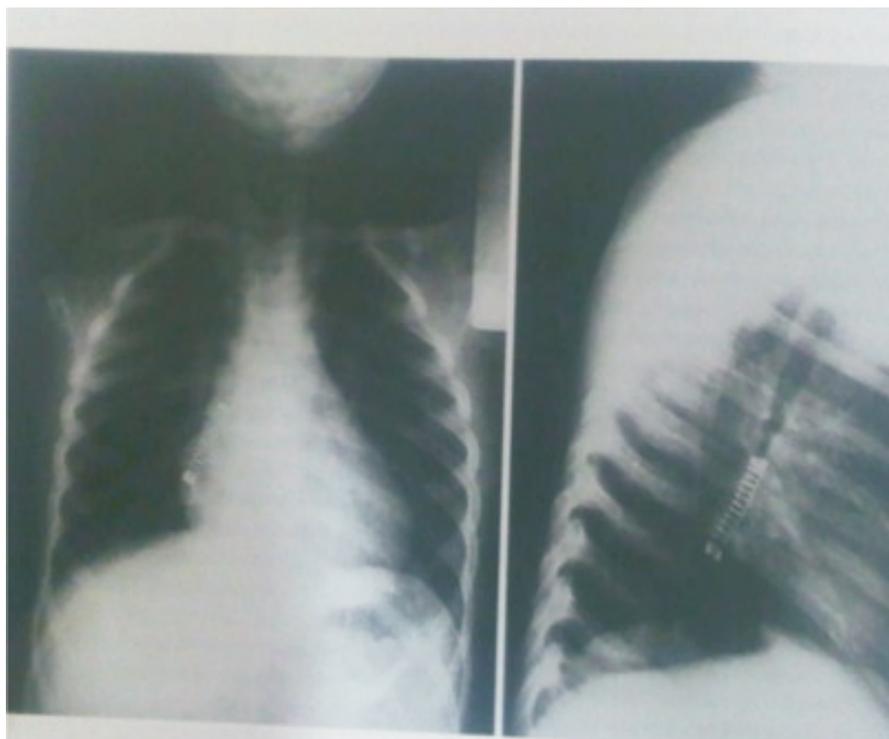


Figure 3: Chest radiograph showing a pen spring in the right main bronchus

### Outcome of foreign body aspiration

Table VII showed the treatment and outcome of foreign body aspiration among children and adults. Most 39 (52.7%) of the subjects had their foreign bodies removed under restriction while 17 (23.1) and 1 (1.4%) had their foreign bodies removed under general and local anaesthesia respectively. Five (6.8%) subjects were referred to another health facilities. 4 (5.4%) were lost to follow up and 8 (10.8%) had no foreign bodies found in them.

Table VII: Treatment and outcome

Outcome	Number, n (%)
Removal under restriction and discharged	39 (52.7)
Removal under general anaesthesia and	16 (21.6)
Removal under local anaesthesia and discharged	2 (2.7)
Referred to other health facilities	5 (6.8)
Lost to follow up	4 (5.4)
No foreign body and discharged	8 (10.8)
<b>Total</b>	<b>74 (100.0)</b>

## DISCUSSION

Ear, nose and throat foreign bodies may go unnoticed or present as a life threatening conditions and has been a source of morbidity and mortality especially in pediatrics under the age of five. For this reason most foreign bodies in the ear, nose, pharynx, larynx and esophagus present to the emergency unit. They account to about 11% of cases of emergencies in Otorhinolaryngology.<sup>2</sup>

Our study revealed foreign body aspiration to be commoner among children than adults. This finding could be explained by the fact that children explore their environment, which predisposed them to having foreign body in the ear, nose or throat. The finding also concurs with the report by Altmann *et al*,<sup>9</sup> where they documented the peak age of foreign body in the ear, nose and throat to be among the paediatric age group. This could be explained by the fact that children explore their environment. The adults with foreign bodies found in our study could be explain by the risk factors such as old age, poor dentition, agomphiasis (absence of teeth), alcohol consumption, chronic disease, sedation or eating risky foods associated with this age group as also reported by one Austrian autopsy series.<sup>10,11</sup> There were more girls than boys with FBs in the ear, nose and throat in our study both in infancy and after infancy in contrast to the observations from other

studies<sup>12, 13</sup> where they reported that during infancy, the incidence of foreign-body in the ear, nose and throat episodes is equal in boys and girls. Furthermore, after infancy, however, boys were more likely to present with foreign bodies than girls.<sup>12,13</sup>

Abnormal sensation and discomfort were the commonest symptoms found in our study in contrast to the findings by Andrea *et al*,<sup>14</sup> in Brazil and Chung-Hua *et al*,<sup>15</sup> in Taiwan where they reported cough and respiratory discomfort as the commonest symptoms. Chest pain and ear discharge were the least symptoms found in our study which also contradict the observation from the finding by Andrea *et al*,<sup>14</sup> where halitosis and hoarseness where the least symptoms noted. This disparity in the symptoms could be explained by the fact that the index study included adults who can complain of discomfort and abnormal sensation that are very unlikely to be explained in paediatric age group.

The commonest type of foreign body in present study were household and food materials in keeping with findings from other workers.<sup>14</sup> However, this observation was in contrast to that reported by some studies.<sup>1, 16</sup> Our study revealed that the commonest site of the foreign body was the throat which was in contrast to the finding by other workers<sup>17,18</sup> where in 50-

60% of cases, the foreign body makes its way to the left bronchus. Household materials was the commonly foreign bodies aspirated in our study in contrast to the finding by Korlacki *et al*,<sup>16</sup> in which they documented nuts and sunflower seeds as the most commonly aspirated objects in their study in Poland. Regional and racial variation could explain the disparity as this study was conducted on blacks African while the Poland study was conducted on white population.

The most common complication found in our study was bleeding from the ears. This was in contrast to the finding by Chung-Hua *et al*,<sup>15</sup> in Taiwan where they reported obstructive pneumonitis as the commonest complications in their study. Other workers<sup>16</sup> reported pneumonia as the commonest complication associated with foreign body aspiration in Poland.

The diagnosis of foreign body aspiration in this study was made based on the clinical and radiologic features as was also reported by other studies in USA.<sup>5,19,20</sup>

While some workers<sup>15</sup> used laser, rigid bronchoscopy (RB), surgery or exploratory thoracotomy in removing aspirated foreign

bodies, most of our subjects had their foreign bodies removed under restriction before they were discharged. In India,<sup>21</sup> rigid bronchoscopy under general anaesthesia was the method preferred for removal of aspirated FBs, as in 30% of cases chest X-ray were not useful. None of our subjects had rigid bronchoscopy. The diagnosis of our subjects was based on clinical and X-ray finding where radio-opaque foreign bodies was detected as was also the finding by Pinto *et al*,<sup>21</sup> where the plain chest X-ray revealed radio-opaque FBs in 23.56% of all patients with FB inhalation. Pinto *et al*,<sup>21</sup> suggested that plain chest X-ray should remain the initial imaging modality for patients with clinically suspected tracheo-bronchial aspiration of a FBs.

## CONCLUSION

Foreign body in the ear, nose and throat has been found to be one of the causes of morbidities in Federal Teaching Hospital, Gombe. It is commoner among children as compared to adults and therefore, close monitoring and prompt presentation of patients is very important to reduce morbidities associated with FBs in the ear, nose and throat.

## Acknowledgement

The authors acknowledged the contribution of staff of the department of ENT, Federal Teaching Hospital, Gombe, while carrying out this research work.

## REFERENCES

1. Passàli D, Lauriello M, Bellussi L, Passali GC, Passali FM, Gregori D. Foreign body inhalation in children: an update. *ACTA Otorhinolaryngologica Italica* 2010;30: 27-32
2. McGuirt WF, Holmes KD. Tracheobronchial foreign bodies. *Laryngoscope* 1988; 98: 615-18
3. Weissberg D, Schwartz I. Foreign bodies in the tracheobronchial tree. *Chest* 1987; 91: 730-33
4. Rovin JD, Rodgers BM. Pediatric foreign body aspiration. *Pediatr Rev.* 2000; 21: 86-90.
5. Lima AB, Fischer GB. Foreign body aspiration in children. *Paed Resp Rev.* 2002;3: 303-307.
6. Limper AH, Prakash UBS. Tracheobronchial foreign bodies in adults. *Ann Intern Med* 1990; 112: 604-09
7. Lan RS. Non-asphyxiating

- tracheobronchial foreign bodies in adults. *Eur Respir J* 1994;7: 510-14
8. Kodiya AM, Afolabi AO, Grema US, Ajayi IO, Ngamdu YB, Labaran SA. Tracheostomy in Northern Nigeria: A Multi centre Review. *East and Cent. Afr. J Surg.* 2013; 18 (1);65-70
  9. Altmann AE, Ozanne-Smith J. Non-fatal asphyxiation and foreign body ingestion in children 0-14 years. *Inj Prev.* 1997;3: 176-82
  10. Berzlanovich AM, Muhm M, Sim E. Foreign body asphyxiation: an autopsy study. *Am J Med.* 1999;107:351-5.
  11. Berzlanovich AM, Fazeny-Dorner B, Waldhoer T. Foreign body asphyxia: a preventable cause of death in the elderly. *Am J Prev Med.* 2005;28:65-9.
  12. Rothmann BF, Boeckman CR. Foreign bodies in the larynx and tracheobronchial tree in children: A review of 225 cases. *Ann Otol Rhinol Laryngol.* 1980;89:434-436.
  13. Burton EM, Brick WG, Hall JD. Tracheobronchial foreign body aspiration in children. *South Med J.* 1996;89:195-198.
  14. Andrea MAF, Marcelo CR, Mariana PZ, Ivan CT, José DR, Emilio CEB. Foreign body aspiration in children: clinical aspects, radiological aspects and bronchoscopic treatment. *J Bras Pneumol.* 2008;34: 74-82
  15. Chung-Hua C, Chun-Liang L, Tsung-Tsung T, Yu-Chin L, Reury-Perng P. Foreign Body Aspiration Into the Lower Airway in Chinese Adults. *CHEST* 1997; 112: 129-133. Downloaded from: <http://journal.publications.chestnet.org/> on 12/01/2016
  16. Korlacki W, Korecka K, Dzielicki J. Foreign body aspiration in children: diagnostic and therapeutic role of bronchoscopy. *Pediatr Surg Int* 2011; 27:833-837
  17. Zhijun C, Fugao Z, Niankai Z, Jingjing C. Therapeutic experience from 1,428 patients with pediatric tracheobronchial foreign body. *J Pediatr Surg* 2008; 43:718-721
  18. Tahir N, Ramsden WH, Stringer MD. Tracheobronchial anatomy and the distribution of inhaled foreign bodies in children. *Eur J Pediatr* 2009;168:289-295
  19. Mu L, He P, Sun D. Inhalation of foreign bodies in Chinese children: a review of 400 cases. *Laryngoscope.* 1991; 101:657-660.
  20. Tokar B, Ozkan R, Ilhan H. Tracheobronchial foreign bodies in children: importance of accurate history and plain chest radiography in delayed presentation. *Clin Radiol.* 2004; 59:609-615.
  21. Pinto A, Scaglione M, Pinto F. Tracheobronchial aspiration of foreign bodies: current indications for emergency plain chest radiography. *Radiol Med (Torino)* 2006;111: 497-506.