INTRODUCTION

Otorhinolaryngeal foreign bodies are continuing medical problem and their referral to the otorhinolaryngologist for removal is a common occurrence.[1-3] Ear, nose, and throat (ENT) foreign bodies are more common among children, although adult age groups are involved.[4] The etiological factors responsible for foreign bodies insertion into the ENT varies among children and adult. Children are inclined to place toys, foodstuff and household articles in the ear, nose or oral cavity.[5] The reasons for the insertion of foreign bodies include curiosity, boredom, imitation, irritation, rhinitis, otalgia, fun making, and the wish to explore the orifices of the body.[1-5] It may be accidental or deliberate self-harm especially in adult.

The presentation may be life-threatening in airway foreign bodies. Foreign bodies in other aerodigestive tract may present as mild to severe discomfort, pain, blockage, bleeding, discharge, and impaired functioning of the involved site.

There are many studies carried out looking into the prevalence, management, and complications of ENT foreign bodies. In Sokoto, there were few studies conducted on otorhinolaryngeal foreign bodies in both children and adult. The three studies from Sokoto were carried out about a decade ago by Iseh et al. on pharyngo-esophageal foreign bodies, laryngo-trachaeobronchial foreign bodies and ear foreign bodies.[6-8] Hence, it may be necessary to determine the present pattern.

The present study was therefore aimed to review patients who attended the otorhinolaryngology department with foreign body between January 2009 and December 2010.

METHODS

This was a retrospective study of all patients referred or self-reported cases of ENT foreign bodies seen in...
Amutta, *et al.*: Ear, nose, and throat foreign body in Sokoto

the accident and emergency unit and ENT department of the Usmanu Danfodiyo University Teaching Hospital (UDUTH), Sokoto, North-Western Nigeria. UDUTH is a tertiary institution that serves Sokoto metropolis, its urban and rural areas, Zamfara, Kebbi and Niger state.

All patients seen with foreign bodies in the ENT for 2 year period starting from January 2009 to December 2010 were included in the study. Data were collected from ENT out-patient clinic registration books, ward admission records and their case notes were retrieved from the medical record office of the hospital. Parameters extracted from the records included age, gender, the clinical features, and types of foreign body and the complications encountered during the removal process. Data were analysed using the SPSS for windows version 13.0. In addition, *P* value less than 0.05 was considered statistically significant.

All the patients with esophageal and bronchial foreign bodies had X-rays of the chest, posterior anterior and lateral views, soft tissue of the neck, anterior posterior and lateral views and occipitofrontal view, occipitomental view and lateral view of the paranasal sinuses of the patient that had sewing needle impacted beneath the nasal mucosa. Only radio-opaque object were seen among the cases. Radiological investigation was not performed for any of the ear foreign bodies because they were easily diagnosed and safely removed in the clinic. There was indication for post-operative contrast radiography in some of the esophageal foreign body, but they failed to comply after the foreign bodies were removed.

**RESULTS**

During the study period, 5,314 were managed in the department comprising of 2,722 male patients and 2,592 female patients. Out of these, 90 patients were managed for foreign body in the ENT. The male patients with foreign body were 51 (56.7%) while the female were 39 (43.3%). Ear foreign bodies 48 (53.3%) were the most common, followed by the nose 16 (17.8%), bronchus 15 (16.7%) and esophagus 11 (12.2%). The age range was 9 months to 64 years. The highest incidence of foreign bodies occurred between 0 and 4 years with 39 (43.3%) cases, followed by 5 and 9 years of age with 30 (33.3%) cases. No foreign body encountered in the ENT between 50 and 59 years age group. Fifty one (56.7%) males and 39 (43.3%) females cases with male to female ratio 1.3:1 [Table 1].

**Ear foreign bodies**

Of the total of 48 cases 37 (77%) accounted for children 9 years or less of age. 20 (41.6%) were between the ages 5 and 9 years, 17 (35.4%) between 0 and 4 years and 4 (8.3%) between 15 and 19 years. Two (4.2%) cases were between 10 and 14 years age group, 2 (4.2%) cases in 20 and 29 years age group, 3 (6.3%) cases between 30 and 39 years age group. There were 27 males and 21 females with male to female ratio of 1.3:1 [Table 1].

Clinical features of ear Foreign body were 31 (64.6%) presented with ear discomfort, ear discharge 5 (10.4%), impaired hearing 4 (8.3%), pain and discomfort 4 (8.3%), noise and movement in the ear were 1 (2.1%) each. 2 (4.2%) of the patients had no symptoms. 37 (77.1%) presented within 1 week of onset of symptoms and 4 (8.3%) after a week. In 30 (62.5%), the foreign bodies were removed by ear syringing and 18 (37.5%) with Jobsons Horne probe and Hartman alligator ear forcep. 2 (4.2%) cases were complicated by otitis externa.

**Types of ear Foreign bodies** were plant seed 12 (25%), followed by unidentified (not specifically stated) foreign bodies 9 (18.2%), beads 8 (16.6%), cotton bud 8 (16.6%), insect 3 (6.3%), maggot 2 (4.2%), pen cover 2 (4.2%), stones 2 (4.2%), eraser and sponge, 1 (2.1%) each [Table 2].

## Table 1: ENT foreign bodies by site and age groups

<table>
<thead>
<tr>
<th>Age/site (%)</th>
<th>0-4</th>
<th>5-9</th>
<th>10-14</th>
<th>15-19</th>
<th>20-29</th>
<th>30-39</th>
<th>40-49</th>
<th>50-59</th>
<th>60-69</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ear</td>
<td>17</td>
<td>20</td>
<td>2</td>
<td>4</td>
<td>2</td>
<td>3</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>48</td>
</tr>
<tr>
<td></td>
<td>35.4</td>
<td>41.6</td>
<td>4.2</td>
<td>8.3</td>
<td>4.2</td>
<td>6.3</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>16</td>
</tr>
<tr>
<td>Nose</td>
<td>14</td>
<td>1</td>
<td>-</td>
<td>-</td>
<td>1</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>16</td>
</tr>
<tr>
<td></td>
<td>87.5</td>
<td>6.3</td>
<td>-</td>
<td>-</td>
<td>6.3</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>16</td>
</tr>
<tr>
<td>Esophagus</td>
<td>2</td>
<td>3</td>
<td>1</td>
<td>-</td>
<td>2</td>
<td>-</td>
<td>1</td>
<td>-</td>
<td>2</td>
<td>11</td>
</tr>
<tr>
<td></td>
<td>18.2</td>
<td>27.3</td>
<td>9.1</td>
<td>-</td>
<td>18.2</td>
<td>-</td>
<td>9.1</td>
<td>-</td>
<td>18.2</td>
<td>11</td>
</tr>
<tr>
<td>Bronchus</td>
<td>6</td>
<td>6</td>
<td>3</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>15</td>
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<td>40</td>
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<td>20</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>80</td>
</tr>
<tr>
<td>Total</td>
<td>39</td>
<td>30</td>
<td>6 (6.7)</td>
<td>4 (4.4)</td>
<td>5 (5.6)</td>
<td>3 (3.3)</td>
<td>1 (1.1)</td>
<td>-</td>
<td>2 (2.2)</td>
<td>90</td>
</tr>
</tbody>
</table>

ENT: Ear, nose, and throat
Nasal foreign bodies
A total of 16 nasal foreign bodies were seen. 8 male and 8 female with male to female ratio 1:1; 14 (87.5%) were within 0 and 4 years age group, 1 (6.3%) each between 5 and 9, 20 and 29 years age groups [Table 1]. Nasal foreign body clinical features were 6 (37.5%) cases presented within 1st week of the foreign body insertion. 4 (25%) presented within the 2nd week and the remaining 6 (37.5%) after the 2nd week. The main presenting complaints were unilateral nasal discharge in 8 (50%) cases, followed by nasal discomfort in 5 (31.3%) patients and 3 (18.7%) patients with nasal bleeding. In 15 (93.8%) of the cases, the foreign bodies were removed by using the head light and Jobsons Horne probe while 1 (6.2%) had it removed under general anesthesia via orotracheal intubation. Types of nasal foreign bodies were plant seeds 5 (31.3%), followed by sponge 4 (25%), 3 (18.8%) beads, 2 (12.5%) paper, and 1 (6.3%) each for sewing needle and cotton bud [Table 2].

Esophageal foreign bodies
Total number of esophageal foreign bodies was 11. 7 were males while 4 were females with male to female ratio 1.8:1. 3 (27.3%) were between 5 and 9 years age, 2 (18.2%) cases were between 0 and 4 years age, 1 (9.1%) were between 10 and 14 year age, 2 (18.1%) between 20 and 29 years age, 1 (9.9%) between 40 and 49 years age, and 2 (18.2%) were between 60 and 69 years age [Table 1]. Clinical features of the esophageal foreign bodies were 9 (81.8%) of the patients presented within 1 week of the ingestion while 2 (18.2%) after a week. Presenting symptoms were dysphagia in 8 (72.7%) cases, odynophagia 2 (18.2%) cases and blood stained vomiting 1 (9.1%) case. Technique of esophageal foreign body removal were 5 (45.5%) disimpact and dislodged meat bolus by conservative treatment, rigid esophagoscopy 4 (36.4%), and resolved spontaneously 2 (18.2%).

Types of esophageal foreign bodies encountered were meat bolus 5 (45.4%), fish bone 3 (27.3%), balloon valve 1 (9.1%), pencil 1 (9.1%), and screw nail 1 (9.1%) [Table 2].

Bronchial foreign bodies
A total of 15 bronchial foreign bodies were encountered. Male to female ratio was 1.5:1. 6 (40%) each were between 0 and 4 years, and 5 and 9 years age groups, 3 (20%) cases within 10 and 14 years age [Table 1]. Clinical features of the bronchial foreign bodies were 11 (73.3%) presented dyspnea and cough, persistent cough only 4 (26.7%). 10 (66.7%) cases presented...
between 0 and 7 days of aspiration and 5 (33.3%) cases after a week. In 10 (60%) of the patients, the foreign bodies were in the right bronchus, 6 (40%) foreign bodies were located in the left bronchus. Aspirated foreign bodies were removed by rigid bronchoscopy under general inhalational anesthesia. One of them had immediate post-operative tracheostomy. Types of the foreign body removed from the bronchus were 3 (20%) beads, 3 (20%) toys plastic valve, 2 (13.3%) groundnut, 2 (13.3%) ear ring and 1 (6.7%) for each of the following piece of glass, sugar cane, stones, beans, and positive end of big size battery [Table 2].

DISCUSSION

In this study, ear foreign bodies had the highest incidence (53.3%). It was followed by the nose (17.8%), bronchus (16.7%), and esophagus (12.2%). Comparably, a study by Chiun et al. [4] in Malaysia on a review of ENT foreign bodies in Sarawak General hospital and Endican et al. [2] in Melanesian children showed ear as the most involved site, followed by the nose, pharynx, esophagus, and laryngo-tracheo bronchial tree. This difference with our study was probably due to absence of pharyngeal foreign bodies and smaller sample size. Moreover, variation in site and incidence is not uncommon. Higo et al. [9] in Japan reported that nasal foreign bodies were the most common; although, his study excluded ear foreign bodies. Mukherjee et al. [10] in his study in India on ENT foreign bodies in children: a search for socio-demographic correlates found nose to be the commonest site in children. In another study in India on adult and children aerodigestive tract foreign bodies, the nose was the least involved site. [11]

In this study, the highest incidence of foreign bodies in the ENT occurred between 0 and 4 years age group, followed by 5 and 9 years age group with a slight male preponderance [Table 1]. Therefore, children less than 10 years of age have a greater risk of otorhinolaryngeal foreign bodies. This correlates well with the study by Chiun et al. in Malaysia. The vulnerability of this age group to otorhinolaryngeal foreign bodies was among other reasons due to curiosity, boredom, and the wish to explore the orifices of the body. [1-5] In agreement with other studies, otorhinolaryngeal foreign bodies decreases with increasing age. [1-6]

In general, ear foreign bodies are the most common foreign body encountered in otorhinolaryngological practice. [2,8] This study is in agreement with that report in other studies. In contrast, Bhatia, [12] in his study on aural and nasal foreign bodies in Jos, North-Central Nigeria found more nasal than aural foreign bodies. The apparent male preponderance, which though was not statistically significant (χ² = 0.31, P = 0.57) could be attributed to the adventurous trait of male gender. There were similar finding by authors who reported higher incidence in male. [4,8,13,14] but some reported no significant gender distribution. [1,15]

In support of earlier study on ear foreign bodies in this region and in South-Western Nigeria and Malaysia, the incidence dropped sharply after 9 years of age. [4,8,15] In Melanesia papua New Guinea and North-Central Nigeria, the highest incidence was at 0 and 6 years and 0 and 5 years age group respectively. [2,12]

The types of the ear foreign body encountered in this study vary with the age group. Plant seed/nut, followed by beads and small toys were the commonest. This is in agreement with numerous reports. [2-5,8,13-15] Beads were the commonest in Niger delta. [16] Nigeria. In contrast with adult, cotton bud was the dominant foreign body. In our opinion, the explanation of the impacted cotton bud in adult age group was probably due to habitual cleaning of the external auditory canal or itchy external ear lesion.

Besides, being referred or self-reported with foreign body insertion, majority of the patients in this study presented with associated ear discomfort, followed by otorhea, impaired hearing and otalgia. Therefore, these symptoms may be the only clue to foreign body insertion in the ear of a child. This is supported by many studies. [1-4,8] The foreign bodies were safely removed by the use of ear syringing, Jobsons’ Horne probe and Hartman alligator ear forceps. Few that were impacted close to the tympanic membrane were removed under otomicroscopy. Only two of the cases in our study were complicated by otitis external secondary to minor laceration, unlike the tympanic membrane perforation and middle ear injury in other report. [1,8,14,15] Our low complication rate was due to the fact that no attempt at removal before the presentation to the ENT trained nurses, resident doctors, and otorhinolaryngologist.

Nasal foreign bodies in this study occurred almost exclusively in children with a peak at 0 and 4 years age group. This is a similar finding by other authors. [2,4,10,13] The predominant foreign bodies were plant seed and sponge. Bhatia [12] in North-Central Nigeria reported plant seed and stones. Beads were the most common nasal foreign body in the Niger Delta. [16] Nigeria. Foam was the most common object encountered by Endican.
The only single nasal foreign body encountered in this study in an adult was a sewing needle impacted beneath the nasal mucosa. It was an occupational hazard in a young adult magician, who got his act wrong. Many studies conducted showed that nasal foreign bodies typically present with unilateral nasal discharge. This was true for our study. The impacted needle under the nasal mucosa was removed without major complications under general anesthesia while the remaining nasal foreign bodies were safely removed in the ENT clinic by using the headlight and Jobson’s Horne probe.

This study support the report that incidence of esophageal foreign bodies is higher among children. Coin is the most common esophageal foreign body in most studies. The absence of coin in the present study could be due to the small number of patients with esophageal foreign bodies and coins are much less available now in Nigeria because of its low value as a result of inflation and the conversion of coin to paper currency. In agreement with previous study in this center on pharyngo-esophageal foreign body meat bolus was the most common in adults. In many part of the world, pharyngo-esophageal and bronchial foreign body especially in adult was related to food.

Among the pediatric patient the foreign bodies were removed by rigid esophagoscopy with appropriate size esophagoscope and grasping foreign body forceps. Adult with the meat bolus impaction were managed conservatively with intravenous rehydration, nil per oral, and light sedation with diazepam and pentazocine. The meat bolus disimpact into the stomach within 24-48 h of instituting this treatment regime. There were no major complications. However, the patient failed to keep their appointment for further evaluation to rule out esophageal pathology such as esophageal tumors, motility disorders, and post-operative or corrosive strictures often seen with cases of food impaction. This post-treatment follow-up evaluation problem with meat bolus was reported in the previous study on pharyngo-esophageal foreign body in Sokoto by Iseh et al. Therefore, serious public health education is required to eliminate or at least minimized this avoidable mistake.

This conservative treatment regimen is not suitable for patients who cannot control their secretions because of the risk of aspiration. Therefore, rigid esophagoscopy and whole or piece meal removal is a better alternative. Glucagon (muscle relaxant) and papain (protein digestant) were never used for these cases because of their dangerous side effects.

In our study, bronchial foreign bodies were exclusively seen in children, commonly lodged at the right bronchus. Beads and valve of plastic toys were the dominant foreign bodies. This correlate well with earlier study in this centre and other authors on laryngo-tracheobronchial tree foreign bodies. The history of persistent cough and dyspnea as seen in the laryngo-tracheobronchial tree foreign bodies in our series should raise a strong suspicion of laryngo-tracheobronchial tree foreign body in any child, despite absence of the typical presentation of wheezing, stridor and noisy breathing mentioned in most studies. The bronchial foreign bodies were removed by rigid bronchoscopy under spontaneous respiration and inhaled volatile anesthetic agent. In our series no deaths, but one patient with immediate post-operative respiratory distress due to laryngeal edema and copious mucopurulent secretion had tracheostomy for tracheobronchial toileting. He was successfully decanulated after 1 week.

The absence of otorhinolaryngeal foreign bodies between 50 and 59 years age group in this study is difficult to explain, despite the fact that the frequency of foreign body decreases with increase in age as shown in this study.

Failure to document in the patients’ hospital record the laterality of the foreign body lodgement, the names of some foreign body and being a retrospective study were the limitations of this study.

**CONCLUSION**

In this study, otorhinolaryngeal foreign body remained frequent in the younger age group. Therefore, high index of suspicion is however suggested for prompt diagnosis and intervention. The foreign bodies varied according to site and age with the plant seed being the most common in the ear and nose of children while cotton bud was the dominant ear foreign body in adult. Bronchial foreign bodies were seen exclusively in children less than 14 years old with beads and valve of plastic toys being the most common. In the esophagus, meat bolus was the most common foreign body in adult.

**REFERENCES**


