

Characteristics of Ent Foreign Bodies in a Hospital at Cotonou, Benin

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Abstract

Introduction: Foreign bodies (FB) can constitute a life-threatening emergency by their nature or their location. The objective of this study was to describe the socio-demographic, diagnostic and therapeutic characteristics of FB in the ENT department of CHUZ-Suru Léré in Cotonou. **Methods:** This was a descriptive and analytical cross-sectional study, with retrospective data collection spanning a period of ten (10) years from January 1st, 2013 to December 31st, 2022. Patients of all ages seen in consultations in the ENT and CCF department of the CHUZ-Suru Léré during the study period and meeting the inclusion criteria were taken into account. **Results:** During the study period, 1810 cases of FB were collected among the 13,947 consultations, *i.e.* a hospital frequency of 12.98%. The age of the patients varied from 19 days to 94 years with a predominance of children under 10 years (60.2%). The sex ratio (male/female) was 1.13. The duration between the onset of FB and the medical consultation was greater than 72 hours in 88.49% of cases. The circumstances of occurrence of FB were unknown in 86.34% of cases. The external acoustic meatus was the most common location (90.22%). The nature of FB was inorganic in 86.80% of cases dominated by earwax plugs (77.90%), and organic FB in 7.96% of cases dominated by cotton (3.98%). All FB were extracted by the route of introduction except one case. The extraction was performed most often in the consultation chair (97.07% of cases). The evolution was generally favorable (99.94%). **Conclusion:** ENT foreign bodies are a frequent reason for consultation and mainly affect male children. They are usually inorganic. Evolution is generally favorable after extraction. Prevention remains the best solution.

Keywords

Foreign Bodies, ENT, CHUZ-Suru-Léré

1. Introduction

Otorhinolaryngological (ENT) foreign bodies (FB) are emergencies [1]. They can engage the vital prognosis by their seat or their nature. They are frequent reasons for consultation in ENT. Their frequency varies between 7.9% and 17.74%, with an average of 11% of all ENT emergencies [2] [3]. These FB inhaled, ingested, introduced or formed in the cavities and ENT ducts have various locations, which can be laryngo-tracheo-bronchial, pharyngo-oesophageal, auricular and nasal. The symptomatology of the ENT FB differs according to their nature and especially their location [4]. It is a domestic accident that occurs mainly in children under 3 years old [3] [4]. They expose to serious complications or are a source of morbidity and complications with late revelation. They can also pose diagnostic problems that are not always easy to resolve [2] [5] [6]. Management consists of extracting the foreign body from its route of introduction, most often in the consultation chair. However, some foreign bodies require extraction in the operating room with general anesthesia. Their treatment is not always easy, in developing countries, because of the delay in consultation and the insufficiency of the technical platform [5]. To date, few studies highlight the characteristics of ENT FB at the teaching hospital of Suru Léré (CHUZ-SL), hence the interest of the present study, the objective of which is to improve management.

2. Material and Method

This was a descriptive and analytical cross-sectional study, with retrospective collection which took place over a period of 10 years from January 1st, 2012 to December 31st, 2022. The study included all records of patients who consulted in the ENT department of CHUZ Suru-Léré during the study period and in whom the interview, physical examination and explorations objectified an ENT foreign body. The sampling method was non-probability and an exhaustive recruitment of all the cases concerned was carried out. The consultation and operating room registers made it possible to list the files. The diagnosis of FB was made during ENT consultations using the headlamp and specula. For laryngo-tracheo-bronchial or esophageal FB, the circumstances of occurrence and the penetration syndrome guided the diagnosis. The cervicothoracic radiography made it possible to highlight the metallic FB in the form of abnormal opacity. For the other FB, laryngo-tracheo-bronchoscopy or esophagoscopy helped to highlight the FB. The information was compiled from medical observations and then entered on pre-established survey sheets. The variables sought were socio-demographic (age, sex, occupation), diagnostic (time to consultation, clinical and paraclinical signs) and therapeutic (treatment performed and results obtained). Data entry was done using EPI INFO software version 7.2.1.0. Data processing and analysis were carried out using IBM SPSS software version 22 and Excel 2016 spreadsheet. Proportions were estimated for qualitative variables while quantitative variables were described using the mean and a standard deviation when they have a normal distribution and the median followed by the interquartile range when

the distribution of these variables is not normal. This work was done in strict compliance with ethical and hierarchical standards. Thus, before the start of the work, it was ensured that the favorable opinion of the ethics and health research committee, the authorization of the director of the CHUZ Suru-Léré, was obtained. In addition, the anonymity of the patients was ensured as well as the confidentiality of the data.

3. Results

3.1. Frequency

In 10 years, 1810 cases of foreign bodies have been recorded out of a total of 13,947 consultations, *i.e.* a frequency of 12.97%.

3.2. Sex

Among the 1810 cases investigated, 959 patients (53%) were male versus 851 (47%) female, *i.e.* a sex ratio (male/female) of 1.13.

3.3. Age

The most represented age group with 1089 cases (60.2%) was that of less than 10 years and the average age of the respondents was 15.41 ± 17.57 years with age extremes of 19 days and 94 years old.

The distribution of patients with an ENT foreign body according to age groups is shown in **Figure 1**.

3.4. Circumstances of Occurrence

They are diverse. The games were the biggest providers of FB: 376 cases or 96.91% of known circumstances of occurrence. **Table 1** indicates the different circumstances of occurrence of FB.

3.5. Time before Consultation

The duration of evolution of the symptoms before the ENT consultation varied

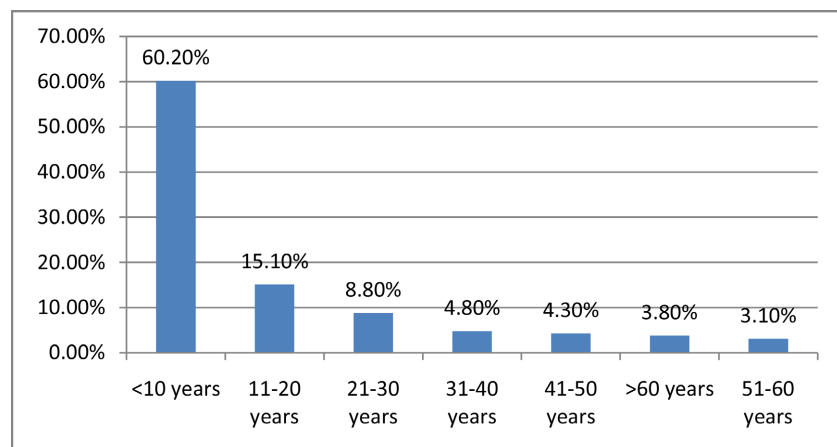


Figure 1. Distribution of patients according to age groups.

from one patient to another. FB lasting more than three days predominated: 1503 cases. Only FB that caused respiratory problems or dysphagia warranted a consultation within 24 hours.

Figure 2 shows the duration of evolution of FB symptomatology before consultation.

3.6. Clinical Signs

The clinical signs identified depended on the seat of the FB. Otolgia was the main ear complaint. For FB of the nose, nasal obstruction predominated. At the level of the esophagus and the trachea, hyper sialorrhoea often motivated the consultation. Regarding laryngotracheal FB, dyspnea in the context of penetration syndrome was the most common symptom. **Table 2** summarizes the signs listed according to the seats of the FB.

3.7. Seat and Nature of the FB

Inorganic FB predominated: 1570 or 86.74%. In the ears, earwax plugs were the most listed: 1410 cases or 86.40% of cases. In the nasal cavities, pieces of foam cloth were the most frequent: 15 cases or 15.31% of FB in the nasal cavities. However, it was the button batteries identified in the nasal cavities in 4 children (4.08%) that were the most dangerous. Coins were the most identified in the

Table 1. Distribution of cases according to the circumstances of occurrence of FB.

	Games	Meal	Unknown	Total
Ears	215 (13.17%)	-	1407 (86.21%)	1632
Noses	92 (93.88%)	2 (2.04%)	4 (4.08%)	98
Esophagus	59 (92.19%)	4 (6.25%)	1 (1.56%)	64
Pharynx	9 (75%)	3 (25%)	-	12
Larynx, trachea, bronchi	1 (25%)	3 (75%)	-	4

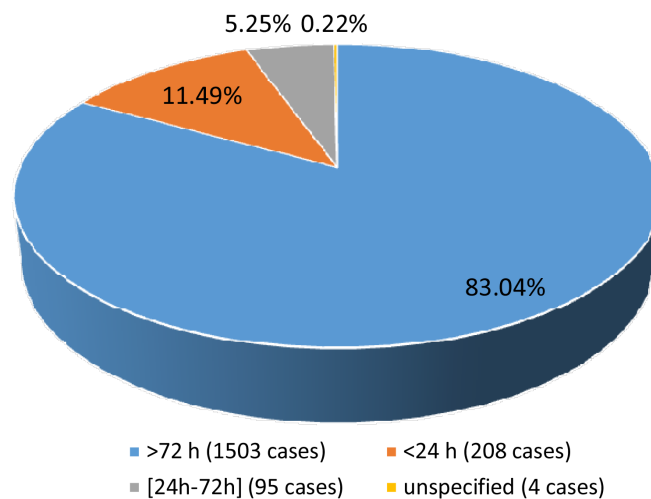


Figure 2. Distribution of cases according to time to consultation.

Table 2. Breakdown of symptoms recorded for.

	Effective	Percentage
auricular signs		
Otalgia	623	38.2
Hypoacusis	324	19.9
Otorrhea	82	5.0
FB impression	47	2.9
Ear pruritus	39	2.4
Tinnitus	34	2.1
Fever	5	0.3
Bleeding	4	0.2
Vertigo	2	0.1
Rhinologic signs		
Unilateral purulent rhinorrhea	37	37.8
Sneeze	10	10.2
Epistaxis	7	7.1
Dyspnea	1	1.0
Signes pharyngés et œsophagiens		
Dysphagia	21	27.6
Barking cough	22	28.9
Hyper sialorrhea	5	6.6
Vomiting	4	5.3
Fever	4	5.3
Dyspnea	2	2.6
Oral pain	1	1.3
Redness of oropharynx	1	1.3
Laryngeal and tracheal signs		
Dyspnea	3	3.9
Hyper sialorrhea	1	1.3
Dysphagia	2	2.6
Barking cough	2	2.6
Fever	2	2.6
Cervical pain	1	1.3

esophagus, pharynx and laryngo-tracheo-bronchial tree: 49 cases or 61.25% of FB in these regions. **Table 3** lists the locations of FB and their nature.

The metallic FB of the pharynx or the esophagus are objectified on imaging. **Figure 3** illustrates this.

3.8. Therapeutic Aspects

All FB were extracted by the route of introduction except one case. The extraction was performed most often in the consultation chair (1756 cases, *i.e.* 97.07%) by aspiration, ear washing in the case of an intact eardrum or using hooks, loops or microtweezers. **Table 4** shows the extraction methods used.

Table 3. Distribution of FB according to the seat and nature.

	Organique	Inorganique	Unspecified	Total
Ears	122 (7.48%)	1466 (89.82%)	44 (2.70%)	1632
Noses	9 (9.18%)	40 (40.82%)	49 (50%)	98
Esophagus	4 (6.25%)	58 (90.63%)	2 (3.12%)	64
Pharynx	9 (75%)	3 (25%)	-	12
Larynx, trachea, bronchi	1 (25%)	3 (75%)	-	4

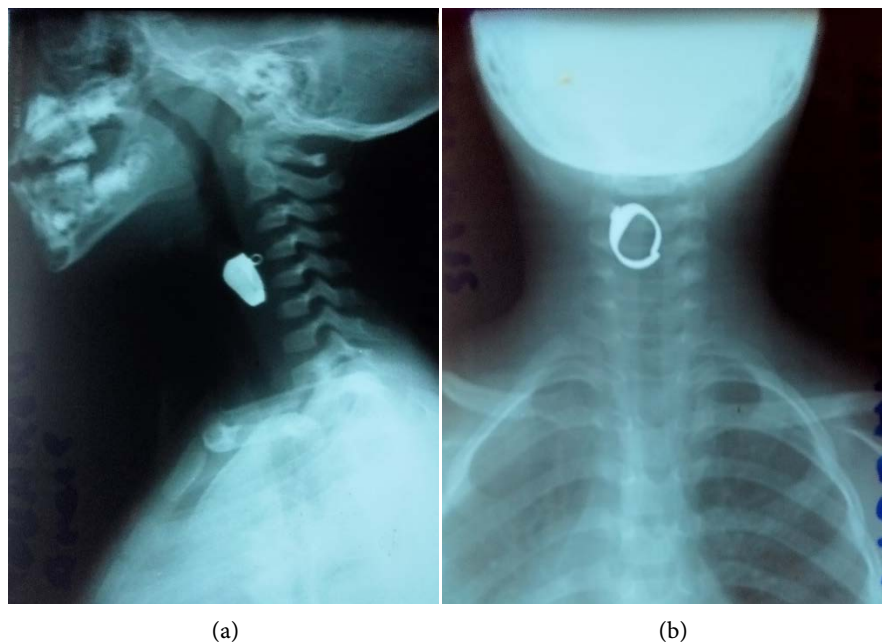


Figure 3. Profile (a) and Face (b) cervical X-ray showing ring as esophageal FB at C4-C5 (ENT department of CHUZ SL).

Table 4. Distribution of cases according to FB extraction method.

	Mode d'extraction du FB			Total
	Instrumental	Endoscopic route	digestive elimination	
Ears	1632 (100%)	-	-	1632
Noses	98 (100%)	-	-	98
Esophagus	-	39 (60.94%)	25 (39.06%)	64
Pharynx	8 (66.67%)	-	4 (33.33%)	12
Larynx, trachea, bronchi	-	4 (100%)	-	4

3.9. Evolution

The evolution was favorable in 1809 patients (99.94%). A case of death was recorded following a laryngeal obstruction a piece of inhaled tissue.

4. Discussion

This study being retrospective, there was no interaction with the patients to have more precision on some incomplete informations of the medical files. It was mainly about the nature of the FB which was still not informed in the medical observation. Check-up appointments were not honored by all patients. In these 10-years study, 1810 cases of FB were identified. FB therefore represented 12.97% of the complaints received. This high frequency shows that FB remain a concern in current ENT practice. It is important to take an interest in the question in order to better prevent or manage the disease. From the results of HSSAINE K *et al.* in Morocco [1], it appears that they corresponded to 7.9% of ENT conditions. For Mlata and al [7] in Algeria, FB were equivalent to 2.6% of consultations. Algadi and al [8] also noted FB as one of the most recurrent emergencies. Nawatta and al [9] in Côte d'Ivoire found that FB accounted for 38.23% of ENT emergencies. Ibekwe and al in Nigeria [10] reported 88.60% FB among pediatric emergencies. It is a frequent condition in ENT that requires special attention considering the vital emergency that it can constitute.

In this study, both sexes were concerned with a male predominance (53%, *i.e.* a sex ratio of 1.13). Previous work had made the same observation [1] [2] [3] [10] [11] [12] [13]. However, Maiga and al in Senegal [14] reported a female predominance with a sex ratio of 0.91. The male subjects indeed seem more turbulent and bolder than those of the opposite sex. For Diallo and al, curiosity, which is an exploration of oneself and one's environment, seems greater in boys than in girls [2].

In this study, children under 10 years old were the most affected by the condition: 60.2%. The remark joins those of Diallo and al [2] in Guinea who had recorded a rate of 42.71% of children under 10 years old and Lawson and al [15] who recorded a rate of 75% of patients under 15 years old.

From the age of 5 - 6 months, the child gradually acquires the gesture of prehension and a certain bodily autonomy in the surrounding space. He engages in an exploration in particular of the different orifices of the face at the same time as parental supervision is relaxed. The discovery of his environment leads him to touch any object and to have fun introducing small particles into the natural orifices of the body. The landlocked of small objects would explain the occurrence of FB. As proof, games were the most recorded circumstances of occurrence in the series: 376 cases or 96.91%. Diallo and al had made the same observation with 54.17% of gaming accidents. It should also be noted that the conditions of occurrence of FB were undefined in 1413 patients, *i.e.* 78.07%. Indeed, the entourage is most often unaware of the existence of FB until its clinical manifestation. This ignorance of FB could be explained by the lack of supervision of the

children. In addition, home extraction attempts can lead to complications such as bleeding or ventilatory problems. These are the clinical signs that motivated the medical consultation and diagnosis in most cases. The survey showed that more than 75% of patients (1507 or 83.26%) consulted after a delay of 72 hours and this delay could go up to 5 years in some patients. Clinical manifestations have also been indicative of the condition in other studies [15] [16] [17]. The patients who consulted within 24 hours are those presenting a disturbing annoyance such as dyspnea or pain [17] [18] [19].

In this study, the ear was the preferred site for FB: 90.2% of cases. Lawson and al [15] had made the same observation with 71.88% of auricular FB. These results are identical to those of Mlata and al [7] who noted at the top of the FB, 38.78% FB of the ear. Ibekwé and al [2], on the other hand, noticed a predominance of FB in the nasal cavities. The same is true for Aksakal [20] who listed 58.7% FB of the nasal cavities.

The laryngeal location was low in the present study, *i.e.* 0.1% of cases, unlike the study by MAIGA and al [14], which found a more frequent laryngeal location (26.7%). In ENT practice, it is the most feared location of FB because it is a source of significant morbidity and mortality, particularly in children under 3 years old [1]. This diagnosis must be evoked in the event of any acute respiratory distress in the child and requires treatment in extreme urgency [17] [21].

The nature of FB varies according to age, location, and socio-demographic particularities [2]. Inorganic FB have predominated in other studies [1] [5]. Like other works, inorganic FB predominated in this study: 86.80% [1] [2] [5] [11] [17]. Button batteries have been the most dangerous because of their corrosive effects [11]. Cervicothoracic radiography was systematically performed in cases of esophageal FB. Imaging helps in the diagnosis in these cases [15] [17].

The treatment consisted of the extraction of the FB by their route of introduction in almost all cases. Several techniques are described, and the choice depends on the location, the type of FB, the age of the patient and the experience of the physician [12] [21].

5. Conclusion

ENT foreign bodies are a frequent reason for consultation and mainly affect male children. They are usually inorganic. Corrosive FB, in particular button batteries, are the most dangerous because of the aesthetic and functional consequences they can cause without underestimating the vital prognosis they can incur. The evolution is generally favorable after extraction. Prevention remains the best solution. It involves raising the awareness of the adults in charge of the children.

Conflicts of Interest

The authors declare no conflicts of interest regarding the publication of this paper.

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