



Digestive Foreign Bodies in Children in Dakar: Should they be Systematically Extracted

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Abstract

Context: Ingestion of a foreign body (FB) is a frequent accident in children. These foreign bodies are very variable and the majority are expelled spontaneously. However, some of them can get stuck on their way and the management will depend on several parameters.

Aims: To identify the context in which FB ingestions occur, their nature and their management.

Settings and Design: The following parameters were studied: frequency, age, sex, history, consultation delay, circumstances, time, place, functional signs, physical examination data, radiographic findings, nature and location of the foreign body, management delay, nature of the treatment and evolutionary modalities.

Methods and Material: Our study was retrospective and descriptive on a series of 133 cases of foreign body ingestion recorded over a period of 5 years. The data were collected from the patients' files and the department's database. The analysis was done on Excel 2016.

Results: The frequency was 26.6 cases per year. The mean age was 4.9 years. The sex ratio was 1.46. These accidents occurred mainly in the family home (91.8%). The FBs were radiopaque in 96.2% of cases. Intestinal location was the most frequent (82.7%). Coins were the most frequently found (82%). Clinical-radiological monitoring was instituted in the majority of our patients (88.7%) until the natural expulsion of the FB. Evolution was without particularities in all our patients.

Conclusions: FB ingestion is most often a quasisymptomatic domestic accident that occurs in children under 5 years of age. The majority of ingested FB are radiopaque. Spontaneous expulsion is the usual outcome.

Keywords: Foreign bodies; Child; Ingestion; Coin

Introduction

Foreign body ingestion (FBI) is more common in the pediatric population [1]. It occurs accidentally in children and especially in children under 5 years of age [2]. The preferred site of blockage of FBs is the upper esophagus [3]. There is a wide range of ingested FBs, which are not well documented [4]. Coins are by far the most frequent [5]. The majority of these FBs are expelled spontaneously [6]. Approximately 10% of ingested FBs require endoscopic removal and only 1% require surgical intervention [7]. The current trend in the literature is towards systematic

extraction [8]. However, is it really necessary to extract them systematically. The aim of this study is to identify the context in which FB ingestions occur, their nature and their management methods.

Subjects and Methods

We conducted a retrospective and descriptive study on a series of 133 cases of foreign body ingestion in the pediatric surgery department of the Centre Hospitalier National d'Enfants Albert Royer (CHNEAR) over 5 years, from January 1st, 2015 to December 31st, 2019. We excluded 09 cases of button battery

ingestion whose management (immediate extraction) was done at the Otolaryngology Department. The following parameters were studied: frequency, age, sex, history, consultation delay, circumstances, time, location, functional signs, physical examination data, radiographic findings, nature and location of the foreign body, management delay, nature of the treatment, and evolutionary modalities.

Results

A total of 133 cases were collected over 5 years, representing a frequency of 26.6 cases per year and a prevalence of 5.6 % of consultations. The age of our patients ranged from 2 months to 15 years with an average age of 4.9 years. The age group of children under 5 years was predominant (66.2%) followed by those between 5 and 10 years (25.5%) and finally those over 10 years (8.3%). The sex ratio was 1.46. No particular history was found in our patients. The average time between ingestion and consultation in our department was 20.8 hours with extremes of 30 min and 15 days. Most patients presented within the first 24 hours after ingestion (76.7%). More than half (51.1%) of the patients consulted a medical facility before admission without any extraction attempt. The ingestion was identified by the parents or relatives in 96.2% of cases. The place of occurrence of these accidents was mainly the family home (91.8%), followed by school (6%), then playing areas (2.2%). These ingestions occurred most often in the evening (92.8%) between 4pm and 11pm in school-aged children and at all times of the day, between 10am and 6pm in younger children. The 2pm to 7 pm time period was the most frequent (70.6%) (Figure 1).

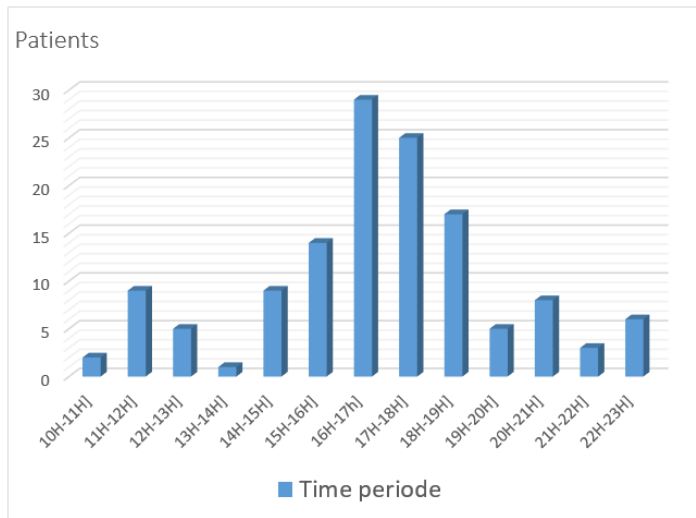


Figure 1: Time distribution of ingestion accidents.

The clinical presentation on admission was almost the same for the majority of patients (89.5%) who were asymptomatic. In nine patients (6.7%), the revealing symptoms were purely digestive,

with hypersialorrhea in 7 cases (5.2%) and dysphagia in 2 cases (1.5%). Respiratory signs were present in 5 patients (3.8%), with cough in 3 cases and associated dyspnea in 2 cases. An initial thoracic or thoracoabdominal X-ray was performed in all of our patients to confirm the diagnosis, localise the FB on the gastrointestinal tract and to search for complications. Radiopaque FBs were visualized in 96.2% of cases. The most frequent initial location was intestinal (82.7%) (Figures 2,3).



Figure 2: X-ray showing two overlapping coins.



Figure 3: X-ray image of an ingested ring.

In 23 patients (17.3%), the initial radiograph showed an esophageal location of s, FBs with a predominant location in the lower third (52.2%) followed by the middle third (30.4%) and finally the upper third (17.4%) (Figure 4,5).

The number of FBs ingested was unique in 98.5% of cases. Two patients ingested 2 coins each. Clinical-radiological monitoring was initiated in the majority of our patients (88.7%). It consisted

of radiographic monitoring on an outpatient basis with parental guidance. The radiographic control was done 48 hours after the initial radiography, then 72 hours afterwards, and then every week if the CE was not expelled. The average time to expulsion was 2.76 days with extremes of 1 day and 14 days.



Figure 4: X-ray showing an ingested needle.

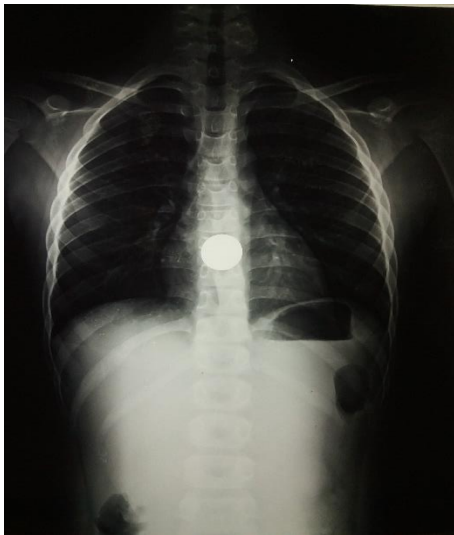


Figure 5: A coin trapped in the distal oesophagus.

Upper GI endoscopy was indicated in patients initially in good general condition and without complications, with a foreign body located in the upper GI tract and a priori removable. It was performed in 14 patients (10.5%). This exploration led to the removal of FB in 9 cases. In addition, in 5 cases, it helped to push the FB to the stomach in order to allow its spontaneous expulsion. Manual anal extraction was performed in one child who had ingested a fishbone that became lodged in the lateral wall of the anal canal. No surgical treatment was indicated in our patients. The evolution after extraction or expulsion of the FB was without

particularities in all our patients. No complication or mortality was reported. (Figure 6).

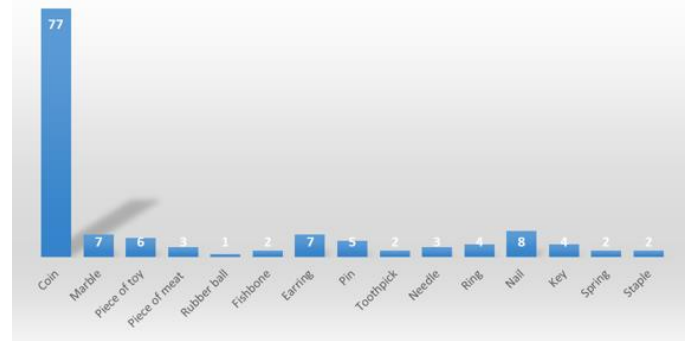


Figure 6: Nature of ingested foreign bodies.

Discussion

Ingestion of FB is a frequent cause of consultation or admission to the pediatric emergency room [9,10]. The mean age found in the literature varies between 3 and 5 years [11,12]. In our series, the mean age was 4.9 years. Frequency increases from the age of 6 months as soon as manual prehension is possible [13]. In more than 70% of cases, these ingestions occur in children under 4 years of age [14]. Indeed, children in the oral phase with oropharyngeal immaturity have a high risk of involuntary ingestion of foreign bodies. Moreover, the curiosity of the child's entourage to explore could explain this situation [15]. Male predominance is obvious in most of the series in literature [16]. The same finding is noted in our study. Physical examination is most often normal and should be performed upon admission of the patient [17]. More than 80% of FBs are asymptomatic [18]. Symptomatology depends on several parameters: age, medical and surgical history, size and location of the FB or occurrence of a complication secondary to the ingestion [19]. Sometimes, it is delayed for several minutes to several hours, or even does not appear until the complications occur [20]. In children, the symptomatology is much more misleading, and attention must be paid to the observations of the entourage: hypersialorrhoea, dysphagia, vomiting and odynophagia are signs frequently reported in the literature [21]. However, in our series these digestive manifestations are not frequent. This could be related to the frequency of intestinal localization in our series, thus explaining the absence of clinical symptoms in the majority of our patients. Respiratory signs are less frequent and are related to the blockage of the esophagus by compression of the respiratory tract, particularly in small children [22]. In our series, these signs represent only a tiny part (3.8%) and are found in the esophageal location of the FB. Diagnosis of a radiopaque foreign body is in general easy on standard X-ray images: this assessment is positive in 84% of cases in children. The positive predictive value of

standard radiography is excellent, especially in children [23, 24]. We found a similar rate to the literature. Hodge and Schunk each showed in their study that 17% and 38% respectively of asymptomatic children may have a coin trapped in the esophagus [25,26]. The nature of the ingested foreign bodies varies from one study to another, but especially varies with patient age [27,28]. Any object that can be grasped by a child may then readily be brought to the mouth and ingested [29]. Soft objects are by far the most common and coins are the most frequent EC in children [30]. This was the case in our series. The main site of blockage of FBs is located in the esophagus [31]. This could be explained by the three physiological constrictions of the esophagus, one superior at the level of the esophageal orifice, the other at the middle third related to the aortic arch at the level of T3-T4, the last inferior at the cardia; 78% of FBs remain blocked at the esophageal orifice, compared to 13% at the middle third and 18% at the cardia. FB may also become blocked in the stomach or at the pylorus, and more rarely at the ileocecal valve or appendix [32,33]. The rate of spontaneous expulsion of FBs is higher in case of gastric or intestinal localization [34,35]. Our results confirm these data. In case of esophageal location, the lower third is more favorable for spontaneous passage of FBs [36]. The rate of immediate extraction or within 24 hours of FBs by endoscopy is situated between 52% and 99.4% [36]. In our series and the one of Delport and al, abstention and surveillance are the first line of treatment [37]. Unlike several authors, we believe that endoscopic extraction should not be performed systematically but rather reserved for specific situations. In regard to our results, and outside of any emergency, monitoring and education of the parents on the possible complications to watch out for remains, in our opinion, the most appropriate way of management. In fact, this avoids the patient having to be hospitalized, the risks incurred during an endoscopy and thus enables an outpatient follow-up with regular X-rays in order to evaluate the progression of the FB until its spontaneous evacuation.

Conclusion

FB ingestion is most often a quasiasymptomatic domestic accident that occurs in children under 5 years of age. The majority of ingested FB are radiopaque and thus standard X-ray is the key diagnostic test. Clinico-radiological monitoring is an important part of the management as spontaneous expulsion is the usual outcome. In some cases, digestive endoscopy may be useful as a diagnostic and therapeutic tool.

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Salsabil Mohamed Sabounji: contributed to design the study, data analysis, wrote the draft

Doudou Gueye and Mbaye Fall: contributed to data collection and writing of manuscript.

Gabriel Ngom: supervised the revision of the manuscript.

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