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Original article

Nasal foreign bodies in children in a pediatric hospital in Senegal: A three-year assessment

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ABSTRACT

Objectives: Nasal foreign bodies (NFB) constitute a common domestic accident in children. The objectives of the present study were to report the particularities of NFBs in children presenting at a pediatric hospital in Senegal, and to describe our therapeutic attitude.
Material and methods: A retrospective descriptive study included all under-15 year-olds presenting with NFB in the ENT department of the National Children's Hospital Center of Diamniadio, Senegal, between January 1, 2013 and December 31, 2015. Study variables comprised: age, gender, provenance, presenting symptoms, time to consultation, type of NFB, extraction method, and complications.
Results: 58 NFB cases were retrieved. Mean age was 3 years 4 months; 93% of patients were under 5 years old. There was female predominance of 53.45%: i.e., sex-ratio, 0.87. Location was in the right cavity in 43 patients (74.1%). The presenting symptom was purulent rhinorrhea in 51.7% of cases. Time to consultation was within 24 hours in 17.24% of cases. NFB type was firstly foam rubber (29.3%), followed by grain (20.7%). Extraction was performed in consultation in 84.5% of cases and in the operating room in 15.5%. Morbidity was 22.41%: 17.24% epistaxis and 5.17% nasal infection.
Conclusion: NFBs constitute a common domestic accident in under-5 year-olds. The rural Senegalese context shows delay in consultation.

1. Introduction

Nasal foreign bodies (NFB) account for 19–49% of ENT foreign bodies (FB) [1–5]. They mainly concern children playing at home, with the parents present [1,6,7]. According to the literature, time to consultation is very short: within 24 hours in 65–90% of cases [8–10]. Extraction is usually performed in consultation; in less than 23% of cases, extraction in the operating room under general anesthesia is required, due to lack of cooperation or an enclosed NFB [5,7,8,11].

Reports from Sub-Saharan Africa highlight delayed consultation. In Nigeria, Olajide et al. [11] and Afolabi et al. [5] reported that less than 50% of children were brought to consultation within 24 hours; NFBs are generally discovered serendipitously in children consulting with often fetid unilateral purulent rhinorrhea [5,11,12].

The present study reports the particularities of NFBs in children presenting at a pediatric hospital in Senegal, and describes our therapeutic attitude.

2. Material and methods

A retrospective descriptive study was performed in the ENT department of the National Children's Hospital Center of Diamniadio, Senegal, a reference children's hospital comprising the appropriate departments: pediatrics, dermatology, pediatric emergency, pediatric surgery, ophthalmology, odontostomatology, ENT, intensive care, imaging, biology, physiotherapy, and a digestive endoscopy unit. It is in a rural area, some 45 km from Dakar, the capital of Senegal. The ENT department opened in January 2013. It is the Senegal's second-largest pediatric hospital, after the Albert-Royer Children's Hospital in Dakar.

The study period was January 1, 2013 to December 31, 2015. All under-15 year-olds with uni- or bilateral NFB confirmed on clinical or complementary examination were included. Patients consulting with suspected NFB that was not confirmed were not included.

Our attitude, in case of suspected NFB, is to have the child held seated on his or her parent's lap or an assistant's, with legs, arms and head immobilized. Anterior rhinoscopy is performed using a frontal lamp. The extraction instrument is chosen according to the type of NFB: for soft NFBs, microforceps or Politzer forceps; for hard NFBs, a curved ribbed catheter or blunt hook introduced above and

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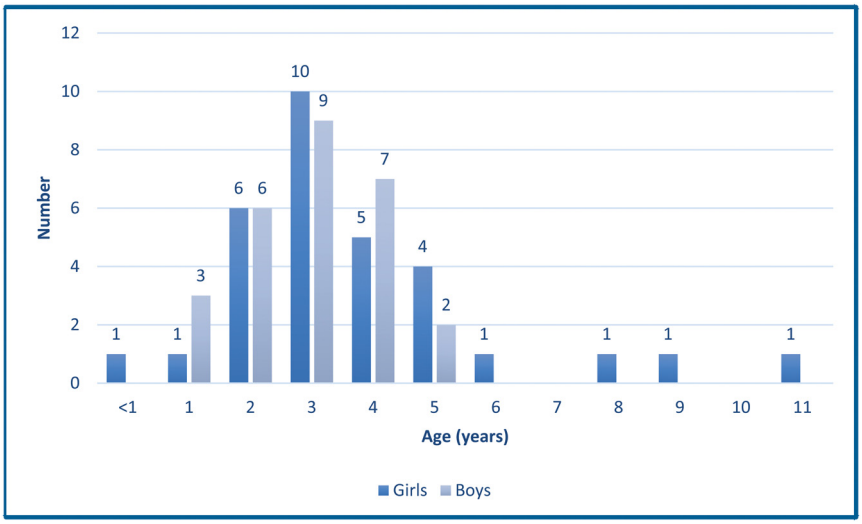

Fig. 1. Distribution of patients by age and gender.

behind the NFB to pull it forward. If the NFB is enclosed or the child is very agitated and hard to control, extraction is performed in the operating room under general anesthesia by mask, with spontaneous respiration. A 0° rigid ENT scope is used if the NFB is not directly visible. Epistaxis is controlled by a few minutes' simple anterior packing. Disinfection with physiological saline or sea water is systematic after extraction. Antibiotic therapy is prescribed on a case-by-case basis.

General anesthesia is applied without intubation, using dosed propofol with good oxygenation ahead of extraction; halothane relay is associated as necessary.

The present data were collected from consultation reports, patient files and surgical reports. The study variables comprised age, gender, provenance, presenting symptom, time to consultation, type of NFB, extraction method, and complications. Data were recorded and analyzed using Statistical Package for Social Science (SPSS) software, v20.

3. Results

3.1. Demographic data

Fifty-eight of the 109 ENT foreign bodies were NFBs (53.21%). Mean patient age was 3 years 4 months (SD, 1 year 6 months), median age 3 years (range, 10 days to 11 years), and modal age 3 years (32.7%). Fifty-four patients (93%) were under 5 years of age (Fig. 1). There was slight female predominance (53.45%): i.e., sex-ratio, 0.87. Almost half the patients (49.1%) came from Rufisque, 5 km from Diamniadio; 28.1% came from Diamniadio, 21.1% from other parts of Senegal, but only 1.8% from Dakar. There was no seasonal variation in incidence.

3.2. Clinical data

In 43 patients (74.1%), the NFB was located in the right nasal cavity and in 15 (25.9%) in the left. Thirty patients (51.72%) consulted for purulent rhinorrhea, fetid in 16 cases (27.6%). There was associated unilateral epistaxis in 4 cases (6.9%), and nasal obstruction in 2 (3.45%). Two children were referred by the pediatric department for persistent purulent rhinorrhea, and 2 were referred by a health center: 1 for persistent purulent rhinorrhea resisting antibiotic therapy and lavage with physiological saline, and 1 for unilateral NFB resistant to extraction.

Table 1
Distribution of patients by discovery circumstances.

Discovery circumstances	Number	Percentage
Witnessed by parents/child/school	24	41.38
Purulent rhinorrhea	30	51.72
Nasal obstruction	2	3.45
Epistaxis	4	6.9
Serous rhinorrhea + sneezing	1	1.72
Cacosmia	1	1.72

Time to consultation was known for 48 patients (82.76%). In 24 cases (41.38%), the child had been seen inserting the FB or had reported it to the parents or, in some cases, the parents had been alerted by the school (Table 1). In the other 24 patients, where insertion time was not objectively known, the parents estimated time to consultation from the supposed (possibly approximate) date of onset of rhinologic symptoms. Median time to consultation was 9 days, with a range of 1 hour to 1 year. Ten patients (17.24%) consulted within 24 hours of insertion.

3.3. Therapeutic data

NFBs were mainly (63.8%) inorganic, principally foam rubber (29.3%). Grains were the second most frequent (20.7%): peanuts and local fruit seeds. Extraction mainly used forceps (microforceps, Politzer forceps) or a curved ribbed catheter (Table 2). In 49 cases (84.5%), it was performed in consultation. In 9 cases (15.5%), it was performed in the operating room under general anesthesia and spontaneous respiration: in 4 cases due to lack of cooperation, in 3 following failure of extraction in consultation, and in 2 for an enclosed NFB. All extractions under general anesthesia were performed via the nostril. The mean age of these children was 4 years (range, 3–8 years). Extraction under general anesthesia was performed in day hospital, with a stay of 4 to 6 hours. Ten patients (17.24%) showed bleeding immediately after extraction. Three (5.17%) showed late complications: 1 purulent rhinorrhea persisting to day 10, 1 purulent rhinorrhea at the 14-day follow-up, and 1 epistaxis followed by purulent rhinorrhea at 1 month; in all 3 cases, the parents had not bought the physiological saline for post-extraction lavage. Physiological saline and antibiotics were prescribed. Progression was favorable; mortality was zero.

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