

NASAL FOREIGN BODIES IN THE UNIVERSITY HOSPITAL OF ANDOHATAPENAKA

Ralaivao NFP*, Andriamampionona GB*, Mananjara N*, Razafimandimby MR*, Rabearisona MR*, Ramarozatovo NP*, Rakoto FA**, Rakotoarisoa AHN***

Ear nose throat Departement of University hospital Andohatapenaka Antananarivo, Madagascar

**Ear nose throat Departement of Soaviandriana hospital Center Antananarivo, Madagascar

***Ear nose throat Departement of University hospital Place Kabary Antsiranana, Madagascar

Corresponding author: RALAIVAO Nasolo Fiononana Peterson. Address: Ear nose throat Département of University hospital Andohatapenaka Antananarivo, Madagascar. E-mail :petersonralaivao@gmail.com

ABSTRACT

Introduction: The foreign body of the nasal cavities is defined by a situation most often accidental brought about by the arrest or incarceration of an exogenous element in one or more of the nasal cavities. The objective of this study is to describe the foreign bodies of the nasal cavities at the University Hospital of Andohatapenaka.

Method: This is a descriptive retrospective study over a 6-month period that included all foreign bodies from the nasal cavities.

Results: We collected 52 cases of nasal cavity foreign bodies with a mean age of 3.9 years and sex ratio (Male / Female) of 0.9. The psychological disorder was found in 1.92% of cases. The foreign body antecedent in the nasal cavity was found in 5.76%. Suspicion of foreign bodies in the nasal cavity was the frequent reason for consultation. Eighty-four point forty-eight percent of cases came within the first 24 hours. Plant foreign bodies were the most frequently found in 36.48%. Hook extraction was the most used at 71.04%. The evolution was good in 96%.

Conclusion: Foreign body in the nasal cavity is the preserve of young children. This accident could be locally serious in the event of a button cell battery requiring urgent extraction.

Keywords: Button battery, Children, Nasal foreign body, Rhinorrhea

INTRODUCTION

The foreign body of the nasal cavities is defined by a situation that is most often accidental resulting from the arrest or incarceration of an exogenous element in one or more of the nasal cavities by an anterior (vestibular) or more rarely posterior (choanal). (Kharubi 2010). These foreign bodies are frequent and mainly concern children (Abou-elfadl et al. 2015). Its gravity resides on the type (button

battery) and the form (sharp object) (Kharoubi 2010). The objective of this study is to describe the foreign bodies of the nasal cavities at the Andohatapenaka University Hospital Center.

METHOD

This is a monocentric descriptive retrospective study carried out in the Ear nose throat departement (ENT) of the University Hospital of Andohatapenaka

Antananarivo, Madagascar, covering a period of six months (November 2020 until April 2021). This study included all cases of foreign bodies in the nasal cavities seen in ENT emergencies retained in the register with a usable consultation form. The study parameters were: age, gender, history, reason for consultation, time to consultation, diagnosis, type of foreign body, method of extraction and evolution.

RESULTS

For a study period of 6 months, we identified 52 cases of foreign bodies in the nasal cavities which represented 13.72% of ENT emergencies and 28.72% of foreign bodies in the ENT sphere. The average age was 3.9 years with extremes of 15 months to 35 years and a peak frequency between 1 and 2 years (Table 1).

Table 1 : Distribution of cases by age

Age range (year)	Number
[1 - 2]	19
] 2 - 3]	12
]3 - 4]	13
]4 - 5]	4
]5 - 6]	2
]6 - 7]	0
> 7	2

There was no gender predominance with a sex ratio (Male/Female) of 0.9. Eighty-six point four percent of cases had no particular

history. The history of a foreign body in the nasal cavities was found in 5.76% of cases (Table 2).

Table 2 : Cases distrubition by history

History	Number	Proportion
Nasal foreign body	3	5.76
Betalactam allergy	1	1.92
Bronchiolitis	1	1.92
Reccurent gastroenteritis	1	1.92
Psychologic disorder	1	1.92
Nothing	45	86.6

Suspicion of a foreign body in the nasal fossae and unilateral nasal obstruction were frequent reasons for consultation and

represented 44.16% and 23.04% of cases respectively (Table3).

Table 3 : Cases distrubition by reaseon for consultation

Reason for consultation	Number	Proportion
Suspicion of a foreign body	23	44.16
Nasal obstruction	12	23.04
Rhinorrhea	3	5.76
Epistaxis	2	3.84
Nasal obstruction + mucosal rhinorrhea	6	11.52
Nasal obstruction + epistaxis	1	1.92
Foul rhinorrhea	3	5.76
Rhinorrhea + pain	1	1.92
Nasal + pain	1	1.92

Eighty-four point forty-eight percent of cases had come for consultation before the 24th hours of the accident (Table 4).The anterior rhinoscopy with the otoscope, the simple anterior rhinoscopy with the nasal

speculum, the nasofibroscopy and the X-ray of the face were the means of diagnosis. These examinations were seen respectively in 53.76%; 40.32%; 1.92% and 1.92% of cases (Table 5).

Table 4 : Cases distrubition by time to consultation

Time to consultation	Number	Proportion
< 1 hour	0	0
1 to 24 hours	44	84.48
24 to 72 hours	6	11.52
72 hours to 1 week	1	1.92
> 2 weeks	1	1.92

Table 5 : Cases distrubition by means of diagnosis

Means of diagnosis	Number	Proportion
Otoscopic anterior rhinoscopic	28	53.76
Anterior rhinoscopic	21	40.32
Nasofibroscopy	1	1.92
Radiography	1	1.92

Vegetable foreign body (36.48% of cases), synthetic pearl (21.12% of cases) and chalk (11.52% of cases) were the most frequently found type of nasal cavity foreign body (Table 6, appendix). The extraction was

done with a hook under local anesthesia after or without spraying lidocaine 5% with naphazoline in 71.04% of cases and with forceps in 24.96% of cases (Table 7).

Table 6 : Cases distribution by types of foreign body

Types of foreign body	Number	Proportion
Organic		
Vegetable	19	36.48
Insect	1	1.92
Non organic		
Pearl	11	21.12
Chalk	6	11.52
Sponge	5	9.6
Plastic	3	5.76
Cotton	2	3.84
Button battery	2	3.84
Needle	1	1.92
Bile	1	1.92
Eraser	1	1.92

Appendix : Some types of foreign bodies



Source of figure : Archive photos of Ear nose Departement of University hospital Andohatapenaka Antananarivo Madagascar

Table 7 : Cases distribution by method of extraction

	Extraction	Number	Proportion
Local anesthesia	Hook	37	71.04
	Forceps	13	24.96
General anesthesia	Aspiration/Hook	2	3.84

The short-term evolution was marked by epistaxis in 23.07% of cases. The medium-term evolution was good in 96.16% of

cases and provided with acute otitis media and synechia in 1.92% each (Figure).

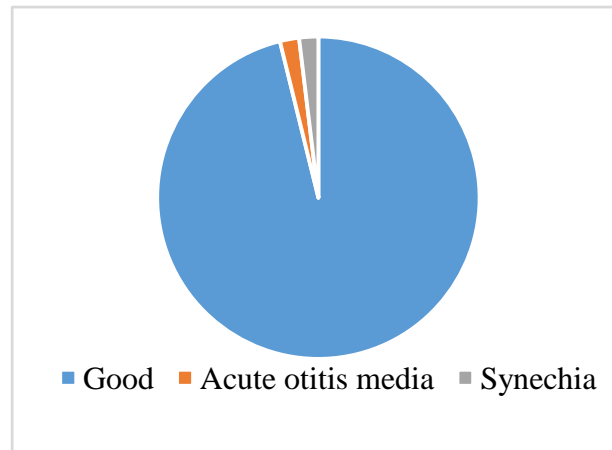


Figure : Evolution in medium-term

DISCUSSION

Nasal foreign bodies in this study represented 13.72% of ENT emergencies and 28.72% of foreign bodies in the ear, nose and throat. For Raveloson in 2015 in the same center as ours, he found 14.72% of emergencies and 22.26% of foreign bodies in the ENT (Raveloson 2016). According to Kharoubi, foreign bodies in the nasal cavities represent 3.9% of ENT emergencies and 27.2% of foreign bodies in the ENT sphere (Kharoubi 2010). Pegbessou et al found 23.62% of cases of foreign bodies in the ENT sphere (Pegbessou 2016). The nasal locations of foreign bodies occupy the second position (Abou-elfadl et al. 2015).

The average age is 3.9 years old according to Scholes and between 2 to 4 years old according to Kiger et al: this is the age at which children explore their body, mainly the cavities such as the nasal cavity, the ear and the mouth (Scholes and Jenssen 2016, Kiger et al. 2008). One of our cases is 35 years old, which is exceptional: the occurrence of foreign bodies in the nasal cavities in adults is secondary to a psychological disorder (Afolabi 2009).

We did not find a gender predominance. Several studies have found a male predominance because of the hyperactive

nature, the use of miniature toys and rounded or spherical objects (Kharoubi 2010, Mazumder et al. 2017).

The foreign body of the nasal cavities usually occurs in children without any particular history. However, it can be facilitated by the particular terrain: trisomy 21, psychomotor retardation or other infirmity (Kharoubi 2010).

The reason for consultation varies according to the authors. The suspicion of foreign bodies in the nasal cavities is a frequent reason for consultation for us because the majority of foreign bodies in the nasal cavities are introduced accidentally in the presence of an eyewitness (Endican et al. 2006, Regonne et al. 2017). Eighty-eight percent of cases are asymptomatic in ENT emergencies according to Claudet (Claudet et al. 2009). For Regonne et al, purulent rhinorrhea is the frequent reason for consultation (Regonne et al. 2017). Therefore, any child presenting with unilateral purulent and fetid rhinorrhea should raise suspicion of a foreign body in the nasal cavity (Pegbessou 2016).

The majority of our cases consulted within the first 24 hours of the accident; which agrees with literature data. The consultants

lived less than 10 km around our center (Kharoubi 2010, Pegbesou 2016, Regonne et al. 2017).

The anterior rhinoscopy with the otoscope is the means of diagnosis because of the narrowness of the nostril's children, too small for a nasal speculum designed for a classic anterior rhinoscopy. In other situations, turning up the tip of the nose makes it possible to identify the foreign body (Abou-elfadl et al. 2015). According to Oh et al, the systematic realization of the X-ray of the face to diagnose a foreign body of the nasal fossae is not necessary except in the context of a foreign body not found by anterior rhinoscopy and nasofibroscope (Oh et al. 2016).

Plant foreign bodies were the most frequently found in our study, followed by synthetic pearls. The predominance of foreign plant bodies in our case is explained by the ease access (drying in the open air, stalls at children's height) of children to agricultural products (corn, beans, peanuts,...) and seeds of fruit (Kharoubi 2010). According to Pegbessou et al, the socioeconomic and ethnocultural conditions in which children evolve predict the types of foreign bodies in the nasal cavities (Pegbessou et al. 2016). Several authors have found synthetic pearls classically (Kharoubi 2010, Claudet et al. 2009, Chinski et al. 2011, 14]. The acidity of the nasal pH causes the release of caustic substance by button batteries (Claudet et al. 2009). The latter, although rare, particularly exposes children to the risk of complications such as: burns, septal perforation and mucocutaneous necrosis requiring emergency extraction within 7 hours of insertion (Kharoubi 2010, Claudet et al. 2009).

The extraction of foreign bodies from the nasal cavities is done by several methods

which are grouped into instrumental and non-instrumental methods (Regonne et al 2017). Instrumental methods use forceps, hooks, curettes, Foley and Forgatty probes, aspiration. Non-instrumental methods include positive pressure techniques such as: the parent's kiss method and balloon insufflation (Regonne et al. 2017, Claudet et al. 2009). The choice of technique depends on the location, the type of foreign body, the age of the patient and the experience of the doctor (Diallo et al. 2018). The instrumental method with or without spraying local anesthesia is easy by using a headlamp or Clar mirror allowing direct visualization of the nostrils. Head stabilization should be done even in cooperating patients (Gabriel et al. 2014).Nosing can be tried in case of visible foreign body in the vestibule in an older child. The parent's kiss consists of putting the child in a sitting position, giving a big kiss from one of his parents, simultaneously obstructing the free nostril and blowing sharply into his mouth (Claudet et al. 2009). Repeated extraction may increase trauma and migration of the object to a less favorable location and may dislodge into the upper airway (Gabriel et al. 2014). The use of cyanoacrylate glue has been described in the literature (Coulet et al. 2008). Nasal washing with saline is necessary in case of friable foreign body; this technique is strictly contraindicated if the foreign body in the nasal cavities is a button battery due to the risk of electrolysis (Claudet et al. 2009). Extraction under general anesthesia is 15.5% according to Regonne et al in Senegal. It is indicated in the event of an enclaved foreign body or extraction failure in consultation and in non-cooperating children (Regonne et al. 2017). External surgery is reserved for complicated or particular forms (number and forms of the foreign body, anomaly or anatomical variations of the nasal cavities) (Kharoubi 2010). After extraction, nasal

washing with saline solution is the rule (Figueiredo et al. 2006).

The evolution after extraction of foreign bodies from the nasal cavities is generally good but not without complications. Epistaxis is the most common complication after extraction (Ogah et al. 2018; Francis et al. 2020). According to Ogah et al, this epistaxis resolves spontaneously or after pinching the wings of the nose without resorting to packing (Ogah et al. 2018). Other complications were found: formation of rhinolithiasis, erosion of surrounding structures and infections (Kalan et al. 2000). Cases of acute rhinosinusitis, acute epiglottitis, meningitis and acute otitis media have been described in the literature (Baranowski et al. 2021). Kharoubi mentioned that synechiae after foreign body of the nasal fossae require a section of the bridle and interposition of a sheet of silastic (Kharoubi 2010).

CONCLUSION

Nasal foreign body is a common situation in children, seen frequently on a daily basis ENT. The presence of an adult attending the accident confirms the diagnosis. The button battery in the nasal cavity is the foreign body to be feared because of the risk of tissue necrosis. Instrumental extraction is the typical method of extraction in good experienced hands. Epistaxis after extraction is not appalling, yielding spontaneously; infections like rhinosinusitis and acute otitis media can also occur.

Authors contribution

All authors have read and approved the final version of the manuscript.

Conflicts of interest

The authors declare no conflict of interest.

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