

Rhinological foreign bodies in Ekiti

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ABSTRACT

BACKGROUND: Nasal foreign body impaction is still a challenge due to high levels of pre-hospital unskilled attempted removal. This study aimed at determining the prevalence, sociodemographic features, etiology, clinical presentation, management, and outcome in a tertiary care center in Nigeria.

MATERIALS AND METHODS: This is a prospective hospital-based study of all patients with impacted rhinology foreign bodies. Consented patients were studied between October 2015 and September 2017. Interviewer-assisted questionnaire was used to collect data. Analysis of obtained data was done with SPSS version 16.0.

RESULTS: Prevalence of rhinological foreign body impaction was 2.4%. There were 67.1% males, and the male to female ratio was 1.5:1. There were 34.2% inorganic foreign bodies and 65.8% organic. Commonest foreign bodies were seeds, foam, and beads in 28.8, 24.7, and 15.1%, respectively. Unilateral foreign body was 98.6% and bilateral foreign body was 1.4%. Right was commoner than left in 53.4 and 45.2%, respectively. Major sources of referral were self-reporting in 34.2% and general practitioners in 24.7%. Commonest mode of presentation in this study was foreign body impaction in 91.8%, nasal blockage in 80.8%, and pain in 80.8%. Acute foreign body presentation was 98.3%, while chronic foreign body presentation was 2.7%. Commonest predisposing factors for rhinological foreign body were 16.4% allergy and 5.5% mental disorders. Associated disabilities with rhinological foreign body impaction were anxiety, irritability, and absenteeism in 15.1, 19.2, and 39.7%, respectively. In the management of the foreign body impaction, 91.8% objects were visualized. All patients had foreign body removed. Prehospital treatment occurred in 63.0%. 21.9% of the patients had conservative/medical treatment and bleeding controlled in 16.4%. Commonest associated complications were 9.6% epistaxis and 15.1% rhinosinusitis. 97.3% had foreign body removed without anesthesia. 83.6% patients were satisfied with the hospital treatment intervention.

CONCLUSION: Presentation of nasal foreign body impaction was common in otorhinolaryngologist practice worldwide. Nasal foreign body impaction is still a challenge due to high levels of complicated prehospital unskilled attempted removal.

KEYWORDS

rhinology, nose, foreign body impaction, Ekiti

INTRODUCTION

Rhinological foreign body impaction is a disorder of immovable lodgment of an object that can only be removed by skilled intervention. Nasal foreign bodies vary widely in type, shape and size, and chemical components. Foreign bodies may be organic or inorganic.¹ Inorganic foreign bodies are usually asymptomatic, and those discovered incidentally include beads, buttons, stones, paper, broken parts of toys, and plastics.² Organic foreign bodies produce earlier tissue reaction and symptoms because they lead to irritation of the nasal mucosa leading to secretion, and they include seed, insects, and so on.³ Type of foreign body insertion depends on the availability of the objects and absence or presence of watchful caregivers.⁴⁻⁶

There are various routes via which foreign bodies enter the nose, the anterior nares being the commonest, followed by posterior nares. Other route is by penetrating wounds have been reported as causes of nasal foreign body such as gun shot, blast injuries.⁷ Impacted nasal foreign bodies may come to be lodged in any part of the nasal fossa, but the commonest location is just anterior to the middle turbinate or below the inferior turbinate, and other regions were nasal vestibule, posterior choana, and the olfactory region.⁸ Bilateral nasal foreign body is very less common to unilateral foreign bodies that affect the right side about twice as often compared to the left. This may be due to the fact that most people are right handed with high possibility of right-handed individuals to insert objects in their right nares.⁹

Foreign bodies in the nose are common and childhood disorder and are relatively easily removed in an outpatient department.^{10,11} It is very rare among the adults, especially, those with alcoholism, road traffic accident, mental retardation, or psychiatric illness.

Both organic and inorganic nasal foreign bodies vary widely in type, shape, and size. These physical factors determine the degree of nasal obstruction, discomfort, degree of injury, time of presentation, and management of acute state. In chronic state, inorganic foreign bodies are inert and may remain asymptotic in the nose for months to years without mucosal reactions. In chronic state, organic nasal foreign body induced inflammation changes leading to mucous secretion, mucous stasis with superimposed infection that leads to offensive mucopurulent discharge with or without bleeding, and sedimentation around the foreign body that leads to rhinolith formation.¹² This feature is commonly unilateral in patients. Patients usually children with prolonged unilateral offensive nasal mucopurulent discharge with or without bleeding is a nasal foreign body impaction until proven otherwise.^{13,14}

Impacted nasal foreign bodies are commonly encountered in emergency departments. Procedure for the removal of foreign bodies is very common in daily medical and otolaryngologists practice worldwide.¹⁵ Rate of unskilled prehospital intervention is alarming, which leads to various forms of complications at presentation to the specialist, although more cases are frequently seen in the pediatric and family medical settings.

This study aimed at determining the prevalence, sociodemographic features, etiology, clinical presentation management, and outcome of nasal foreign bodies in a tertiary care center in Nigeria.

MATERIALS AND METHODS

This was a prospective hospital-based study of patients with clinical features of rhinological foreign bodies in the Ear, Nose and Throat Department of Ekiti State University Teaching Hospital, Ado Ekiti, Nigeria. The study was carried out between January 2015 and December 2017. All the patients with features of rhinological foreign bodies were enrolled in the study. Data obtained from the patient during study included demographic data: presenting symptoms,

duration of symptoms, nature of objects, and pre-hospital and hospital management. These were followed by detailed ear, nose, and throat examination. Findings of the detailed clinical examinations were documented, particularly, anterior rhinoscopic findings.

The diagnosis of rhinological foreign bodies in each patient was based on history and clinical findings. Treatment techniques for the removal of the nasal foreign bodies were noted and documented. All associated complications from the foreign bodies or with prehospital and hospital treatments were also noted.

Data were obtained by using pretested interviewer-assisted questionnaire. All data obtained were documented.

All data were collated and analyzed using SPSS version 16.0. The data were expressed by frequency table, percentage, bar charts, and pie charts.

Ethical clearance for this study was sought for and obtained from ethical committee of the institution.

RESULTS

A total of 2987 patients were seen in ear, nose, and throat department during the study period, 73 (2.4%) of whom had nasal foreign body.

The major prevalence of the nasal foreign body impactions was 61 (83.6%), which was found in the younger age group (1–10 years). Age group distribution of the patients is shown in Table 1.

Based on the sociodemographic features, there were 49 (67.1%) males and 24 (32.9%) females with male to female ratio of 2:1. Urban dwellers (43 [58.9%]) were predominant over rural dwellers (30 [41.1%]). Commonest forms of parental education among the patients were primary, secondary, and no formal education in 23 (31.5%), 21 (28.8%), and 15 (20.5%), respectively. The majority of the parental occupation was as follows: 24 (32.9%) farming, 14 (19.2%) driver, 8 (11.0%) artisans, and 8 (11.0%) business. The minority of parental occupation was as follows: 3 (4.1%) student/apprentice and 6 (8.2%) applicants. Table 2 illustrates the sociodemographic features of patients with nasal foreign body.

In this study, the main types of nasal foreign body impactions were as follows: 25 (34.2%) inorganic foreign bodies and 48 (65.8%) organic (living or dead) foreign bodies. Commonest otorhinolaryngology foreign bodies were seeds, foam, and beads in 21 (28.8%), 18 (24.7%), and 11 (15.1%), respectively. Less common foreign bodies were cotton wool, battery, and stone in 2 (2.7%), 4 (5.5%) and 4 (5.5%), respectively. Table 3 demonstrates pattern of foreign body.

The anatomical location of nasal foreign body impaction were unilateral nasal foreign body was more common than bilateral nasal foreign body 72 (98.6%) for the former and 1 (1.4%) for the latter.

■ Table 1 Age group distribution of the patients

Age group (years)	Number	Percentage
1–10	61	83.6
11–20	9	12.3
21–30	0	0
31–40	0	0
41–50	1	1.4
51–60	1	1.4
≥61	1	1.4
	73	

Table 2 Sociodemographic features of patients with rhinological foreign body

Sociodemographic features	Number	Percentage
Sex		
Male	49	67.1
Female	24	32.9
Residential		
Urban	43	58.9
Rural	30	41.1
Parent education level		
No formal education	15	20.5
Primary	23	31.5
Secondary	21	28.8
Postsecondary	11	15.1
Parent occupation		
Farming	24	32.9
Business	8	11.0
Student/apprentice	3	4.1
Driver	14	19.2
Industrial worker	7	9.6
Applicant	6	8.2
Artisans	8	11.0

Table 3 Pattern of foreign body

Etiology	Number	Percentage
Paper	7	9.6
Seeds	21	28.8
Chalk	6	8.2
Battery	4	5.5
Foam	18	24.7
Bead	11	15.1
Cotton wool	2	2.7
Stone	4	5.5
	73	

The left nasal foreign body was less common than right nasal foreign body in 33 (45.2%) and 39 (53.4%), respectively. Figure 1 shows anatomical distribution of otorhinolaryngology foreign body.

Major sources of referral were self-reporting in 25 (34.2%) and general practitioners in 18 (24.7%). Minor sources of referral were from pediatrician in 12 (16.4%) and casualty officer in 37 (17.8%). The components of other sources of referral include 1 (1.4%) traditional healer and 2 (2.7%) spiritual healers. Figure 2 shows the sources of referral of the patients.

The commonest modes of presentation in this study were foreign body impaction in 67 (91.8%), nasal blockage in 59 (80.8%), and pain

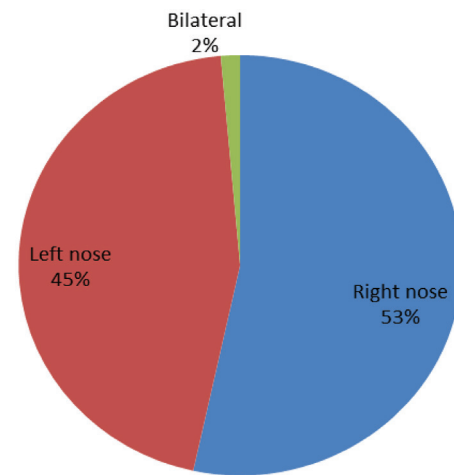


Figure 1 Lateralization of rhinological foreign body.

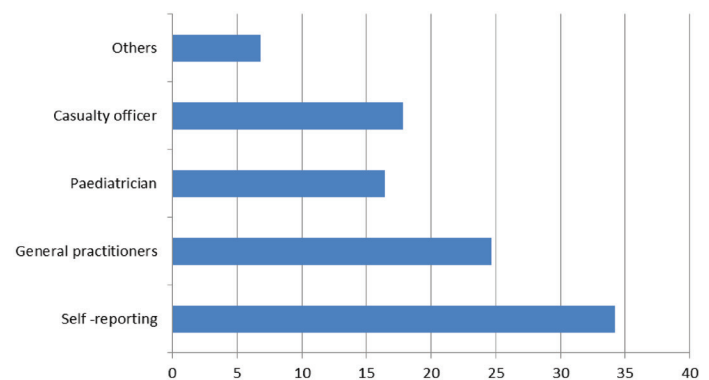


Figure 2 Sources of referral of the patients.

Table 4 Clinical features of rhinological foreign body

Clinical features	Number	Percentage
Foreign body insertion	67	91.8
Pain	59	80.8
Nasal blockage	59	80.8
Headache	21	28.8
Referred otalgia	14	19.2
Lacerations	12	16.4
Bleeding	44	60.3
Fever	11	15.1
Catarrh	26	35.6

in 59 (80.8%). Others were bleeding in 44 (60.3%) and discharge/catarrh in 26 (35.6%). Single episode of foreign body impaction in 71 (97.3%) was commoner than recurrent cases of foreign body impaction in 2 (2.7%) patients. Table 4 demonstrates clinical features of rhinological foreign body.

There were acute foreign body presentation in 71 (98.3%) and commoner than chronic foreign body impaction (≥ 13 weeks) presentation in 2 (2.7%). Common acute presentations were 1–4 weeks in 66 (90.4%) and 5–8 weeks in 4 (5.5%). The duration of symptoms

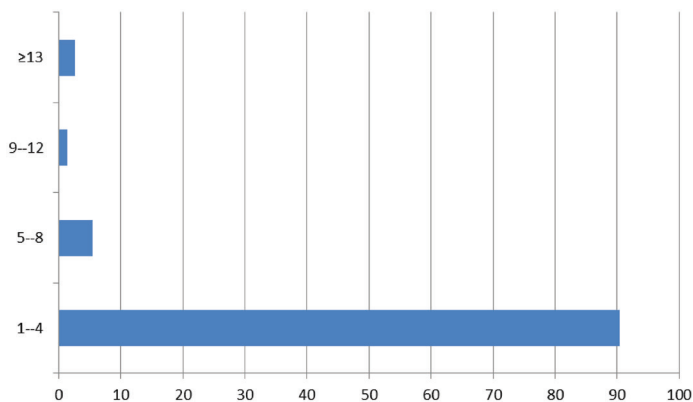


Figure 3 Symptoms duration of rhinological foreign body.

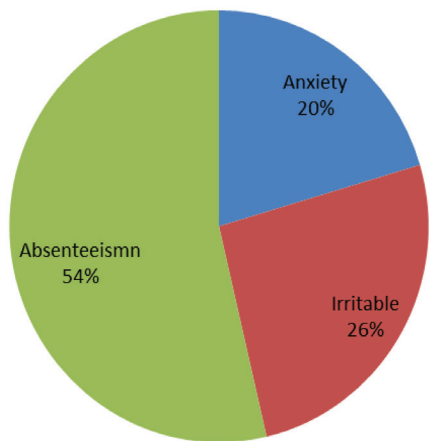


Figure 4 Disability among the patients.

of foreign body is illustrated in Figure 3. In this study, commonest predisposing factors for rhinological foreign body impaction were 12 (16.4%) allergy and 4 (5.5%) mental disorders.

Common disabilities associated with rhinological foreign body impaction in this study were anxiety, irritability, and absenteeism in 11 (15.1%), 14 (19.2%), and 29 (39.7%), respectively. Disability associated with foreign body impaction is shown in Figure 4.

In the management of rhinological foreign body impaction, 67 (91.8%) objects were visualized, 6 (8.2%) objects were not visualized who had radiological imaging, 4 (5.5%) of which were radio opaque objects. All the patients had the foreign body removed. Pre-hospital treatment occurred in 46 (63.0%) of the studied patients. 16 (21.9%) of the patients had conservative/medical treatment. Bleeding control was done in 12 (16.4%) patients. In this study, commonest associated complications of impacted foreign body were 7 (9.6%) epistaxis and 11 (15.1%) rhinosinusitis. Other was nasal septal abscess in 2 (2.7%). 71 (97.3%) patients had removed foreign bodies without anesthesia, while 2 (2.7%) foreign bodies were removed under anesthesia. 61 (83.6%) patients were satisfied with the hospital treatment intervention. Table 5 illustrates management of foreign body.

DISCUSSION

Rhinological foreign body impaction is a common otorhinolaryngology condition in ear, nose, and throat and head and neck practice worldwide. This was demonstrated with the high prevalence of 2.4%

Table 5 Management pattern among the patients

Treatment patterns	Number	Percentage
Management		
Prehospital treatment	46	63.0
Conservative treatment	16	21.9
Foreign body removal	73	100
Epistaxis control	12	16.4
Blood transfusion	1	1.4
Complications		
Rhinosinusitis	11	15.1
Epistaxis	7	9.6
Nasal septal abscess	2	2.7
Type of anesthesia		
No anesthesia	69	94.5
General anesthesia	4	5.5
Patients satisfaction		
Satisfactory	61	83.6
Unsatisfactory	12	16.4

in this study. Most of the cases presented in accident and emergency department of the institution.

Impacted nasal foreign bodies are common in children but rare in adult in this study. This is similar to records from the previous study.¹⁶ During childhood nasal orifice exploration is at its peak. In this study, nasal foreign body impaction was recorded in few adult patients. Insertion of nasal foreign bodies in these adults was associated with magical, therapy and mental disorder as recorded in the previous study.¹⁷

There is male preponderance over female in this study. This is in agreement with findings in other studies.^{1,17} Most of the episodes of foreign body insertion occurred both at home and school. These findings were in agreement with the other study.⁶

Almost all the studied patients presented to the specialist in acute state, while very few cases presented with chronic disorder. This is similar to the study elsewhere, in which the majority is presented in acute state.¹ Pain, discomfort, and associated difficulty breathing may be a pointer alert for the parents and caregivers. Chronic presentation may be due to small or inorganic foreign body impaction or mild reaction with parent alerted by offensive unilateral nasal mucopurulent discharge with or without epistaxis. These findings were recorded in the previous study.¹⁸

Organic nasal foreign body is commoner than inorganic nasal foreign body among the studied patients. Organic matter is a common agent used as toy by children in low income parents. Commonest foreign bodies in our study were seeds and foams, which are organic matters. These findings were also reported in an African study.¹⁶ Patterns of the seeds in this study include bean, groundnut, maize, soybeans, and orange seeds. Other common implicated organic foreign bodies are foam, paper, polyethylene, and rubber plastic. In this study, common inorganic foreign bodies were stone and beads. Beads are used in hair plating, necklace, and earring all for beautification.

In this study, nasal foreign bodies are commonly inserted in the right nostril, and this is similar to reports from another study.¹⁶ This

may be because right-handed individuals are dominant in the majority of the studied patients. Bilateral rhinological foreign body impaction was not common in this study. Simultaneous bilateral nasal foreign body impaction were rare other study.¹⁹

History of nasal object insertion, pain, nasal blockage, and epistaxis were common in this study. Epistaxis was due to unskilled attempted removal at home by sympathizers or nonspecialist health workers leading to nasal injury. These were also documented in the studies by Olatoke et al and Afolabi and Ologe.^{20,21} Patients with accidental findings are very rare in this study.

The complications of nasal foreign body impaction in this study were unskilled attempted removal, nature, size, shape, and duration of the object before removal.¹⁵ Commonest complications of nasal foreign body impaction are rhinosinusitis and epistaxis.

During presentation in ear, nose, and throat department, unstable patients were first stabilized by ABC methods of resuscitation. These were mandatory on patients with compromised airway and epistaxis.

In this study, adopted methods of foreign bodies removal depend on objects nature, size, and shape and also the anatomical extents of object in nasal cavity. This also includes patients' age and clinical state. The methods used include suctioning, forceps removal, hooks, and probes.²² Important instruments used for otorhinolaryngology foreign body impaction removal in this study were good light source, functioning suction machine, nasal speculum, tongue depressor, different types and size of forceps and suction tips. Appropriate instruments and method in this study reduce further trauma, complications, morbidity, and mortality in our practice. In this study, no anesthesia was required in cooperative patients with visualized impacted foreign body. Anesthesia was only given in anxious, unstable patients with unvisualized object. Obscure object may be due to bleeding, secretion, and tissue penetration deeper into nasal.

The complications were managed by medical and surgical treatments. Patients, parents, guardians, and caregivers were educated on predisposing factors such as effect of keeping potential foreign body out of reach of children.²³ Further education on danger of unskilled prehospital intervention on both unsighted and sighted foreign body impaction must be avoided to prevent avoidable complications.

CONCLUSION

Presentation of nasal foreign body impaction was common in otorhinolaryngologist practice worldwide. Nasal foreign body impaction is still a challenge due to high levels of pre-hospital unskilled attempted removal. Training of primary health workers and general practitioners will increase their skill. Referral of difficult patients to specialist is recommended.

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COMPETING INTERESTS

All the authors declare that there were no competing interests.

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REFERENCES

1. Roland NJ, McRae RDR, McCombe AW. Key topics in otolaryngology and head and neck surgery. 3rd ed. Oxford: BIOS Scientific Publishers; 2005. p. 104.
2. Ngo A, Ng KC, Sim TP. Otolaryngeal foreign bodies in children presenting to emergency department. *Singapore Med J*. 2005;46:172–8.
3. Backlinb SA. Positive pressure technique for nasal foreign body removal in children. *Ann Emerg Med*. 1995;25(4):554–5.
4. Afolabi OA, Salaudeen AG, Alabi BS, Lasisi AO. Correlation of aural foreign bodies with handedness: an observational study in a Nigerian tertiary hospital. *J Clin Med Res*. 2010;2:79–82.
5. Engelsma RJ, Lee WC. Impacted aural foreign body requiring endaural incision and widening for removal. *Int J Pediatr Otorhinolaryngol*. 1998;44(2):169–71.
6. Ologe FE, Dunmade AD, Afolabi OA. Aural foreign body in children. *Indian J Pediatr*. 2007;74(8):755–8.
7. Walby AP. Foreign bodies in the ear or nose. In: Adam DA, Ginnamond MJ, editors. *Scottbrown's paediatric otolaryngology*. 6th ed. Oxford: Butterworth-Heinemann; 1997. p. 218–9.
8. Baluyot ST. Foreign bodies in the nasal cavity. In: Paparella MM, Shumrick DA, editors. *Otolaryngology*. Vol 3. 2nd ed. Philadelphia, PA: W.B. Saunders; 1980. p. 2009–16.
9. Chan TC, Ufberg J, Harrigan RA, Vilke GM. Nasal foreign body removal. *J Emerg Med*. 2004;26(4):441–5.
10. Botma M, Bader R, Kubba H. A parent's kiss: evaluating an unusual method for removing nasal foreign body in children. *J Laryngol Otol*. 2000;114:598–600.
11. Kadish HA, Corneli HM. Removal of nasal foreign bodies in paediatric population. *Am J Emerg Med*. 1997;15:54–6.
12. Kalan A, Tariq M. Foreign bodies in the nasal cavities: a comprehensive review of the aetiology, diagnostic pointers, and therapeutic measures. *Postgrad Med J*. 2000;76:484–7.
13. Cohen HA, Goldberg E, Horev Z. Removal of nasal foreign bodies in children. *Clin Pediatr (Phila)*. 1993;32:192.
14. Kiger JR, Brenkert TE, Losek JD. Nasal foreign body removal in children. *Pediatr Emerg Care*. 2008;24(11):785–92.
15. Francois M, Hamrioui R, Narcy P. Nasal foreign bodies in children. *Eur Arch Otorhinolaryngol*. 1998;255(3):132–4.
16. Ogunleye AOA, Sogebi OA. Nasal foreign body in African children. *Afr J Med Sci*. 2004;33:225–8.
17. Afolabi OA, Suleiman AO, Aremu SK, Eletta AP, Alabi BS, Segun-Busari S, et al. An audit of paediatric nasal foreign bodies in Ilorin, Nigeria. *SAJCH*. 2009;3(2):64–7.
18. Tong MC, Ying SY, Vanhaselt CA. Nasal foreign bodies in children. *Int J Paediatr Otorhinolaryngol*. 1996;35:207–11.
19. Wada I, Miskima H, Hida T, Kase Y, Limima T. Nasal foreign bodies in 299 cases. *Nippon Jibiinkoka Gakkai Kaiho*. 2000;103:1212–7.
20. Olatoke F, Ologe FE, Alabi BS, Dunmade AD, Segun-Busari S, Afolabi OA. Epistaxis: a 5 year review. *Saudi Med J*. 2006;27(7):1077–9.
21. Afolabi AO, Ologe FE. Management of epistaxis. *Postgraduate Doctor Caribbean*. 2006;22(2):54–61.
22. Ryan C, Ghosh A, Smit D, Boyd WB, O'Leary S. Adult aural foreign bodies. *Internet J Otorhinolaryngol*. 2006;4(2):1–6.
23. Despres N, Lapointe A, Quintal MC, Arcand P, Giguere C, Abela A. 3-Year impact of a provincial choking prevention program. *J Otolaryngol*. 2006;35(4):216–1.