

PREVALENCE OF FOREIGN BODIES IN NASOPHARYNGEAL AND OROPHARYNGEAL PATHWAYS IN SUBJECTS REPORTING TO ENT DEPARTMENT: A PROSPECTIVE STUDY

Dr. Barun Kumar Bhattacharjee,¹ Dr. Paromita Patra,^{2*} Dr. Sk. Ramiz Islam³

¹MBBS, MS, DNB, Professor and Head, Department of Otorhinolaryngology, Mata Gujari Memorial Medical College, Kishanganj, Bihar

^{2*}MBBS, DLO, DNB, Associate Professor, Department of Otorhinolaryngology, Mata Gujari Memorial Medical College, Kishanganj, Bihar

³MBBS, MS ENT PGT 2nd year, Department of Otorhinolaryngology, Mata Gujari Memorial Medical College, Kishanganj, Bihar

Corresponding author: Dr. Paromita Patra

Email: dr.paromita@gmail.com

ABSTRACT

Background: Foreign bodies in the oropharyngeal and nasopharyngeal pathways can have fatal impacts and are commonly seen in routine medical practice.

Aim: The present study aimed to assess the prevalence of foreign bodies in nasopharyngeal and oropharyngeal pathways in subjects reporting to the ENT (Ear, Nose, and Throat) Department of an Institute.

Methods: The present prospective study assessed 100 subjects from both genders who presented to the Outpatient Department of ENT with foreign body obstruction in oropharyngeal or nasopharyngeal pathways.

Results: More prevalence of foreign bodies was seen in male subjects compared to females from lower to middle-income groups and urban populations. The majority of the foreign bodies in the oropharyngeal pathway were single in number. Majority of the cases presented in the acute period with the most common foreign body being fish bone. Child subjects showed excessive salivation, food refusal, and excessive crying, whereas, adults with nasopharyngeal foreign bodies presented with dysphagia. Following treatment, the hospital stay duration was 24-48 hours.

Conclusion: The study concludes that oropharyngeal and nasopharyngeal foreign bodies are more commonly seen in adult males from the middle age group and urban population compared to females with the most commonly obstructed being chicken bone and fish bones.

Keywords: Foreign body, nasopharyngeal pathway, oropharyngeal pathway

INTRODUCTION

The incidence of foreign bodies in ENT (ear, nose, and throat) are commonly reported to the primary care settings, physicians, emergency surgeons, pediatricians, and/or otorhinolaryngologists.¹ These foreign bodies account for nearly 11% of all the cases reported to the emergency services of the ENT department. These foreign bodies can lead to morbidity and

mortality, if not managed properly. Also, these foreign bodies pose a financial burden when managed.²

These foreign bodies can be inserted either accidentally or spontaneously in the nasopharyngeal or oropharyngeal regions. These foreign body incidences are reported in both children and adults.³ Usually, a higher incidence is seen in young subjects that can be attributed to various factors including the absence of watchful caregivers, easy object availability, attention deficit hyperactivity disorder, insanity, intellectual disabilities, playing, boredom, imitation, and/or curiosity of exploring the orifices.⁴

These foreign body obstructions have varying impacts and outcomes reporting from disturbances showing a low impact with no need of hospitalization to hospitalization and even death. These outcomes are governed by various factors including the anatomical site involved, the dimensions of foreign bodies, the shape of foreign bodies, and their chemical composition.⁵

Previous literature data has shown that the incidence of foreign bodies is commonly seen in subjects from the younger age group compared to adult subjects. In the ENT practice, foreign body obstruction of varying nature is reported in subjects from different age groups.⁶ In the present study, the majority of the foreign body incidences were seen in male adult subjects from middle-aged groups. The literature data is scarce with consideration of demographic data with the foreign bodies in the oropharyngeal and nasopharyngeal pathways.⁷ Hence, the present study aimed to assess the prevalence of foreign bodies in nasopharyngeal and oropharyngeal pathways in subjects reporting to the ENT (Ear, Nose, and Throat) Department of an Institute. The demographic data gathered were gender, age, residence, and social status. These data were correlated and categorized with clinical features, foreign body types, method of removing the foreign body, and the duration of hospital stay.

MATERIALS AND METHODS

The present prospective clinical study was done to assess the prevalence of foreign bodies in nasopharyngeal and oropharyngeal pathways in subjects reporting to the ENT (Ear, Nose, and Throat) Department of an Indian Institute. The study was done at Department of Otorhinolaryngology, Mata Gujari Memorial Medical College, Kishanganj, Bihar. Before study participation, informed consent was taken from all the participants in verbal and written format.

The study included 100 subjects from both genders aged 6 months and above. All the included subjects had a positive history of foreign body ingestion. The included subjects were admitted to the Department of ENT of the institute. For all the subjects, baseline investigations were done and the subjects were screened to assess the foreign body in the nasopharyngeal or oropharyngeal pathway with the help of indirect or direct laryngoscopy under either shirt GA or local anesthesia.

The included 100 participants were then divided into 8 groups based on their age with 0-9 years, 10-19 years, 20-29 years, 30-39 years, 40-49 years, 50-59 years, 60-69 years, and 70 years and above. Also, foreign bodies were categorized depending on their type as a broken denture, chicken bone, fish bone, coin, and/or sharp metal, etc. The sites of the foreign body were classified as a posterior wall, para tonsil, and tonsil for the oropharyngeal region, and the

posterior wall, lateral wall, and roof for the nasopharyngeal region. Also, the number of foreign bodies was recorded.

The subjects were further divided into 3 categories based on their income to high-, middle-, and low-income groups with incomes of >10 lacs, 2-10 lacs, and <2 lacs per annum. The residential areas were assessed as rural, suburban, and urban groups. The clinical features assessed were refusal of food and instant crying in children (>4 years) along with dysphagia, excessive salivation, drooling, choking/Globus, and vomiting. The treatment given was the removal of the foreign body using either FOB (fiber-optic bronchoscopy), IDL (indirect laryngoscopy), or DL (direct laryngoscopy). The hospital stay duration was the number of days postoperatively.

The data were analyzed with statistical evaluation using SPSS software version 21.0 (IBM, NY, USA) and a chi-square test where the level of significance was kept at $p < 0.05$.

RESULTS

The study assessed 58 males and 42 females. The majority of the study subjects were in the age range of 30-39 years with 16% (n=16) subjects followed by 14% (n=14) subjects from 0-9, 40-49, and 50-59 years of age, 12% (n=12) subjects each from 10-19, 20-29, and 60-69 years of age, and least 6% (n=6) subjects from the age of 70 years or more. There were 8% (n=8), 39% (n=39), and 53% (n=53) subjects from high, middle, and low-income groups respectively. There were 3% (n=3), 64% (n=64), and 33% (n=33) subjects from rural, urban, and semi-urban localities respectively as shown in Table 1.

Among foreign bodies, 76% (n=76) obstructions were in the oropharyngeal region, whereas, 24% (n=24) obstructions were in the nasopharyngeal region. In the oropharyngeal region, 9% (n=9), 47% (n=47), 35% (n=35), 4% (n=4), and 5% (n=5) foreign bodies were in the tonsil, paratonsil, posterior wall, lateral wall, and inlet regions respectively. In the nasopharyngeal foreign body ingestion, 84% (n=84), 2% (n=2), and 14% (n=14) foreign bodies were in the posterior wall, lateral wall, and roof region respectively as depicted in Table 2. 98% of cases of foreign bodies were reported in the acute phase, whereas, 2% had the chronic presentation.

Concerning the factors of foreign bodies in the study subjects, single foreign body obstruction was seen in 94% (n=94) subjects, and more than one foreign body was seen in 6% (n=6) study subjects. The majority of the foreign bodies were fish bones in 52% (n=52) subjects followed by chicken bones in 32% (n=32) subjects, coins in 4% (n=4) subjects, and sharp metal and broken dentures in 6% (n=6) study subjects each. The most common reported symptom was dysphagia seen in all 100% (n=100) study subjects followed by Instant crying, excessive salivation, and refusal to eat in children (<4 years) in 10% (n=10) study subjects, vomiting in 8% (n=8) study subjects and choking in coin obstruction in 4% (n=4) study subjects (Table 3).

For the management of the foreign bodies in oropharyngeal and nasopharyngeal regions, direct laryngoscopy was done in 56% (n=56) study subjects followed by indirect laryngoscopy in 22% (n=22) study subjects, and FOB (fiberoptic bronchoscopy) in 22% (n=22) study subjects. The duration of hospital stay was 24 hours in 76% (n=76) study subjects followed by 48 hours in 19% (n=19) study subjects, 72 hours in 5% (n=5) study subjects, and >72 hours in no study subjects as shown in Table 4.

DISCUSSION

The present prospective clinical study was done to assess the prevalence of foreign bodies in nasopharyngeal and oropharyngeal pathways in subjects reporting to the ENT (Ear, Nose, and Throat) Department of an Indian Institute. The study included 58 males and 42 females. The majority of the study subjects were in the age range of 30-39 years with 165 (n=16) subjects followed by 14% (n=14) subjects from 0-9, 40-49, and 50-59 years of age, 12% (n=12) subjects each from 10-19, 20-29, and 60-69 years of age, and least 6% (n=6) subjects from the age of 70 years or more. There were 8% (n=8), 39% (n=39), and 53% (n=53) subjects from high, middle, and low-income groups respectively. There were 3% (n=3), 64% (n=64), and 33% (n=33) subjects from rural, urban, and semi-urban localities respectively. These demographics were comparable to the previous studies of Shreshtha I et al⁸ in 2012 and Thompson SK et al⁹ in 2003 where authors assessed subjects with demographics comparable to the present study.

On assessing the site of foreign body obstruction, it was seen that among foreign bodies, 76% (n=76) obstructions were in the oropharyngeal region, whereas, 24% (n=24) obstructions were in the nasopharyngeal region. In the oropharyngeal region, 9% (n=9), 47% (n=47), 35% (n=35), 4% (n=4), and 5% (n=5) foreign bodies were in the tonsil, para-tonsil, posterior wall, lateral wall, and inlet regions respectively. In the nasopharyngeal foreign body ingestion, 84% (n=84), 2% (n=2), and 14% (n=14) foreign bodies were in the posterior wall, lateral wall, and roof region respectively. 98% of cases of foreign bodies were reported in the acute phase, whereas, 2% had the chronic presentation. These results were consistent with the findings of Kim SY et al¹⁰ in 2015 and Kamath P et al¹¹ in 2006 where authors reported more obstruction in the oropharyngeal region compared to the nasopharyngeal region in the para-tonsillar region and posterior wall region respectively.

For the factors of foreign bodies in the study subjects, single foreign body obstruction was seen in 94% (n=94) subjects, and more than one foreign body was seen in 6% (n=6) study subjects. The majority of the foreign bodies were fish bones in 52% (n=52) subjects followed by chicken bones in 32% (n=32) subjects, coins in 4% (n=4) subjects, and sharp metal and broken dentures in 6% (n=6) study subjects each. The most common reported symptom was dysphagia seen in all 100% (n=100) study subjects followed by Instant crying, excessive salivation, and refusal to eat in children (<4 years) in 10% (n=10) study subjects, vomiting in 8% (n=8) study subjects and choking in coin obstruction in 4% (n=4) study subjects. These results were in agreement with the results of Mukherjee A et al¹² in 2011 and Sarkar S et al¹³ in 2010 where authors reported the majority of single foreign body obstruction.

Concerning the management of the foreign bodies in oropharyngeal and nasopharyngeal regions, direct laryngoscopy was done in 56% (n=56) study subjects followed by indirect laryngoscopy in 22% (n=22) study subjects, and FOB (fiberoptic bronchoscopy) in 22% (n=22) study subjects. The duration of hospital stay was 24 hours in 76% (n=76) study subjects followed by 48 hours in 19% (n=19) study subjects, 72 hours in 5% (n=5) study subjects, and >72 hours in no study subjects. These results were in line with the findings of Singh S et al¹⁴ in 2007 and Silva BSR et

al¹⁵ in 2009 where authors, in their studies, reported the most common management of foreign bodies by direct laryngoscopy and FOB with hospital stay duration of 24-48 hours.

CONCLUSION

Considering its limitations, the present study concludes that oropharyngeal and nasopharyngeal foreign bodies are more commonly seen in adult males from the middle age group and urban population compared to females with most commonly obstructed being chicken bone and fish bones. However, further studies are warranted with a larger sample size to reach a definitive conclusion.

REFERENCES

1. Ansley J F, Cunningham M J. Treatment of aural foreign bodies in children *Pediatrics*. 1998;101:638-41.
2. Yuca K, Yuca S A, Caksen H. Aural live foreign bodies in children. *J Emerg Med*. 2003;25:102-4.
3. Bressler K, Shelton C. Ear foreign-body removal: a review of 98 consecutive cases *Laryngoscope*. 1993;103:367-70.
4. Figueiredo R R, Azevedo A A, Kós A O, Tomita S. Complications of ENT foreign bodies: a retrospective study. *Rev Bras Otorrinolaringol (Engl Ed)* 2008;74:7-15.
5. Harlan L C, Harlan W R, Parsons P E. The economic impact of injuries: a major source of medical costs. *Am J Public Health*. 1990;80:453-9.
6. Gregori D, Scarinzi C, Berchiolla P et al. The cost of foreign body injuries in the upper aero-digestive tract: the need for a change from a clinical to a public health perspective? *Int J Pediatr Otorhinolaryngol*. 2007;71:1391-8.
7. Pecorari G, Tavormina P, Riva G, Landolfo V, Raimondo L, Garzaro M. Ear, nose and throat foreign bodies: the experience of the Pediatric Hospital of Turin. *J Paediatr Child Health*. 2014;50:978-84.
8. Shrestha I, Shrestha B L, Amatya R CM. Analysis of ear, nose, and throat foreign bodies in Dhulikhel hospital *Kathmandu Univ Med J (KUMJ)*. 2012;10:384-8.
9. Thompson S K, Wein R O, Dutcher P O. External auditory canal foreign body removal: management practices and outcomes. *Laryngoscope*. 2003;113:1912-5.
10. Analysis of ingested foreign bodies according to age, type, and location: a retrospective observational study. *Clin Otolaryngol*. 2015;41:640-5.
11. Kamath P, Bhojwani KM, Prasannaraj T, Abhijith K. Foreign bodies in the aerodigestive tract: a clinical study of cases in the coastal belt of South India. *Am J Otolaryngol*. 2006;27:373-7.
12. Mukherjee A, Haldar D, Dutta S, Dutta M, Saha J, Sinha R. Ear, nose and throat foreign bodies in children: a search for socio-demographic correlates. *Int J Pediatr Otorhinolaryngol*. 2011;75:510-2.
13. Sarkar S, Roychoudhury A, Roychoudhuri B K. Foreign bodies in ENT in a teaching hospital in Eastern India. *Indian J Otolaryngol Head Neck Surg*. 2010;62:118-20.

14. Singh G B, Sidhu T S, Sharma A, Dhawan R, Jha S K, Singh N. Management of aural foreign body: an evaluative study in 738 consecutive cases. *Am J Otolaryngol.* 2007;28:87–90.
15. Silva B SR, Souza L O, Camera M G, Tamiso A GB, Castanheira L VR. Foreign bodies in otorhinolaryngology: a study of 128 cases. *Int Arch Otorhinolaryngol.* 2009;13:394–9.

TABLES

S. No	Characteristics	Percentage (%)	Frequency (n)
1.	Gender		
a)	Males	58	58
b)	Females	42	42
2.	Age (years)		
a)	0-9	14	14
b)	10-19	12	12
c)	20-29	12	12
d)	30-39	16	16
e)	40-49	14	14
f)	50-59	14	14
g)	60-69	12	12
h)	70 and above	6	6
3.	Income		
a)	High	8	8
b)	Middle	39	39
c)	Low	53	53
4.	Locality		
a)	Rural	3	3
b)	Urban	64	64
c)	Semi-urban	33	33

Table 1: Demographic data of study participants

S. No	Site	Percentage (%)	Frequency (n)
1.	Oropharyngeal		
a)	Tonsil	9	9
b)	Para-tonsil	47	47
c)	Posterior wall	35	35
d)	Lateral wall	4	4
e)	Inlet	5	5
2.	Nasopharyngeal		
a)	Posterior wall	84	84
b)	Lateral wall	2	2
c)	Roof	14	14

Table 2: Site of the foreign body in study subjects

S. No	Foreign body parameter	Percentage (%)	Frequency (n)
-------	------------------------	----------------	---------------

1.	Number		
a)	Single	94	94
b)	>1	6	6
2.	Type		
a)	Fishbone	52	52
b)	Chicken bone	32	32
c)	Coin	4	4
d)	Sharp metal	6	6
e)	Broken denture	6	6
3.	Symptom		
a)	Dysphagia	100	100
b)	Instant cry, excessive salivation, and refusal to eat	10	10
c)	Vomiting	8	8
d)	Choking	4	4

Table 3: Parameters associated with the foreign bodies in the study subjects

S. No	Management and outcomes	Percentage (%)	Frequency (n)
1.	Management		
2.	Indirect laryngoscopy	22	22
3.	Direct laryngoscopy	56	56
4.	FOB (fiberoptic bronchoscopy)	22	22
5.	Hospital stays duration (hours)		
a)	24	76	76
b)	48	19	19
c)	72	5	5
d)	>72	0	0

Table 4: Treatment and outcomes for foreign bodies in study subjects