Foreign Body Aspiration in Ear, Nose and Throat among Children Under 13 Years of Age

Yasir Maqsood¹, Mukhtar Ibrahim², Murtaza Ahsan Ansari³

ABSTRACT

Objective: To determine the foreign body aspiration in ear, nose and throat among children under 13 years of age attending tertiary care hospital, Karachi, Pakistan.

Methods: This descriptive cross-sectional study was conducted among children under 13 years of age attending Outpatient Department (OPD) or emergency room with history of foreign body aspiration or children among whom foreign body was retrieved during surgery. All information like age, gender, sharpness of foreign body, type of foreign body, requirement of general anaesthesia and site of foreign body were observed.

Results: Out of total 181 children, foreign body aspiration of toys/beads (n=66, 36.5%) stone/metal (n=45, 24.9%), and plant/seed nut (n=28, 15.5%), were observed in majority of the patients. Most of the children (n=108, 59.7%) ingested/inserted foreign body during playing while 73 (40.3%) children ingested/inserted foreign body during eating. A significant association of site of foreign bodies were observed with sharpness of foreign body (p-value <0.001), type of foreign bodies (p-value <0.001) and general anaesthesia (p-value <0.001). Similarly type of foreign bodies were significantly associated with gender (p-value 0.003), sharpness of foreign body (p-value <0.001) and general anaesthesia (p-value 0.003).

Conclusion: Male children were significantly more involved in foreign body aspiration of plant seeds/nuts, toys/beads, stone/meta, fish bone and coin whereas requirement of general anaesthesia was found in almost all children with history of coin as foreign body aspiration.

Key words: Foreign body, ear, nose, throat, children.

INTRODUCTION

ENT injuries known as ear nose and throat injuries caused due to foreign body immersion is the commonest and the most incipient problem in the paediatric side.¹⁻³ These injuries are also said to be foreign body injuries and are the popular problem due to its high social and human cost.⁴⁻⁵

ENT injuries can be unintentional or intentional but mostly with the high ratio found among children.⁶ Studies reported that aspiration of the small objects often common in younger children.¹⁻⁵ These small objects are categorized as the organic and the inorganic aspired foreign bodies. Organic contains probably all the food type of stuff like peanuts, popcorns, vegetable stuff and the ingestion of the bones. While the inorganic part lifts up the ingestion of toy, coins, pins, crayons etc.¹⁻² These foreign bodies caused the mechanical suffocation resulting in symptoms like sudden cough, choking, severe dyspnoea which may worsen to the death of the child if not treated immediately.⁵⁻⁸
According to the different studies conducted internationally the most common site of foreign body aspiration is the throat and then ear which can be sometimes unintentional but mostly intentional by the child itself or sometimes by other siblings. Researchers from Pakistan also focused on the socket that 77.8% were the children less than 5 years. With most communal indicator reported of choking with 82.7%, the purpose of this study was to determine the prevalence and characteristics of foreign body aspiration in ear, nose and throat among children under 13 years of age.

METHODS

A descriptive cross-sectional study was conducted at a tertiary care hospital Karachi. All consecutive children under 13 years of age attending Outpatient Department (OPD) or emergency room with history of foreign body aspiration were included. In addition, children among whom foreign body was retrieved during surgery were also enrolled. All those children who were entered with the alleged history of foreign body aspiration but no foreign body aspiration was found in actual during examination were excluded from the study.

Epi Info sample size calculator was used for sample size estimation. Taking confidence interval 95%, margin of error 5%, reported foreign body (fishbone) 13.6%, sample size came out to be 181.

All information like age, gender, sharpness of foreign body, type of foreign body, requirement of general anaesthesia and site of foreign body were observed.

For the purpose of statistical analysis, SPSS version 22 was used. Frequencies and percentages were calculated for gender, sharpness of foreign body, type of foreign body, requirement of general anaesthesia and site of foreign body whereas mean and standard deviation was calculated for age of the children. Comparison was done to see the effect of site and type of foreign body with general characteristics of the children. P-value <0.05 was taken as significant.

Results

A total of 181 children were included. The mean age of the children was 4.49 ±2.97 (range 0.9-11 years). There were 122 (67.4%) children with ≤5 years and 59 (32.6%) children with >5 years of age. Majority (n=129, 71.3%) were males while 52 (28.7%) were females. Ears was the most common site noted in 65 (35.9%) children followed by nose (n=59, 32.6%), pharynx (n=27, 14.9%), trachea, bronchi and lungs (n=18, 9.9%) whereas oesophagus site was observed in 12 (6.6%) children. Sharp foreign bodies were found in 55 (30.4%) children. Most of the children (n=108, 59.7%) ingested/inserted foreign body during playing while 73 (40.3%) children ingested/inserted foreign body during eating. Toys/beads were the most common (n=66, 36.5%) foreign body followed by stone/metal (n=45, 24.9%), plant/seed nut (n=28, 15.5%), chicken bone (n=14, 7.7%), fish bone (n=12, 6.6%), coin (n=6, 3.3%) while in 10 (5.5%) children miscellaneous foreign bodies were observed. (Table 1)

A significant association of site of foreign bodies were observed with sharpness of foreign body (p-value <0.001), type of foreign bodies (p-value <0.001) and general anaesthesia (p-value <0.001). Similarly type of foreign bodies were significantly associated with gender (p-value 0.003) and general anaesthesia (p-value 0.003). (Figure 1 and 2).
We observed that the most popular site for the cause of the underline injury is the ear and then this proceeds to the next site that is nose. These sites produce the worsen factors as related to the health progress and has shown the most significant and dangerous sign and symptom shown by the patient and reported by the attendant parents. When any of the appearing doctor suspects the Foreign Body injury, it should be properly justified by having the depth and advance physical examination. A proper radiological review and investigation is also preferred when it is needed. This particular systematic following of examination than can help to easily distinguish the sharpness of the body which than can be treated as the emerging or the non-crucial emergency. Our results have shown the significance relation related to the sharpness of the body and reported that most of the non-sharp bodies are dominant with a small amount of sharp bodies' emersion as well.

Male gender was the real significant survivors of the Foreign Body emersion as because boys are considered to be more curious and naughtiest among the toddlers.
The most popular foreign body that was found to be the major object of emersion or the most frequent one was toys or beads followed by the stones or small metal object. The types of foreign body or object have shown the significant relation related with our results. And this may be resolved by following the proper procedures for the removal and maintaining a definite anatomical position of the patient. Any type of surgical removal with general anaesthesia should be evaluated with the strict eye and emergent basis. It was reported that most of the FB emersion were properly corrected without having any of the anaesthesia administration and this has the significant related association with our study. A quicker, instant and proper diagnosis with a defined treatment is expected for the FB injuries and maintaining their complications plays an important hand in order to travel to a virtuous cost-effective stability in terms of human or social cost and which can be a great social affliction factor. All of these factors working against our conditions can be achieved properly by only creating a good prevention protocols and by managing with the proper terms of better care and the effective manner.

Although, this study has determined the significant characteristics features of foreign body aspiration in children under 13 years of age. More multicentre studies are recommended on larger scale which not only determine the frequency and factors but also the sign, symptoms and complications like nasal obstruction, nasal pain, epistaxis, sore throat, cough, wheezing thoracic pain, nausea, vomiting, itching or other features.

**CONCLUSION**

The findings of this study have revealed that ear and nose are the most affected side in children with toys/beads as the frequent object. Moreover, male children were significantly involved in foreign body aspiration of plant seeds/nuts, toys/beads, stone/meta, fish bone and coin whereas requirement of general anaesthesia was found in almost all children with history of coin as foreign body aspiration.

**REFERENCES**

1. Rovin JD, Rodgers BM. Pediatric foreign body aspiration. Pediatr Rev 2000; 21:86-90.
2. Chai CK, Tang IP, Tan TY, Jong DE. A review of ear, nose and throat foreign bodies in Sarawak General Hospital. A five year experience. Med J Malaysia 2012; 67:17-20.
3. Asif M, Shah SA, Khan F, Ghani R. Analysis of tracheobronchial foreign bodies with respect to sex, age, type and presentation. J Ayub Med Coll Abbottabad 2007; 19:13-5.
4. Ibekwe MU, Onotai LO, Otaigbe B. Foreign body in the ear, nose and throat in children: A five year review in Niger delta. Afr J Paediatr Surg 2012;19: 3-7.
5. Foltran F, Ballali S, Passali FM, Kern E, Morra B, Passali GC et al. Foreign bodies in the airways: a meta-analysis of published papers. Int J Pediatr Otorhinolaryngol 2012;76:S12-9.
6. Parajuli R. Foreign bodies in the ear, nose and throat: an experience in a tertiary care hospital in central Nepal. Int Arch Otorhinolaryngol 2015;19:121-3.
7. Foltran F, Ballali S, Rodriguez H, Passali D, Gulati A, Gregori D. Inhaled foreign bodies in children: a global perspective on their epidemiological, clinical, and preventive aspects. Pediatr Pulmonol 2013;48:344-51.
8. Khan MA, Sheikh MS, Al-alawneh MT, Madni AB. Management of oesophageal foreign bodies. J Taibah Univ Med Sci 2014; 9:206-8.
9. 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.
10. Thabet MH, Basha WM, Askar S. Button battery foreign bodies in children: hazards, management, and recommendations. Biomed Res Int 2013; 2013.
11. Shlizerman L, Mazzawi S, Rakover Y, Ashkenazi D. Foreign body aspiration in children: the effects of delayed diagnosis. Am J Otolaryngol 2010;31:320-4.
12. Passali D, Gregori D, Lorenzoni G, Cocca S, Loglisci M, Passali FM et al. Foreign body injuries in children: a review. Acta Otorhinolaryngol Ital 2015;35:265.
13. Fidkowski CW, Zheng H, Firth PG. The anesthetic considerations of tracheobronchial foreign bodies in children: a literature review of 12,979 cases. Anesth Analg 2010;111:1016-25.
14. Mani N, Soma M, Massey S, Albert D, Bailey CM. Removal of inhaled foreign bodies—Middle of the night or the next morning? Int J Pediatr Otorhinolaryngol 2009;73:1085-9.
15. Boufersaoui A, Smati L, Benhalla KN, Boukari R, Smail S, Anik K et al. Foreign body aspiration in children: experience from 2624 patients. Int J Pediatr Otorhinolaryngol 2013;77:1683-8.
16. Salih AM, Alfiaki M, Alam-Elhuda DM. Airway foreign bodies: A critical review for a common pediatric emergency. World J Emerg Med 2016;7:5.