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The Common Site of Impactions and Complications Associated with Foreign Bodies in the UADT: An Observational Study of a Tertiary Care Hospital in Bangladesh

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Abstract **Original Research Article**

Background*:** Foreign bodies are frequently encountered in the field of otolaryngology, specifically within the domains of the ear, nose, and throat (ENT). Serious complications, such as tympanic perforations and bronchoaspiration, are infrequently observed. ***Objective*:** To see the common site of impactions and complications associated with Foreign Bodies in the UADT. ***Methods*:** The Department of Otolaryngorhinology and Head-Neck Surgery at Dhaka Medical College Hospital conducted a cross-sectional study inside a hospital setting. The study was conducted from March 23, 2019, to September 22, 2019. The study included individuals who had a prior medical record of either inhaling or being impacted by a foreign object, as well as individuals who had a history of difficulty swallowing. ***Results: In this study, the majority of patients (70.0%) were found to be within the age range of 0 to 10 years. The average age of the patients was 6.1±2.8 years. This study found that foreign bodies were frequently observed to be impacted in the nose (42%), oesophagus (20%), and throat (38.0%).There are three main categories of foreign bodies: metallic foreign bodies, which account for 36.0% of cases, non-metallic foreign bodies, which account for 44.0% of cases, and living foreign bodies, which account for 20.0% of cases. The present study has provided evidence that non-invasive treatment methods, specifically direct vision only, accounted for the majority (42.0%) of the treatment approaches utilized. Laryngoscopy was deemed necessary in 38.0% of the patients, whereas esophagoscopy was performed in 14.0% of the cases. The present investigation involved the performance of endoscopic removal of foreign bodies (FB) in 6.0% of cases. Within the scope of this inquiry, it was noted that three subjects experienced postoperative challenges, encompassing sensations of discomfort, instances of bleeding, and issues associated with anesthesia. ***Conclusion*:** The majority of instances involving foreign bodies in the ear, nose, and throat can be prevented. Enhancements in the provision of public health assistance and the training of otolaryngologists are necessary in order to mitigate the occurrence of severe consequences.

Keywords*:* Common site of impactions, Complications, Foreign bodies, UDAT.s.

INTRODUCTION

The introduction of foreign objects into the upper aero-digestive tract, whether unintentional or intentional, frequently presents as urgent medical situations in the field of otolaryngology. The nature of the foreign object and the location of the blockage are contingent upon a multitude of circumstances. Foreign body aspiration is a frequently observed occurrence in pediatric patients [1]. In addition to the nasal and auricular regions, the throat and esophagus represent prominent anatomical sites where foreign bodies are frequently found to be lodged. The majority of swallowed foreign objects are able to pass through the lower esophageal sphincter without intervention. However, only a small number of individuals experience complications when the substance travels through the gastrointestinal tract and necessitate

medical intervention. According to epidemiological data, the predominant foreign body found in the upper aero-digestive tract is the fish bone, accounting for 43.75% of cases. In addition to fish bones, other items found in the sample include coins (18.23%), beef bones (18.23%), and dentures (7.29%). The less frequently seen foreign bodies are beef bolus (2.08%), foreign bodies in the bronchus (2.60%), and button-type batteries (1.56%) [2]. The cases exhibit a diverse range of clinical issues. Typically, the management of a foreign object lodged in the upper aero-digestive tract involves a timely and safe endoscopic extraction procedure, with the aim of minimizing any potential harm or injury [3].

The manifestation of foreign objects can pose a significant risk to an individual's life, particularly when it involves foreign bodies obstructing the airway. Foreign objects within the aerodigestive tract can manifest as a range of symptoms, varying in intensity from mild to severe. These symptoms may include discomfort, pain, obstruction, hemorrhaging, discharge, and compromised functionality of the affected area [4].

Typically, foreign bodies with blunt or smooth surfaces do not pose significant risks and can be quickly expelled from the body. However, in the case of pointed foreign objects such as fish bones, meat bones, dentures, pins, etc., there is a risk of these objects penetrating the intestinal wall, which can lead to further difficulties. In the absence of medical intervention, several complications may arise, including but not limited to perforation, formation of retropharyngeal and para-pharyngeal abscesses, blockage, oesophageal-aortic fistula, and tracheaoesophageal fistula. The typical manifestations associated with the presence of foreign bodies that have been retained for a duration of less than 24 hours include dysphagia, excessive salivation, emesis, gag reflex stimulation, and loss of appetite. Respiratory symptoms, such as coughing, stridor, and chest pain, might manifest shortly after the introduction of a foreign body into the tracheo-bronchial tree. Additionally, there is a possibility of delayed problems, including the development of pneumonia [5]. Numerous research has been conducted to investigate the frequency, treatment, and associated problems of otolaryngology foreign bodies.

The present study was conducted on the common site of impactions and complications associated with Foreign Bodies in the UADT at our hospital settings.

OBJECTIVE

- To see the common site of impactions and complications associated with Foreign Bodies in the UADT.

MATERIALS & METHODS

The Department of Otolaryngorhinology and Head-Neck Surgery at Dhaka Medical College Hospital conducted a cross-sectional study inside a hospital setting. The study was conducted from March 23, 2019, to September 22, 2019. The study included individuals who had a prior medical record of either inhaling or being impacted by a foreign object, as well as individuals who had a history of difficulty swallowing. These participants were needed to provide written consent after being fully told about the study. Individuals with a prior medical record of dysphagia were also deemed eligible to partake in the research investigation. The study examined a comprehensive set of fifty unique cases. In this experiment, the method of deliberate sampling was employed.

Inclusion Criteria:

- Patients who have a prior medical record of inhaling or getting impacted by a foreign object, or who have a history of difficulty swallowing (dysphagia).
- Patients who have a medical background of aspiration or dyspnea, or who have a history of stridor.
- Patients who have a prior medical record of nasal foreign body insertion**.**

Exclusion Criteria:

- The patient who declined participation in this trial.
- Patients presenting with symptoms of stridor or dysphagia that are not attributed to the presence of a foreign body will be precluded from participation in the trial.

Data Collection:

The material was obtained from the informant and afterward documented in a meticulously organized case report form. The clinical examination, together with any pertinent investigations, was conducted meticulously. Every individual questionnaire that was gathered underwent a meticulous examination to identify any potential inaccuracies within the data. A standardized questionnaire was utilized to incorporate the patient's history, signs and symptoms, clinical data, and investigation findings into the documentation.

Data Analysis:

The material was presented in tables and graphs that were selected based on their relevance to the respective subjects. Explanations were provided for each table and graph to enhance their comprehensibility. The data processing tasks encompass many activities such as the formulation of registration schedules, the manipulation and digitization of data, the generation of placeholder tables, and the

correlation and examination of data. The data processing and analysis in this study involved the use of both SPSS version 22 and Microsoft Excel. In academic research, it is common practice to represent quantitative data using measures such as mean and standard deviation, but qualitative data is often presented using frequency and percentage. The comparison was tabulated and visually represented through various graphical formats, including tables, pie charts, graphs, and bar diagrams.

RESULTS

The ages of the patients are categorized and presented in Figure 1, accessible at the following location. A total of fifty patients underwent examination. The age range of 0 to 10 years old accounts for the largest proportion of patients, with 35 individuals or 70.0% of the total sample. The average age of the patients was 6.1±2.8 years. The second largest age group among the patients is 11 to 20 years old, comprising 12 individuals, or 24.0% of the total sample. The remaining patients fall into various age ranges, with the smallest proportion being those over 20 years old.

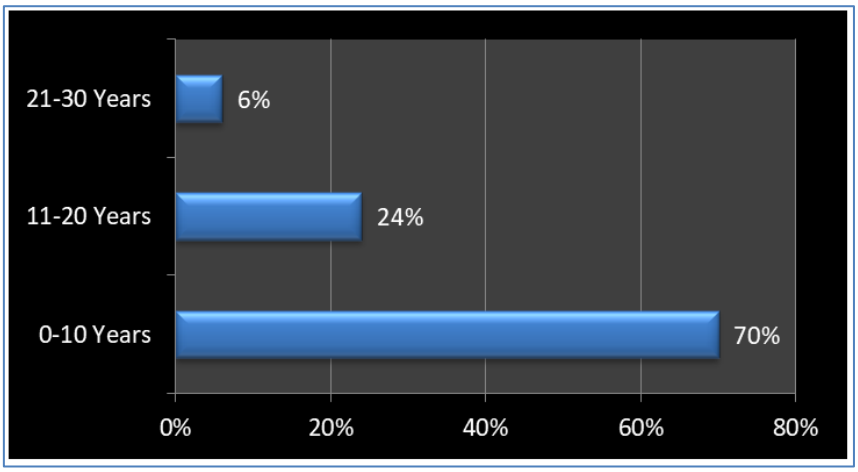

Figure 1: Age distribution of the study subjects (N=50)

Among the many symptoms, pain, dysphagia, and nasal obstruction emerged as the most prevalent manifestations. All four symptoms were observed in 100.0%, 76.0%, 58.0%, and 42.0% of the patients, respectively. The manifestation of a history of introducing a foreign body was observed in all patients. Additional symptoms frequently observed in patients were nasal discharge, excessive salivation, trouble swallowing, and nasal obstruction. These symptoms were reported in 36.0%, 100.0%, 76.0%, and 58.0% of patients, respectively. An additional prevalent symptom observed was nasal obstruction, which was reported by 42.0% of the patients. Additional prevalent symptoms observed in the subjects were heightened salivary secretion, reported by 24% of participants, and respiratory impairment, experienced by 20% of the sample. The prevalence of nasal discharge was found to be 36.0% among all cases. (Refer to Table 1)

Table 1: Distribution of the patients according to clinical manifestation

Clinical manifestation	Frequency	Percentage (%)
H/O introducing foreign body	**50**	**100.0**
Nasal discharge	18	36.0
Epistaxis	5	10.0
Pain	38	76.0
Difficulty in swallowing	29	58.0
Nasal obstruction	21	42.0
Foul smelling	18	36.0
Excessive salivation	12	24.0
Foreign body sensation	15	30.0
Respiratory distress	10	20.0
Change of voice	11	22.0

According to the data presented in Figure 2, it is evident that foreign objects predominantly gained entry into the human body through three main routes: the nasal passage (42%), the esophagus (20%), and the throat or larynx (38%).

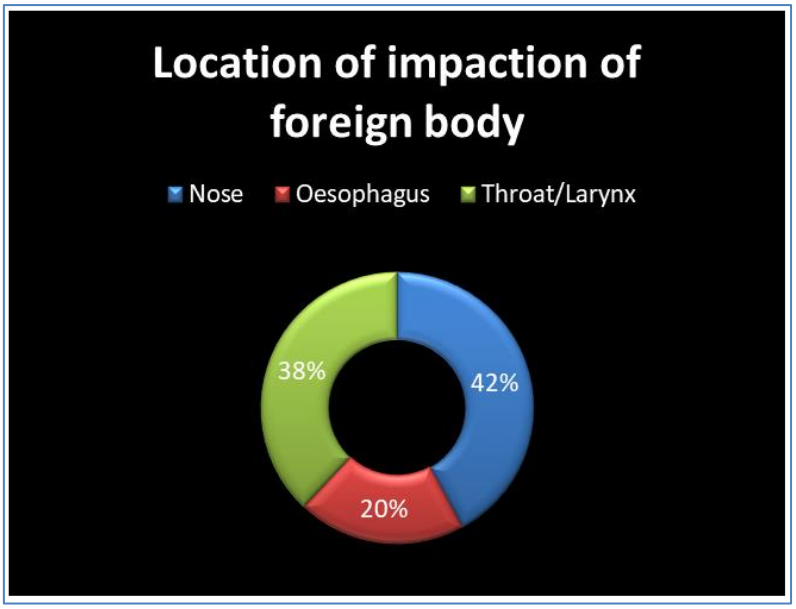

Figure 2: Distribution of cases according to location of impaction of foreign body

Table 2 provides an overview of the many categories of foreign substances. The proportion of metallic foreign bodies was found to be 36.0%, while non-metallic foreign bodies accounted for 44.0% of the total. Additionally, living foreign bodies constituted 20% of the overall sample.

Table 2: Types of foreign bodies

Types of foreign bodies	Frequency	Percentage (%)
Metallic	**18**	**36.0**
Non-metallic	22	44.0
Living FB (insect, cockroach, mosquito, ant, etc.)	10	20.0

The findings of this study unequivocally demonstrate that youngsters face the highest susceptibility to the inhalation of foreign objects into their respiratory passages, such as the nose and throat. As individuals advance in age, there is a noticeable shift in the focus of physiological changes towards the digestive system. In the present investigation, a total of twenty-one youngsters, constituting sixty percent of the sample, were identified as having a foreign object obstructing their nasal cavity. Conversely, esophageal foreign bodies were identified in all individuals within the age range of 21 to 30 years. (Refer to Table 7)

Table 3: Distribution of cases according to treatment modality (n=50)

Treatment modality	Frequency	Percentage
Direct vision	21	42.0
Esophagoscopy	7	14.0
Laryngoscopy	19	38.0
Endoscopy	3	6.0

Table 9 displays the outcomes of the cases subsequent to their management. The post-treatment evaluation of the patient's state involved assessing symptoms, measuring the extent of anomalies or reliance in everyday physiological activity, and closely monitoring the clinical outcome. Based on the findings of the study, it was observed that a significant proportion of patients, specifically 94.0%, achieved complete restoration of their health without encountering any associated issues. In the context of this investigation, it was observed that three individuals had postoperative difficulties, including discomfort, bleeding, and anesthesia-related complications.

Table 4: Distribution of the study subjects according to outcome (n=50)

Outcome	Frequency	Percentage
Recovered without complication	47	94.0
Complications	3	6.0

DISCUSSION

The present cross-sectional study was conducted within the Department of Otolaryngorhinology and Head-Neck Surgery at Dhaka Medical College Hospital. The study included patients who had a documented medical history of either inhaling or being impacted by a foreign body, as well as those with a history of dysphagia. All participants in the trial provided informed written consent. The analysis of demographic characteristics within the sample of 50 patients indicated that a significant proportion of patients, specifically 35 individuals (70.0%), fell within the age range of 0 to 10 years. The average age of the patients was 6.1±2.8 years.

The findings of this investigation are consistent with the results of previous studies. Out of a total of 48 cases, 37 cases (77%) were attributed to children aged 9 years or younger. Out of the total sample size, 20 individuals (41.6%) fell within the age range of 5 to 9 years, 17 individuals (35.4%) fell within the age range of 0 to 4 years, and 4 individuals (8.3%) fell within the age range of 15 to 19 years. There were two instances (4.2%) seen in the age range of 10 to 14 years, two cases (4.2%) in the age group of 20 to 29 years, and three cases (6.3%) in the age group of 30 to 39 years [6]. The majority of studies indicate that the pediatric age group is more frequently affected by foreign bodies in the upper aerodigestive tract compared to other age groups. The phenomenon can be attributed to the inherent exploratory tendencies observed in children.

In this study, the prevalence of several symptoms was examined. Among these symptoms, the most commonly reported were a history of introducing foreign bodies, pain, difficulty in swallowing, and nasal obstruction. These symptoms were present in 100.0%, 76.0%, 58.0%, and 42.0% of the patients, respectively. Additional prevalent symptoms observed in patients included nasal discharge (36.0%), excessive salivation (24.0%), and respiratory distress (20.0%).

The findings of this study are in conformity with the results of another investigation. In the study, it was observed that a majority of patients (72.7%) presented with dysphagia as a common symptom. Additionally, a smaller proportion of cases (18.2%) exhibited odynophagia, while a single case (9.1%) presented with blood-stained vomiting [7]. This study found that foreign bodies were frequently observed in the nasal cavity (42%), esophagus (20%), and throat (38.0%).The categorization of foreign bodies encompasses metallic foreign bodies (36.0%), non-metallic foreign bodies (44.0%), and living foreign organisms (20.0%).

In another study it was shown that ear foreign bodies accounted for the highest proportion (53.3%) among the cases examined. This was followed by foreign bodies found in the nose (17.8%), bronchus (16.7%), and esophagus (12.2%) [4]. The most prevalent foreign object found in the upper aero-digestive tract is a fish bone, accounting for 84 cases (43.75%) among the sample population. In addition to fish bones, additional items found in the sample include coins (35 occurrences, accounting for 18.23% of the total), meat bones (35 occurrences, also accounting for 18.23% of the total), and dentures (14 occurrences, representing 7.29% of the total). The prevalence of less frequently encountered foreign bodies includes meat bolus (4 cases, accounting for 2.08% of the total), foreign body in the bronchus (5 cases, accounting for 2.60% of the total), and button-type battery (3 cases, accounting for 1.56% of the total). The group labeled as 'others' in this context comprises a collection of somewhat infrequent items, such as cotton thread, the rubber cover of a TV jack, a pen cap, a toothbrush, an earring, a hairpin, and a plastic cap. These items collectively account for 12 occurrences, which corresponds to approximately 6.25% of the total [8].

The present investigation revealed that the primary intervention approaches employed were noninvasive measures, specifically direct vision only, accounting for 42.0% of the interventions utilized. Laryngoscopy was deemed necessary in 38.0% of the patients, whereas esophagoscopy was administered in 14.0% of the instances. The present investigation involved the performance of endoscopic removal of foreign bodies in 6.0% of cases. The findings of the study indicate that a significant proportion of patients, specifically 94.0%, experienced a successful recovery without encountering any complications. This study observed the occurrence of postoperative problems in three patients, including pain, hemorrhage, and anesthesia difficulties.

CONCLUSION

This study provides evidence that the occurrence of foreign bodies trapped in the upper aerodigestive tract is more prevalent in children compared to adults. The implementation of appropriate assessment and timely intervention serves to mitigate

the potential difficulties arising from the presence of foreign bodies (FB) within the upper aero- digestive tract. The presence of a foreign object in the esophagus results in the development of mucosal edema and subsequent weakening of the esophageal wall. Occasionally, esophageal peristalsis may prove insufficient in effectively eliminating an esophageal foreign body. Prolonged retention of an esophageal foreign body can potentially result in the occurrence of perforation. It is vital to expeditiously eliminate the aforementioned concern. Early diagnosis and prompt removal of symptomatic patients is crucial in order to mitigate the risk of avoidable consequences.

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