

Incidence of Foreign body in Tracheo-Bronchial Tree

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ABSTRACT

Objective: The objective of the study was to detect and analyze rate of occurrence of different types of foreign bodies in males and females and in different age groups. To detect the most common Foreign body in Tracheo-Bronchial tree. To observe the most common procedure used to remove foreign body of Tracheo-Bronchial tree.

Study Design: Analytical study

Materials and Methods: A total of 50 cases of foreign body Tracheo-Bronchial tree with different age groups were admitted at E.N.T. Unit-1, Mayo Hospital, Lahore. At the time of admission, an elaborate questionnaire was completed for each patient using a standard proforma.

Results: A total of 50 cases were included in this study, of these 31 were males and 19 females. Male to female ratio was 1.6: 1. Age varied from less than one year to 40 years. Majority of the patients (72%) was under the age of six years and the mean age was 4.74 years. The ingestion of nuts accounted for the highest number of foreign body aspiration. Among these betal nut and peanuts accounted for 48% of the foreign bodies. An interesting foreign body "the whistle" was found in about 18% of patients. The open tube bronchoscope with Hopkins telescopes is the instrument of choice.

Conclusion: Young children are at risk for foreign body aspiration. There are two distinct age groups in this category; one is from the age 1-3 years and the other comprises older children (6-12 years of age) in which whistle aspiration is very common. Majorities of patients are males. Betal nut, peanut and the whistle are the most common foreign bodies. The open tube bronchoscope with Hopkins telescopes is the instrument of choice.

Key words: Tracheo-Bronchial Tree, Bronchoscopy

INTRODUCTION

Ingestion is foreign body lodgment in the oesophagus, whereas aspiration is lodgment of foreign body in larynx, trachea or bronchi. About 70 percent of all aerodigestive foreign bodies occur in children, of these, about one third are aspirate and become lodged in airway. Majority of cases occurs between one and three years of life^{1,2,3}.

Incidence of foreign body aspiration in tracheobronchial tree is rare, however, the foreign body aspiration can lead to severe illness and even death if not diagnosed and treated promptly. In United States, about 3000 paediatric deaths, are considered to be due to foreign body aspiration per year^{4,5}. This figure may be quite high in our setup because (i) lack of health facilities in far flung rural or even some urban areas (ii) postmortem examination is not a routine overhere, so many accidental paediatric death produced by tracheobronchial foreign bodies go undiagnosed.

During recent years fiberoptic bronchoscope has been widely used for removal of foreign bodies. However, for removal of aspirated foreign body, the

open tube bronchoscope with Hopkins telescopes is undoubtedly the instrument of choice. Due to these innovation morbidity and mortality has virtually become negligible⁶. Delay in referral, lack of transport and more importantly lack of awareness among both the public and medical personnel continue to cause significant complications.

AIMS AND OBJECTIVE

1. The objective of the study was to detect and analyze rate of occurrence of different types of foreign bodies in males and females and in different age groups.
2. To detect the most common Foreign body in Tracheo-Bronchial tree.
3. To observe the most common procedure used to remove foreign body of Tracheo-Bronchial tree.

MATERIALS AND METHODS

A total of 50 cases of foreign body Tracheo-Bronchial tree with different age groups were admitted at E.N.T. Unit-1, Mayo Hospital, Lahore. At the time of admission, an elaborate questionnaire was completed for each patient using a standard proforma.

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Majorities of the cases were those with a clear history of foreign body aspiration while in few cases foreign body was detected on diagnostic bronchoscopy.

Tracheobronchial foreign bodies were defined to be those situated below the true vocal cords. No particular age group was selected and every patient with foreign body aspiration was included in the study, although majority of patients falls into paediatric age group.

At the time of admission, an elaborate questionnaire was completed for each patient using a standard proforma. Information obtained included biographic date (name, age and sex), presenting features, initial emergency treatment, etc. Similarly, operative and postoperative findings were recorded.

All the fifty patient underwent endoscopy under general anaesthesia. In 47 patients, rigid bronchoscopy was performed, whereas in three patients direct laryngoscopy was performed.

As the patients were prepared for endoscopy, they were submitted to thorough physical examination and were evaluated for G. A. fitness. All patients underwent routine investigations (blood C/E, urine C/E; blood gases, blood sugar) prior to the endoscopy. Pre operative x-ray of chest and neck of every patient was obtained even if previously x-rayed.

RESULTS

Table 1: Sex Distribution

Gender	=n	%age
Males	31	62
Females	19	38

Table 2: Age Distribution

Age	=n	%age
< 1 Year	10	20
1-3 Years	17	34
3-6 Years	9	18
6-12 Years	13	26
40 Years	1	2

Table 4: Type of Procedure

Methods	=n	%age
Rigid Bronchoscopy	47	94
Laryngoscopy	3	6
Flexible Bronchoscopy	-	-
Thoracotomy	-	-
Conservative	-	-

DISCUSSION

This study confirms the well-known fact that young children, particularly boys, under the age of six years,

are at a greater risk of foreign body aspiration^{7,8}. The incidence of foreign body aspiration is higher in this age group because children either do not know what belongs in their mouth or cannot adequately manage what goes into their mouth.

Older children are ignorant and frequently, aspirate objects that do not belong in their mouth. This is very true in case of “whistle aspiration”, as every victim in this study was between 7-12 years⁹. This age is unusual for the foreign body aspiration. Reason for this unusual situation was the foreign body itself. It was a small whistle made of very light material, whose diameter was less than the internal diameter of larynx, trachea and main bronchi of grown up children but larger for very young children¹⁰.

As the children were of older age group positive history of foreign body aspiration was found in 100% of cases. Whereas in all other studies of foreign body aspiration national as well as international a 100% positive history of inhalation is seldom encountered^{11,12}.

Foreign body aspiration is rare before the age of six months because teeth have not developed and child’s ability to reach and grasp the objects is limited, and if something is put into his mouth, capability of manipulating this in oral cavity is also limited. In adults aspiration of foreign body is also not very common¹³.

In almost every study about foreign body aspiration it is claimed that males are more likely to be the victims than the females¹⁴. Exact reasons for this observation are still unknown. In my study the male to female ratio of 1.6:1.

The types of foreign bodies inhaled are changing in nature, making the diagnosis of the problem more difficult. In Jackson’s series of over 4000 cases reported in 1951 (Jackson), there were no plastic foreign bodies whereas series reported in the 1970s, reveal that 6-8% of objects inhaled were plastic materials^{15,16}.

Nuts are the most frequently inhaled foreign bodies in my study as well as in other local and international studies¹⁷. Since the nuts cannot be thoroughly masticated, aspiration is more likely to occur.

Therapeutic rigid bronchoscopy is the main stay of treatment. The success rate for the removal of inhaled foreign body has reached 95% to 99% mainly because of improvements in endoscopic equipment¹⁸. In my study, the success rate was 100%. No complications were seen per operatively or in the early post operative period. Chronic foreign body aspiration should be treated with antibiotic therapy preceding bronchoscopy since intense inflammatory edema and ulceration complicate the pathology¹⁹.

CONCLUSION

1. Young children are at risk for foreign body aspiration. There are two distinct age groups in this category; one is from the age 1-3 years and the other comprises older children (6-12 years of age) in which whistle aspiration is very common.
2. Majorities of patients are males as compared to female children.
3. Betal nut, peanut and the whistle are the most common foreign bodies.
4. Early diagnosis and prompt treatment are of paramount importance in preventing complications.
5. The open tube bronchoscope with Hopkins telescopes is the instrument of choice.

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