

# MANAGEMENT OF WHISTLE AS A FOREIGN BODY TRACHEOBRONCHIAL TREE

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## ABSTRACT

**Objective:** To assess the management of whistle as a foreign body tracheobronchial tree and to know the measures for its avoidance.

**Material and Methods:** This is a descriptive study carried out prospectively at the department of ENT, Head and Neck Surgery PGMI, LRH Peshawar for a period of three years. Those patients having any other foreign body except metallic whistle in tracheobronchial tree were excluded from the study. In all patients the foreign bodies were removed using Karl Storz bronchoscope. This study included two hundred and twenty cases, mostly the young adults belonging to average socio-economic class.

**Results:** Out of 220 cases 150 (68.18%), were male with the mean age of 6 years and 70 (31.8%) were female with the mean age of 5 years. Male to female ration was 2.1 Eldest patient was of 15 years with whistle in trachea and the youngest was of three years. Maximum number of cases i.e 169 (76.8%) had foreign body in right main bronchus followed by trachea in 27 (12.2%) left main bronchus in 15 (6.8%) glottis in 7 (3.1%) and supra glottis 2 (0.9%). The whistle were taken out successfully using different sizes of rigid bronchoscopes. None of the patients had any postoperative complications.

**Conclusion:** It is concluded that mostly foreign bodies lodge in right main bronchus. Awareness of hazards of inhaled foreign body may reduce the incidence.

**Key words:** Foreign Body, Whistle, Children, Tracheobronchial Tree, Bronchoscopy.

## INTRODUCTION

Aspirated objects in the airway of children still remains a significant cause of morbidity and mortality. The maximum incidence of inhalation of foreign bodies occurs between the age of 1 and 3 years<sup>2,3</sup>. The most common cause of accidental death in home in children under 6 years of age is the inhalation of a foreign body<sup>1</sup>. Diagnosis can be made on the basis of a history of foreign body inhalation, radiographic signs and confirmed on bronchoscopy. With the development of modern endoscopic techniques and controlled anesthesia, most foreign bodies can be removed safely with a bronchoscope. The peak incidence of inhalation of foreign bodies in early childhood is of course related to the fact that children have a habit of putting objects into their mouth to determine their texture and taste and to chew on when teething<sup>2</sup>.

## MATERIAL AND METHODS

This descriptive study conducted prospectively and sampling done on convenience, was carried out at the Department of ENT, Head and Neck Surgery Post Graduate Medical Institute Lady Reading Hospital Peshawar, Pakistan, from 1<sup>st</sup> January 1994 to 31<sup>st</sup> December 1996. Both male and female patient with age range from 3 years to 15 years were included in this study. Those patients were excluded from the study who were having any other foreign body except metallic whistle and in whom no foreign body was recovered during bronchoscopy. They all inhaled one type of foreign body i.e. small whistle with a flask shaped plastic cover and two small pieces of metals in it. The characteristics of this whistle is that when child sucks in air through it, it whistles and often goes into the tracheobronchial tree. These patients either reported directly as an ENT emergency or were referred by paediatric

AGE WISE DISTRIBUTION OF PATIENTS  
(N = 220)

Age Range	Number of Patients	Percentage
3 - 6 Years	133	60.4%
7 - 8 Years	68	30.9%
9 - 10 Years	3	1.3%
11 - 12 Years	9	4.09%
13 - 14 Years	5	2.2%
15 - 16 Years	2	0.9%

TABLE-1

department. After clinical evaluation patients with respiratory distress and history of foreign body (whistle) inhalation or choking, rigid bronchoscopy by Karlz storz bronchoscope of sizes 3 - 5 under general anesthesia in emergency was done without detailed investigations, both for diagnostic and therapeutic purposes. Those patients who were stable at the time of presentation, X-rays chest and neck lateral and anteroposterior views and hematological investigations were ordered. Endoscopic removal was possible in all patients.

## RESULTS

A total of 220 cases underwent endoscopy, 10 patients who had bronchoscopy on suspicion but no foreign body was recovered, these cases were excluded from the study. Table-1 shows age wise distribution of patients 123 (55.9%) of patients were of 4-6 years of age and 68 (30.9%) belonged to 6-8 years of age, rest of the patients

SEX WISE DISTRIBUTION OF PATIENTS  
(N = 220)

Total No. of patients	Male	Female	M:F
220	150 (68.18%)	70 (31.82%)	2:1

TABLE-2

**DURATION OF LODGMENT OF WHISTLE**  
(N = 220)

Duration	Number of patients	Percentage
2 - 8 hours	67	30.4%
8 - 24 hours	48	21.8%
1 - 5 days	90	40.9%
5 - 10 days	10	4.5%
11 - 30 days	3	1.3%
1 - 6 months	2	0.9%

TABLE-3

ranged from 3-15 years of age. In this study of 220 cases, 150 were males and 70 were females with a male to female ratio of 2:1 (Table-2). In most of the cases of inhaled foreign body there was definite history of choking followed by paroxysmal coughing which then subsided. The duration of lodgement of whistle was between 1 - 6 months. None of these patients gave history of more than 6 months duration, (Table-3). In 125 (56.8%) of patients there were signs of obstructive emphysema. In 28 (12.7%) there was atelectasis of one lung and 10 (4.5%) showed pneumonia, whereas in 20 cases there was normal radiograph, (Table-4). Table-5 shows the site of foreign body. In majority of patients i.e in 169 (76.8%) it was lodged in right main bronchus, whereas in 27 cases (12.2%) it was lodged in trachea and in 15 patients (6.8%)

**X-RAY CHEST FINDINGS (N = 220)**

Duration	Number of patients	Percentage
Obstructive emphysema	125	56.8%
Atelectasis	28	12.7%
Pneumonia	10	4.5%
Normal Radiograph	20	9.09%
Radiograph not taken	36	16.78%

TABLE-4

**SITE OF FOREIGN BODY (WHISTLE)**  
(N = 220)

Site	Number of patients	Percentage
Right Main Bronchus	169	76.8%
Trachea	27	12.2%
Left Main Bronchus	15	6.9%
Glottis	7	3.1%
Supra Glottis	2	0.9%

TABLE-5

it was found in left main bronchus, in 7 cases the foreign body was in glottis and in 2 patients it was in supraglottis region. All of the patients were admitted in hospital. Out of 220 cases 36 patients underwent emergency bronchoscopy, whereas in 184 patients apart from routine blood investigations, X - ray chest PA view was obtained. In 10( 4.5%) of patients there were signs of pneumonia, so they were put on parenteral antibiotics therapy for a few days and then had elective bronchoscopy done as shown in Table-6.

## DISCUSSION

Foreign body inhalation in children is a common occurrence not only in our country but also in most of the developed countries<sup>12,13,14</sup>. It is a common problem in children and at times is a diagnostic challenge.<sup>7,8</sup> Tracheobronchial foreign body is a well documented cause of acute intermittent and chronic respiratory distress in the paediatric

**PROCEDURE PERFORMED (N = 220)**

Procedure	Number of patients	Percentage
Emergency Bronchoscopy	36	16.8%
Elective Bronchoscopy	184	83.2%

TABLE-6

age group<sup>4</sup>. Male preponderance may be attributable to their aggressive or exploratory nature<sup>6</sup>. Early diagnosis and prompt treatment is mandatory for the prevention of serious complications, unfortunately patients are referred late and often treated as respiratory infection for a long time. This is because of lack of awareness that a foreign body can present as an acute respiratory tract illness.<sup>18,19</sup> Foreign body aspiration is one of the leading cause of death seen in a study in USA in children under four years of age.<sup>5</sup> In the absence of definite history of foreign body inhalation, choking or sudden onset of cough and respiratory distress with localized poor entry, crepitations or ronchi remains valuable clinical features for foreign body inhalation.<sup>8,9</sup> Foreign body aspiration is a common problem with 80% of all aspirations occurring in children.<sup>3</sup> In this series as in other, the majority of cases involve children between one and five years of age.<sup>11,12,13</sup> Most occur between the ages of six months and four years. It accounts for as many as 500 to 3000 deaths per year in the United States alone.<sup>13</sup> While obstruction of the large airways is produce dramatic symptoms, that of the smaller airways often unnoticed by the parents or the history may be omitted or forgotten.<sup>14,15</sup> This coupled with low index of suspicion of the medical personnel leads to delay in diagnosis resulting in complications<sup>10</sup>. Aspirated objects tend to get lodged into the dependent bronchi where they trigger an inflammatory response. This produces a vicious cycle of obstruction and further inflammation culminating in atelectasis and subsequent pneumonia.<sup>16</sup> Reports exists of patients being treated for as long as twenty years for asthma when actually a foreign body was present.<sup>10,16,17</sup> Western literature reveals peanuts as the commonest foreign body.<sup>20</sup> While in our setup commonest foreign body inhaled is a plastic whistle. The right main bronchus was the commonest site of lodgement of foreign body. It is important

to keep a high index of suspicion in context of the history, physical examination and radiographic findings. All large centres dealing with pediatric emergence must have personnel sensitized to the possibility of this diagnosis and be trained to intervene promptly.

## CONCLUSION

The aspiration of whistle as a foreign body tracheobronchial tree is a diagnostic and therapeutic challenge. We must have index of suspicion in a child who presents with sudden respiratory distress or paroxysmal cough with out fever. A history of repeated chest infection especially failure of medical treatment to relieve a recurrent pneumonia should direct the attention of the paediatrician to the presence of foreign body in the air way. It is very important to abstain the children from small objects, especially whistle. We reiterate the importance of mass education regarding the hazard of metallic whistle inhalation.

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