ORIGINAL ARTICLE

AN AUDIT OF FOREIGN BODIES TRACHEOBRONCHIAL TREE AT A TERTIARY CARE HOSPITAL

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ABSTRACT

Objective: To evaluate the presentation and types of foreign bodies in tracheobronchial tree and difficulties encountered in their removal at a Tertiary Care Hospital.

Material and methods: This retrospective, descriptive study was carried out at the department of ENT and Head & Neck surgery Khyber Teaching Hospital Peshawar-Pakistan from July 2015 to June 2017. A total of 142 confirmed or suspected cases of foreign body tracheobronchial tree were included in the study from OPD, accident & emergency department (A&E) and referred from pediatric department. Detailed history and clinical examination was performed, X-Ray chest and base line investigation were done in all cases. Rigid bronchoscopy was done under general anesthesia in all cases, and different types of foreign bodies were removed. Difficulties encountered during bronchoscopy were bleeding, slip of foreign body and difficult to remove foreign body.

Results: Out of 142 cases 94 (66.2%) were males and 48 (33.8%) were female in the age range of 01 year to 10 years. The duration between inhalation and hospital arrival was 12 hours to 2 weeks. In 90 (63.3%) cases vegetative foreign bodies were retrieved followed by plastic 30 (21.12%) and metallic 20 (14%). In 4 cases removal was difficult due to bleeding and oedema and were refered to thoracic department after tracheotomy.

Conclusion: Early diagnosis and proper management along with awareness regarding pediatric home care is stressed upon to reduce morbidity and mortality.

Key words: Foreign body, trachea, bronchus. Rigid, bronchoscopy.

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INTROUDCTION

Inhalation of foreign body into the tracheobronchial tree is one of the most common emergency dealt by otolaryngologist[1]. It is an acute medical emergency, sometimes resulting in sudden death. More than three fourth of the cases of aspirated foreign bodies occur in children aged less than 5 years,[2] Predominantly males. Moreover it is the leading cause of infantile death and the fourth one among preschool children[3]. The most common site for the foreign body is the right main bronchus, as it is more vertical, shorter and wider[4]. Foreign body inhalation is usually accompanied by severe coughing, wheezing, dyspnoea and stridor. This acute episode may escape the notice of the parents and cause may be obscured for a long period[5]. Radiology is the primary means of confirming the diagnose. However, it is seen that most foreign bodies are radiolucent. Chest roentgenograms are frequently normal if taken immediately after inhalation of foreign body and finding of obstructive emphysema and atelectasis are not always present[5]. Few cases require advanced imaging to read the diagnosis[7]. Rigid bronchoscopy under general anesthetia is the established method of removal of foreign body tracheobronchial tree[8].

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MATERIAL AND METHODS

This is a retrospective descriptive study carried out at the department of ENT and Head and Neck Surgery, Khyber Teaching Hospital, Peshawar Pakistan from

July 2015 to June 2017. Apporval for institutional ethical review board (IREB) was take. A total of 142 confirmed or suspected cases of foreign body tracheobronchial tree were included in the study from OPD, emergency and referred form Paediatric department. While patient with no definite or suspected history of foreign body and were suffering from respiratory tract infection were excluded from study. Detailed history and clinical examination was performed. Base line hematological investigation were carried out, X-Ray chest was done in all cases.Rigid bronchoscopy under general anesthesia was done in all cases and different types of foreign bodies were removed. Difficulties encountered during bronchoscopy were, bleeding, slip of foreign body and difficult to remove the foreign body. The post operative recovery was uneventful. All the cases were kept under observation for 24 hours.

RESULTS

A total of 142 cases were included in the study, 94 were males and 48 were females. The age range was 1-10 years, with the mean age of 5 years, and the youngest being 1 year old Table 1. Average duration between inhalation and hospital arrival was 12 hours to 2 weeks Table 2. Majority of the cases presented with acute onset of choking, respiratory distress, cough, dyspnea and wheezing. Clinical examination in majority of cases had stridor, crackles and decreased breath sound, in the affected lung.

Other presented with productive cough, fever and pneumonia like symptoms. As for as the site of foreign body impaction is concerned, majority of the foreign bodies were retrieved form the right main bronchus, and remaining from left main bronchus & trachea. (Table 3)

The types of foreign bodies retrieved were mostly vegetative 90 (63.3%) followed by plastic 30 (21.2 %), metallic 20 (14.1 %) and miscellaneous 2 (1.4 %) Table 4. In all cases foreign bodies were removed with rigid bronchoscope under general anesthesia except 4 cases due to bleeding odema and slipping of foreign body and were referred to thoracic unit after tracheostmy.

Table 1: age and Gender distribution.

Age Range In years	Male	Female	Total No and % age
1-3	50	28	78 (55%)
4-6	30	12	42 (29.5 %)
7-10	14	8	22 (15.5%)
Total	94	48	142 (100%)

Table 2: Duration of presentation (n-142).

Time of Presentation	No of cases and % age
Within 12 hours	78 (55%)
1-7 days	52 (36.6%)
More than 7 days	12 (8.4%)

Table 3: Site of impanation of foreign bodies.

Site	No of cases and	% age
Right Branches	112	79%
leftBranch	27	19%
Trachea	03	02%

Table 4: Site of impanation of foreign bodies.

Types of Foreign bodies	No of Cases	% age
VEGETATIVE	90	63.3 %
Peanut, seeds, peanut shell, Bean, portion of Nat,		
PLASTIC	30	21.2 %
Beads, Plastic, whistles, toypiecsetc		
Metallic	20	14.11 %
Whistle, safety pin, different types, of needle, screw, spring etc		
Miscellaneous	2	1.4%
Toffee wrapper, buntyetc		

DISCUSSION

Foreign body tracheobronchial tree is one of the most common emergencies encountered by the otolaryngologist in routine practice. It carries a high mortality and morbidity rate if not dealt promptly. Infant and young children have a material curiosity about their environment and an inclination for exploration. Nine Children tend to explore their surroundings. They may engulf some inappropriate objects[10]. For instance toys, coin etc should not be treated by mouth. Some types

of food require higher level of skill, to deal with which make it age restricted i.e peanuts for preschool children who lack the necessary skills of mastication[11]. Children are chocked by food while moving or talking and are known for their physical activity; this may disrupt their concentration and increase both respiratory rate and depth leading the food into the respiratory passage[12]. The diagnosis and treatment of foreign bodies in the tracheobronchial tree are challenging[13]. Despite improvement in the medical care and public awareness, significant numbers of deaths occur each year form foreign body aspiration[14]. Children under 10 years of age are more prone to aspirate foreign bodies. Children between 1-5 years of age are most susceptible group. Lack of molar tooth, propensity to talk, laugh and run around while chewing also increase the chances of aspiration[15]. Most of the reviews of foreign body aspiration in children shows a male predominance as in our study. Foreign body tracheobronchial tree in children is an acute emergency[16]. Most of the patient's presented with an cute episode of chocking, coughing cyanosis and respiratory distress, which is similar to other studies[17]. Sometimes history of aspiration is often lacking and patients may present days to weeks after the event[18]. On examination patients may have stridor, crackles, wheezing and reduce or absent air entry an effected side. In our study majority of cases were having foreign body impacted in the right main bronchus as it is wider, shorter and straighten than the left, which is compatible with other studies[19]. Bronchoscopy is the gold standard for definitive diagnosis and treatment of foreign body tracheobronchial tree. It should be performed by an expert endoscopist in conjunction with as expert anesthetist[20]. Sometimes, difficulty may arise in removal of foreign bodies form tracheobronchial tree. This depends on age of the patient, type and time duration of foreign body skills of the surgeon, and anesthetist and availability of equipments and instruments. Which is also reported by kaur et al in a study[21]. The other factors which lead to difficulty in removal of foreign body are odema, bleeding and adhesions. Type of foreign body may also pose difficulty. Sharp and pointed foreign bodies are difficult to remove also reported by willians et al in there study[22]. Rounded foreign bodies may slip in unaccessible area, in the lower respiratory tract requiring thoracic surgeon intervention.

CONCLUSION

Early recognition and detection of foreign body tracheobronchial is the need of the day to reduce complications.

RECOMMENDATIONS

The incidence can by reduced by public awareness, education by health awareness program through print and electronic media. There must be a legislation regarding sale and quality control of toys. Government should ensure availability of complete range of equipment's and instruments for the diagnosis and removal of inhaled foreign bodies at district level hospitals, along with proper training of doctors.

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AUTHOR'S CONTRIBUTION

Following authors have made substantial contributions to the manuscript as under:

Hafeez M: Main Idea.

Din IU: Collection of data.

Khan AR: Overall supervision and approval of final version.

Rehman F: Statistical Analysis.

Arif AU: Data collection, bibliography.

Authors agree to be accountable for all aspects of the work in ensuring that questions related to the accuracy or integrity of any part of the work are appropriately investigated and resolved.