Original article

Analysis of tracheobronchial foreign bodies

P. Adhikari, B. L. Shrestha, B. K. Sinha, D. K. Baskota, N. R. Sharma

Department of Otorhino-Laryngology and Head & Neck Surgery, Department of Anaesthesiology
T.U.Teaching Hospital, Kathmandu, Nepal.

Correspondence to: Prakash Adhikari, Department of Otorhino-Laryngology and Head & Neck Surgery, T.U.Teaching Hospital, Kathmandu, Nepal

e-mail:prakash_ooz@hotmail.com.

Background: To analyze the type and site of tracheo-bronchial foreign bodies in patients admitted in the department of ENT-Head and Neck surgery (ENT-HNS) of TU Teaching Hospital.

Methods: Medical records of 41 cases admitted in the department of ENT-HNS, TU Teaching Hospital, Kathmandu between April 2004 to October 2006 for the management of suspected foreign bodies in tracheobronchial tree were analysed retrospectively. It was found that rigid bronchoscopy was performed in all 41 cases and foreign bodies were removed from 36 cases. In the five cases where foreign body was not found, were excluded from the study.

Results: There were 83.3% children and 16.6% adults. Most common type of foreign body found in children were vegetative (63.3%) where as in adults beetle nut (50.0%) and metallic foreign bodies (50.0%) were found. Majority of foreign body was found to be lodged in the right main bronchus (56.7%) in children. Whereas, in adults foreign bodies (66.7%) were found in the left main bronchus. Radiological confirmation of the foreign body could be made only in 8 cases (22.2%). All patients had an uneventful postoperative period except two (5.5%) who died during postoperative period after removal of foreign bodies from trachea.

Conclusion: In children, foreign body is more common in right bronchus where as in adults it is more common in left bronchus. Only 22.2% foreign bodies could be seen in plain X-ray. In unresolved pneumonia high index of suspicion of foreign body in tracheobronchial tree must be made and diagnostic bronchoscopy should be performed.

Keywords: Vegetative foreign body, metallic foreign body, rigid bronchoscopy

Introduction

Foreign bodies in the air passages are a challenging clinical problem.[1] Lodgment of foreign body in the larynx and trachea is almost always accidental in nature. Urgent intervention is required to save the life of the patient. It must be suspected in children with a suggestive history, even though the clinical symptoms or radiographic findings are not pathognomic for foreign body aspiration.[2] This study was done to analyze the type and site of tracheobronchial foreign bodies in patients admitted in the department of ENT & Head and Neck Surgery T U Teaching Hospital.

Material and Methods

Medical records of a total of 41 cases admitted in ENT-HNS department, TU Teaching Hospital, Kathmandu between April 2004 to October 2006 for the management of suspected foreign bodies in the tracheobronchial tree were analysed retrospectively. Radiological investigations along with investigations required for general anesthesia were done preoperatively. All age group were included. Rigid bronchoscopy was done in all the cases and foreign bodies were removed from 36 cases. Five cases were excluded from the study as there was no foreign body in tracheo -bronchial tree.

Results

There were 80.6% male and 9.4% female. Among them, 83.3% were children and 16.6% were adults. Most common type of foreign body found in children were vegetative (63.3%) followed by plastic pen cap (26.7%) (Table-1) Whereas in adults betal nut (50.0%) and metallic foreign bodies (50.0%) respectively were removed. (Table-2). Regarding the lodgement of the foreign bodies in the tracheobronchial tree, in children, majority of the foreign bodies were found to be in the right main bronchus (56.7%) (Table-3). In contrast in adults majority of foreign bodies (66.7%) were found to be in the left main bronchus (Table-4). No foreign body could be found in 5 patients. There were only 8 cases (22.2%) where suspicion of foreign body could be made radiologically.All patients had an uneventful postoperative recovery except two,(5.5%) who died during postoperative period after removal of foreign body from trachea. Both the patients who died had long standing foreign body leading to empyema.

Table: 1 Types of foreign bodies in Children

Types of Foreign bodies	Number (Percentage)
Vegetative foreign bodies	19 (63.3)
Plastic pen cap	8 (26.7)
Metallic foreign bodies	3 (10.0)
Total	**30 (100.0)**

Table: 2 Types of foreign bodies in Adults

Types of Foreign bodies	Number (Percentage)
Beetle nut	3 (50.0)
Metallic foreign bodies	3 (50.0)
Total	**6 (100.0)**

Table: 3 Site of foreign bodies in Children

Site	Number (Percentage)
Right Bronchus	17 (56.7)
Left Bronchus	9 (30.0)
Trachea	4 (13.3)
Total	**30 (100.0)**

Table: 4 Site of foreign bodies in Adults

Site	Number (Percentage)
Left Bronchus	4 (66.7)
Right Bronchus	2 (33.3)
Total	**6 (100.0)**

Discussion

Foreign body aspiration is a common problem and it carries significant morbidity and mortality. The highest incidence of aspiration occurs between 1-3 years.[3] The peak age of incidence of F.B. aspiration occurred in children in our series is less than 3 years which is similar to other studies.[4, 5, 6, 7] There is male predominance in our series which is in agreement with other published reports.[4, 5, 7, 8] A possible explanation for this is offered by Gupta et al [5] who stated that "boys by nature are more serious and inquisitive than girls. Small and smooth walled objects tend to pass into trachea and bronchi whereas larger ones can cause acute laryngeal or tracheal obstruction.[9]

The symptoms and the course of illness depends grossly on the type of the object and the length of its stay at the site of obstruction.[9] The most common type of foreign body in our study in children was vegetative, plastic cap and metallic ones where as in adults there were betel nut and metallic foreign bodies. A significant tissue reaction with inflammation was more common in delayed cases[10] of vegetative foreign body aspiration.

Most foreign bodies are found on the right side of the bronchus since it is wide, shorter and straighter than the left, and also because the interbronchial septum projects to the left. In our study, regarding the site of foreign bodies in children, right bronchus was found to be more common (56.7%) than the left bronchus (30.0%). Skoulakis et al showed 60.0% F.B. found in the right main bronchus.[2] Eroglu et al [11] and Tariq study [12] also found that right bronchus was common site of foreign body aspiration in children which is similar to our study. However in adults, left bronchus was common (66.7%) than the right bronchus (33.3%) which contradicts with the observations made by different authors in different studies.

A positive history, detail clinical examination and radiographic search often lead to a diagnosis, while negative history and/ or normal chest radiographs can be misleading. It must be suspected in children with a suggestive history, even though the clinical symptoms or radiographic findings are not pathognomic for foreign body aspiration. There were only 8 cases (22.2%) of foreign bodies found to be radiologically positive. Tokar et al study revealed radio opaque foreign bodies in 9.7% of all patients with foreign body aspiration which is similar to our studiy.[10] Our recent study showed that all patients had an uneventful post operative period except in 2 cases (5.5%) who died during the post operative recovery period even after successful removal of foreign bodies from trachea. Both of these cases died within first four hours of postoperative period. This occurred due to delayed presentation of the child in the hospital with empyema of both lungs. Eroglu et al had two deaths (0.56%) following removal of foreign bodies which is similar to our study.[11] In our series, all patients underwent

rigid bronchoscopy. Bronchoscopy is the most effective diagnostic and therapeutic modality to prevent complications related to neglected foreign bodies aspiration.[2]

Hence it can be mentioned that rigid bronchoscopy is a safe procedure in expert hands but high degree of suspicion is mandatory in diagnosing foreign body in the respiratory tract and early intervention must be done to avoid complications.

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