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Clinical Study of Foreign Body Bronchus

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Abstract:
Background: *Foreign body in bronchus constitutes one of the acute problems in ent disease, in the absence of proper and clear history, one must not be deceived by the signs and symptoms which simulate many of the pediatric conditions like tracheobronchitis, pneumonia and tuberculosis etc., so the doctor should carefully extract positive history and then only presence of foreign body should be excluded.*
Materials and Methods*: Analysis of data for the last 4 yrs(**March 2013 to March 2017)** in our Govt. ENT Hospital pertaining to the experience of bronchoscopy, fifty cases have been studied, revealed the following results.*
Results: *All the fifty cases had successful removal of the foreign body by bronchoscopy One among them needed tracheostomy as the patient developed severe respiratory distress following bronchoscopy Five of the cases required repeat bronchoscopy for removal. Mortality is nil.*
Conclusion*: The bronchoscopy in skilled hands and with recent advances in the field of anesthesia on jet ventilation is a safe procedure but utmost care is required. One should have a clear cut picture of the site, nature and radiological investigations done just before attempting removal.*
Keywords: *Foreign body bronchus, Bronchoscopy, Respiatory distress, Jet ventilation, tracheostomy*

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I. Introduction

Foreign body bronchus constitutes one of the emergency problem in the field of otorhinolaryngology. The patients are usually children and the parents express anxiety, as the child who had been perfectly alright suddenly gets restless and dyspnoeic. The foreign body needs to be removed as an emergency depending on the situation, sometimes a well planned procedure with a little delay may be better. Diagnosis is usually made from the history and clinical examination. Prognosis is generally good if the patient is brought early and treatment is instituted immediately. Any delay in proper diagnosis and treatment will add to increased morbidity and mortality. Foreign body bronchus shows variation in size, shape, nature and clinical picture they produce.

II. Objectives

In view of common evidence of cases of foreign body bronchus a study of fifty patients in detail has been undertaken. Stastistical evaluation is made with regard to the incidence of foreign body bronchus in different age groups , sex and seasonal variation and their outcome.

III. Materials And Methods

A clinical study of 50 cases conducted in Government ENT Hospital, Osmania Medical College, Hyderabad which is a tertiary referral centre, patients attending the hospital with respiratory distress, among them only few giving positive history of foreign body aspiration were studied, most of them being of paediatric age group during the period from March 2013 to March 2017.All cases were subjected to radiological investigations, X- ray chest, in few cases CT chest to assess the location of foreign body. After confirmation of foreign body in bronchus and also in suspicious cases, with all the necessary investigations done patients are subjected to well planned bronchoscopy. Ofcourse if the patient is in severe respiratory distress, emergency bronchoscopy should be done immediately.

IV. Observation And Results

- Fifty cases of foreign body bronchus were studied
- Vegetative foreign bodies constituting 70% (in blue)
- Non- vegetative foreign bodies constituting 30% (in red)

Figure 1. Incidence

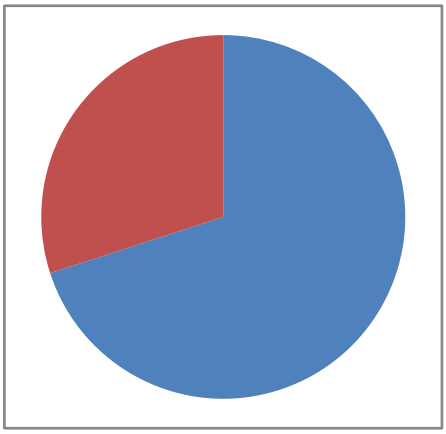


Table 1: Age incidence

Age	No. of cases	Total no. of cases	Percentage
0-1yr	5	50	10%
1-2yr	20	50	40%
2-4yr	15	50	30%
4-7yr	6	50	12%
Adults	4	50	8%

Table 2 : Symptomatology

Symptoms	No. of cases	Total no. of cases	Percentage
Cough	25	50	50%
Breathlessness	10	50	20%
Fever	10	50	20%
Noisy breathing	5	50	10%
Inability to speak	-	50	-
Common symptoms	-	50	-
Asymptomatic	-	50	-

Table 3: Anatomical site

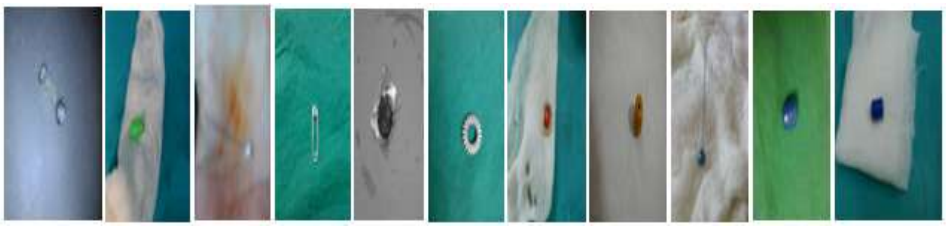
Site	No. of cases	Total no. of cases	Percentage
Right bronchus	25	50	50%
Left bronchus	20	50	40%
Segmental bronchus on right	5	50	10%

Table 4 : Types of foreign bodies

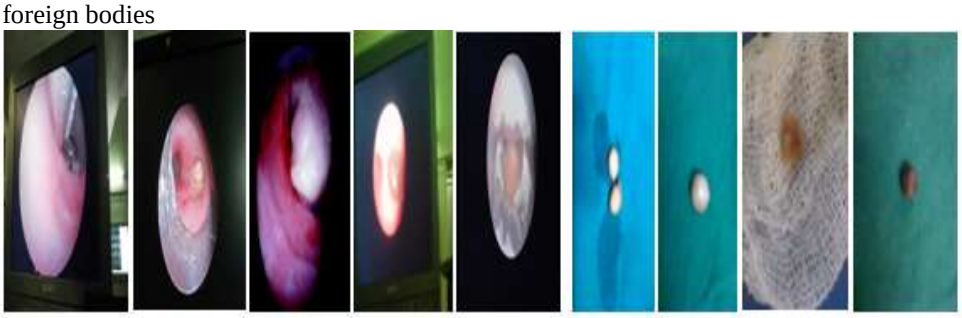
Foreign body	No. of cases	Total no. of cases	Percentage
Groundnut	16	50	32%
Custard apple seed	9	50	18%
Bengal gram	4	50	8%
Coconut pieces	4	50	8%
Almond seed	1	50	2%
Betel nut	1	50	2%
Button	3	50	6%
Whistle	3	50	6%
Beads	2	50	4%
Scarf pin	2	50	4%
Safety pin	1	50	2%
Pen knobs	3	50	6%
Denture	1	50	2%
Metal hook	1	50	2%

Foreign bodies encountered in our clinical study

Non- vegetative foreign bodies



Vegetative foreign bodies



All the fifty cases had successful removal of the foreign body by bronchoscopy

- One among them needed tracheostomy as the patient developed severe respiratory distress following bronchoscopy
- Five of the cases required repeat bronchoscopy for removal
- Mortality - nil

V. Discussion

- The first successful bronchoscopic removal of foreign body was performed by Gustav Killian on March 30, 1887.
- Earlier mortality rate was high for this procedure.
- By Apnoeic technique or by using undersized endotracheal tubes the procedure used to be carried out
- With great advances in endoscopic and anaesthetic techniques with introduction of jet ventilation, the mortality is now 0-1.8%.
- Foreign body in bronchus constitutes one of the acute problems in ENT disease. Today almost all foreign bodies are removed with almost negligible mortality.

In the absence of proper and clear history, one must not be deceived by the signs and symptoms which simulate many of the pediatric conditions like tracheobronchitis, pneumonia and tuberculosis etc., So the doctor should carefully extract positive history and then only presence of foreign body should be excluded.

1. Age- Although no age is exempt from this, accident, children in age group between 1-3 yrs are more susceptible.

2. Sex- equal in both sexes

3.Socio- economic factor- common in poor families mostly working and working classes, mainly labourers (involved in constructions) who usually leave their children in nearby surroundings where there may be easily available food stuff like bengal gram, groundnuts, custard apple seeds, tamarind seeds etc., can be common cause for the foreign body aspiration to occur.

4. Site of lodgement- The common site of lodgement of foreign body is in the right bronchus, because it is wide, short and more in line with the trachea, bigger air intake causing suction effect, action of trachealis, location of carina on the left side of the midline. Although it is not uncommon to see foreign bodies in the left bronchus (Chevalier Jackson & Chevalier L Jackson Broncho- Oesophagology1)

Types of foreign body recorded

Out of fifty cases, vegetative foreign bodies are more common than non- vegetative foreign bodies as mentioned in the earlier table 4 custard apple seeds with their intact pericarp which is slippery when aspirated lodges in the distal part of bronchus producing complete obstruction. History of foreign body was given by forty- one patients out of fifty patients, the rest of nine pediatric patients were treated for bronchopneumonia and were refered to this hospital suspecting foreign body aspiration as there is no improvement. This shows the importance of taking detailed history.

Symptoms and signs

Most of the patients presented with cough, breathlessness and some with fever. In almost all patients with vegetative foreign body produce either atelectasis of lung or obstructive emphysema (Robbins – Pathology4). Asymptomatic presentation is also quite possible with this condition.

VI. Management

- So, as soon as a restless child comes with cough, breathlessness, could be a case of suspected foreign body bronchus.
- After taking detailed history of the patient and careful examination, with X- ray evidence, the patient must be subjected for well planned bronchoscopy.
- The bronchoscopy in skilled hand and with recent advances in the field of anesthesia with jet ventilation is a safe procedure but utmost care is required (Alan' R' Aitkenhead' 16 Text Book of Anesthesia5).
- In all the cases bronchoscopic removal of foreign body was possible without any untoward incident.
- One should have a clear cut picture of the site, nature and radiological investigations done which should be carried out just before attempting for removal.
- The instruments require particular attention in their use for a successful removal.
- All the fifty cases had successful removal of the foreign body by bronchoscopy
- One among them needed tracheostomy as the patient developed severe respiratory distress following bronchoscopy
- Five of the cases required repeat bronchoscopy for removal
- Mortality - nil

VII. Conclusion

1. Foreign body in bronchus is common in young children upto the age of four years. But no age is exempt.

2. "Prevention is better than cure"

3. Children should not be allowed to play with seeds, ground nuts, pins, batteries, coins etc.

- 4. While eating food there should not be sudden laughter, emotion etc.
- 5. Mortality is almost nil if diagnosed in time and treated promptly.
- 6. The prognosis is good if the patient is brought immediately.
- 7. General anesthesia is safe and preferably jet ventilation.
- 8. Complications increase as the duration after aspiration increases.
- 9. All medical people especially general physicians, pediatricians should be aware of such an accident.
- 10. The removal of foreign body in bronchus poses considerable problem to the otolaryngologist, as they require good muscle relaxation during endoscopy so that foreign body retrival will be easy. This technique with introduction of jet ventilation in anaesthesia during the removal of foreign body in bronchus has greatly reduced the mortality in the affected population.
- 11. Public education is required regarding the possibility of such an accident occurring and immediate attention to doctor is required as the prognosis will be grave with increased interval of time from the time of aspiration of foreign body to presentation.
- 12. The general population needs education and awareness regarding hazards of foreign body by various methods of communication – health personnel (health educators, health visitors, health workers etc.,) mass media communication.
- 13. Necessary equipment and facilities must be provided for endoscopies at district head quarters hospital.

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