

## Research Article

# Tracheo-bronchial foreign bodies: our experience at a tertiary care hospital

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## ABSTRACT

**Background:** Tracheo- bronchial foreign bodies have always posed a challenge to the ENT surgeon as they present with varied symptomatology ranging from a simple cough and fever to more grave respiratory distress. It requires a strong suspicion, early diagnosis and timely intervention to reduce the overall morbidity and mortality. This study was undertaken to highlight our experiences in handling cases of tracheo- bronchial foreign bodies (FB) at our setup.

**Methods:** It is a retrospective case series study conducted in S. Nijalingappa Medical College between January 2011 and January 2015.

**Results:** Most commonly affected were children between 1 year to 3 years of age. Chronic cough and wheeze were the commonest presenting symptoms. Vegetative foreign body was found to be the commonest variety of foreign body. The mortality rate in our study was 4.7% (n=3).

**Conclusions:** A good clinical acumen, team work, early diagnosis and timely intervention are all needed to reduce the overall mortality and morbidity associated with tracheo- bronchial foreign bodies.

**Keywords:** Tracheo-bronchial, Foreign bodies, Vegetative, Respiratory distress

## INTRODUCTION

Tracheo-bronchial foreign bodies are an overall challenging scenario to the ENT surgeon most of which are encountered on an emergency basis. A well planned and timely intervention leads to management of the patient with a favorable outcome. Even with improved sophisticated instruments and management protocols, a simple case of foreign body removal from lower airway tract can prove fatal.<sup>1</sup>

Foreign body aspiration has a wide array of presentation ranging from an apparently symptomless child with a history of aspiration to more dangerous acute respiratory distress with no history of aspiration at all. The most common age of presentation is 1 to 3 years, however any

age can be affected.<sup>2-4</sup> Only with strong suspicion, good clinical skills and appropriate imaging studies, a correct diagnosis of foreign body in lower respiratory tract can be made.<sup>5,6</sup>

The first ever bronchoscopy was performed by Gustav Killian in 1897. Rigid bronchoscopy is the treatment of choice for removal of tracheobronchial foreign body. It should be considered the definitive diagnostic and therapeutic intervention in all cases where history, examination and imaging are all suggestive or suspicious of an airway foreign body.

## METHODS

The present study was conducted in the Dept. of ENT, S. Nijalingappa Medical College, Bagalkot, Karnataka. Data was collected retrospectively from records of patients who underwent bronchoscopy for foreign body aspiration from January 2011 to January 2015. A total of 63 patients were included in the study. Their presenting complaints, duration, age, sex, history of aspiration, imaging modality used, intervention, type and shape of foreign body and outcome with complications were analyzed. The data was tabulated and results obtained using percentages and proportions.

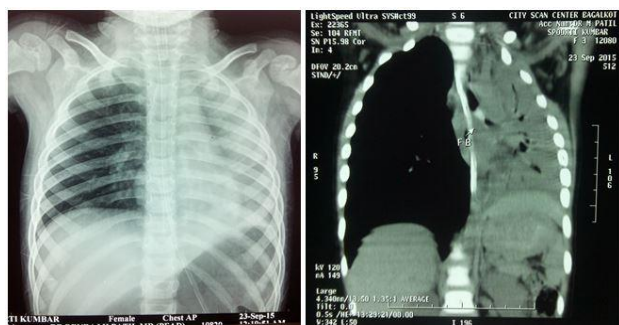
## RESULTS

A total of 63 cases were reviewed with the age range of 11 months to 9 years with highest incidence of 65.08% cases between 1-3 years (n=41). There were 77.78% males (n=49) and 22.22% females (n=14) in our study. Most common age of presentation was between 1 and 3 years. The youngest child was of 11 months age and oldest was 9 years of age. The male: female ratio was 7:2.

Most common symptom in our study was cough and wheezing recorded in 84.13% cases (n=53) followed by breathlessness in 23.81% (n=15) cases. Acute presentation with respiratory distress seen only in 11.11% patients (n=7).

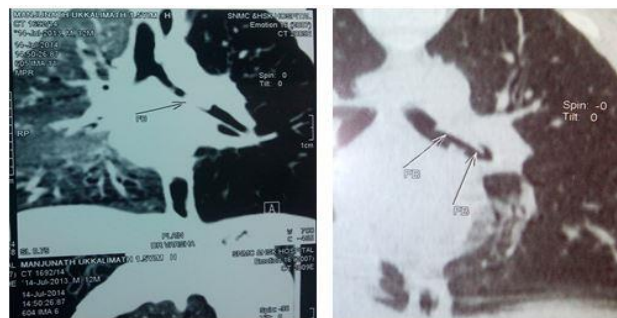
Most common clinical signs at presentation was unilateral decreased air entry in 87.30% cases (n=55) followed by unilateral rhonchi in 63.49% cases (n=40) and decreased chest movement during respiration in 55.56% cases (n=35). Unusual clinical signs of whistling and sounds on auscultation was encountered in 7.93% cases (n=5).

Most common radiological finding on chest radiograph was collapse seen in 63.49% cases (n=40) (Figure 1) followed by emphysema in 23.81% cases (n=15). A normal chest X-ray was seen in 7.94% cases (n=5). HRCT thorax was done in 38 out of 40 (60.32%) patients in whom the foreign body was clearly visualized (Figure 2).

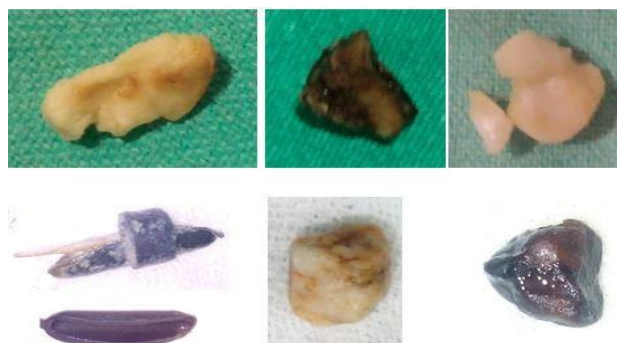


**Figure 1: Collapse of left lung (X-ray and CT thorax).**

Vegetative foreign body was commonest variety found in 80.95% cases (n=51) and remaining 19.05% cases (n=12) had non-vegetative foreign bodies. Groundnut was commonest vegetative foreign body found in 49.21% cases (n=31) followed by betel nut in 19.05% (n=12). Non vegetative foreign bodies included whistle (plastic), piece of rubber, stone, safety pin, plastic bead (Figure 3).

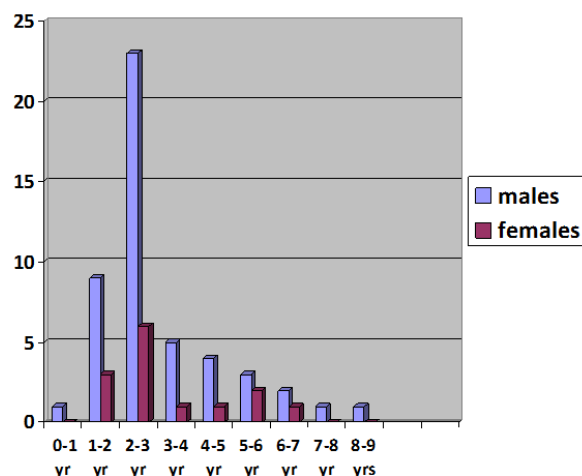


**Figure 2: CT thorax showing foreign body in left main bronchus.**



**Figure 3: Various tracheobronchial foreign bodies.**

The most common site of foreign body lodgment was within the right main bronchus seen in 50.79% cases (n=32), followed by the left main bronchus in 46.03% (n=29) and 3.17% (n=2) in trachea.



**Figure 4: Age & gender distribution (n=63).**

In 79.37% patients (n=50), the intra-operative and post-operative period was uneventful. All attempts to remove foreign body were unsuccessful in 4.76% cases (n=3). In 2 (3.17%) patients, foreign body could not be negotiated through the vocal cords and hence a tracheostomy was done through which the foreign body was removed. Two children died because of cardiac arrest and one died 5 days after removal of foreign body due to multi-organ failure.

## DISCUSSION

Foreign body in the lower respiratory tract can occur at any age. In our study it was more common in 1 to 3 years age group. This is similar to other studies.<sup>4,5,8-9</sup> The type of foreign bodies encountered varies from country to country depending on the diet and local customs and age of the patient. The condition is more common in male patients as compared to females as noted in other studies.<sup>5,7</sup>

Vegetative foreign body was the commonest type especially the groundnut followed by tamarind seed. Plastic whistle was the most common non-vegetative foreign body noted in our study.

Most common symptom in our study was found to be cough followed by wheezing and occasionally respiratory distress. Parental ignorance, lack of suspicion or even undue delay in diagnostic imaging can lead to an overall delay in diagnosis which results in inevitable complications.<sup>9</sup> The sight of lodgment also plays an important role in the overall morbidity and mortality. In our study the foreign body was found more commonly within the right main bronchus.<sup>10-12</sup>

Rigid bronchoscopes are the instruments of choice for foreign body removal. However even a simple bronchoscopy can get complicated in a setting of airway bleeding, oedema or even perforation. The most commonly reported complications include failure in removing the FB, pneumothorax, pneumomediastinum, respiratory distress, hypoxic brain damage, bradycardia, cardiopulmonary arrest and even death.<sup>13</sup> After successful removal of foreign body, a check bronchoscopy for any bleed or residual foreign body is always advisable.<sup>14</sup> Even in critical situation the surgeon must keep a calm and composed mentation and follow the set protocol for an overall favorable outcome.

## CONCLUSION

Tracheo-bronchial foreign body is an emergency condition and needs to be managed in a well-planned manner for a better outcome. Only with a high index of clinical suspicion and early use of appropriate imaging modality it can be diagnosed correctly, thereby minimizing complications. Aspiration of vegetative foreign bodies is most commonly encountered especially during harvest season. An ENT surgeon must be ready to

manage any complication that might arise during and after the removal of the foreign body. The importance of keeping such foreign bodies out of reach of children should also be borne in mind and parents should be counseled accordingly.

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