

**ORIGINAL RESEARCH**

# Assessment of cases of tracheobronchial foreign bodies aspiration

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**ABSTRACT**

**Background:** Tracheobronchial foreign bodies refer to objects or substances that accidentally enter the airway and become lodged in the trachea (windpipe) or bronchi (the two main branches of the trachea leading to the lungs). The present study was conducted to assess cases of tracheobronchial foreign bodies aspiration. **Materials & Methods:** 54 patients with history of tracheobronchial foreign bodies aspiration of both genders were studied. The bronchoscope was reintroduced after the foreign body was removed in order to examine the affected area, residual foreign body, and inspissated mucus secretions were removed. Clinical signs and radiological findings were recorded. **Results:** Age group 1-5 years had 13 males and 16 females, 6-10 years had 5 males and 7 females, 11-17 years had 4 males and 4 females and >18 years had 2 males and 3 females. The difference was non-significant ( $P > 0.05$ ). The clinical signs were cyanosis in 3, tachypnoea in 42, irritability in 15, chest indrawing in 13, decreased chest wall movement in 38, decreased air entry on affected side in 40, ronchi in 12, crepts in 11 and tracheal thud in 6 cases. Radiological findings were collapse of affected lung in 9, consolidation of affected lung in 1, collapse + consolidation in 6, mediastinal shift in 18 and normal X-ray in 20 cases. The difference was significant ( $P < 0.05$ ). **Conclusion:** An exploratory bronchoscopy should always be performed if a tracheobronchial foreign body is suspected, even if there is a questionable history of aspiration. This is because the morbidity of the procedure is unquestionably lower than the morbidity of an unidentified or missed tracheobronchial foreign body with delayed removal.

**Keywords:** bronchoscopy, Children, Tracheobronchial foreign bodies

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**INTRODUCTION**

Tracheobronchial foreign bodies refer to objects or substances that accidentally enter the airway and become lodged in the trachea (windpipe) or bronchi (the two main branches of the trachea leading to the lungs). This is a medical emergency that requires prompt evaluation and intervention to prevent complications such as airway obstruction, pneumonia, or respiratory failure.<sup>1</sup>

Tracheobronchial foreign bodies can occur in people of all ages but are more common in children, particularly toddlers and young children who are prone to exploring objects with their mouths.<sup>2</sup> Common causes include small toys, food items (such as nuts, seeds, or popcorn), small household items, and objects used in recreational activities. The symptoms of a tracheobronchial foreign body can vary depending on the size, location, and type of object. Common symptoms may include sudden onset of coughing or choking, wheezing or stridor (high-pitched noisy breathing), difficulty breathing or shortness of breath, chest pain or discomfort,

coughing up blood or bloody sputum and hoarseness or changes in voice.<sup>3</sup>

A foreign body in the respiratory system can be devastating and requires immediate surgical attention. The absence of an accurate or comprehensive history exacerbates the issue.<sup>4</sup> Parents may not be present for these accidents or may not be aware of them, and neither the patient nor the parents can give a precise history. As a result, the attending surgeon must handle these cases with a high degree of suspicion and promptly use his clinical expertise, or else the patient may die from acute respiratory distress or other potentially fatal consequences.<sup>5</sup> The present study was conducted to assess cases of tracheobronchial foreign bodies aspiration.

**MATERIALS & METHODS**

The present study was conducted on 54 patients with history of tracheobronchial foreign bodies aspiration of both genders. All were informed regarding the study and their written consent was obtained.

Data such as name, age, gender etc. was recorded. Under general anesthesia, a rigid bronchoscopy was used to remove foreign bodies from the trachea and bronchus. For the bronchoscopy, a Jackson rigid bronchoscope with a fiber optic light source and Venturi method anesthesia was used. The

bronchoscope was reintroduced after the foreign body was removed in order to examine the affected area, residual foreign body, and inspissated mucus secretions were removed. Data thus obtained were subjected to statistical analysis. P value < 0.05 was considered significant.

## RESULTS

**Table I Distribution of patients**

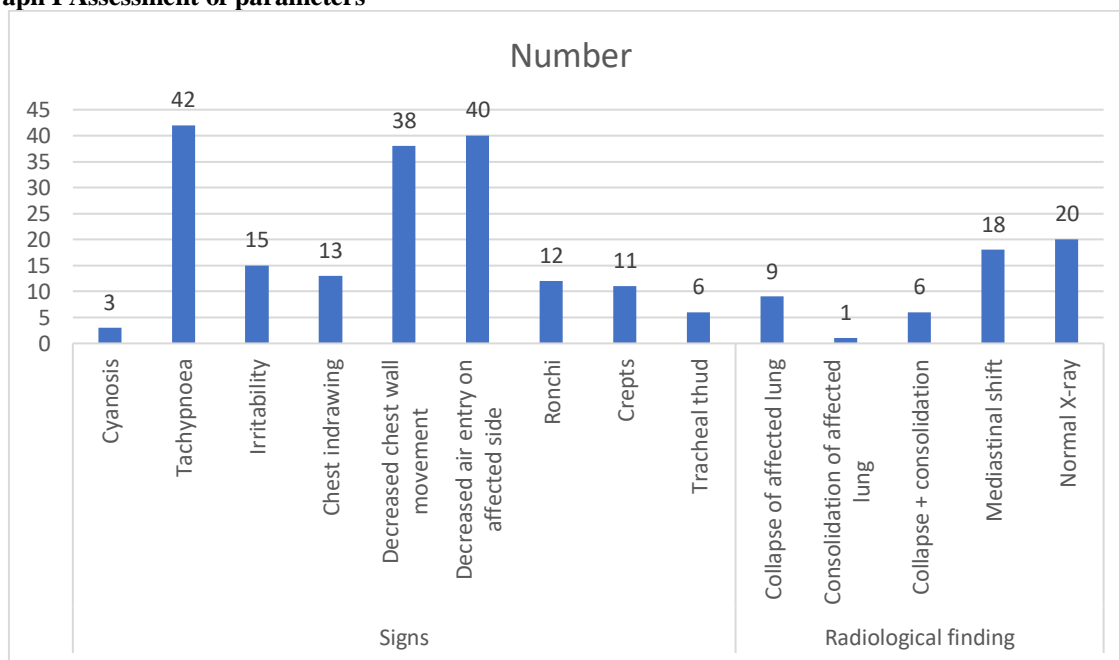
Age group (years)	Males	Females	P value
1-5	13	16	0.57
6-10	5	7	
11-17	4	4	
>18	2	3	
Total	24	30	

Table I shows that age group 1-5 years had 13 males and 16 females, 6-10 years had 5 males and 7 females, 11-17 years had 4 males and 4 females and >18 years had 2 males and 3 females. The difference was non-significant ( $P > 0.05$ ).

**Table II Assessment of parameters**

Parameters	Variables	Number	P value
Signs	Cyanosis	3	0.05
	Tachypnoea	42	
	Irritability	15	
	Chest indrawing	13	
	Decreased chest wall movement	38	
	Decreased air entry on affected side	40	
	Ronchi	12	
	Crepts	11	
	Tracheal thud	6	
Radiological finding	Collapse of affected lung	9	0.03
	Consolidation of affected lung	1	
	Collapse + consolidation	6	
	Mediastinal shift	18	
	Normal X-ray	20	

Table II shows that clinical signs were cyanosis in 3, tachypnoea in 42, irritability in 15, chest indrawing in 13, decreased chest wall movement in 38, decreased air entry on affected side in 40, ronchi in 12, crepts in 11 and tracheal thud in 6 cases. Radiological findings were collapse of affected lung in 9, consolidation of affected lung in 1, collapse + consolidation in 6, mediastinal shift in 18 and normal x-ray in 20 cases. The difference was significant ( $P < 0.05$ ).

**Graph I Assessment of parameters**

## DISCUSSION

The primary goal of treatment is to remove the foreign body from the airway to restore normal breathing and prevent complications.<sup>6</sup> Treatment options may include bronchoscopy, the most common and effective method for removing tracheobronchial foreign bodies.<sup>7</sup> During bronchoscopy, a thin, flexible tube with a camera (bronchoscope) is inserted through the mouth or nose and advanced into the airway to locate and remove the foreign body.<sup>8</sup> Surgical removal in some cases, particularly if the foreign body is large, sharp, or difficult to remove with bronchoscopy, surgical intervention may be necessary to safely extract the object.<sup>9</sup> The present study was conducted to assess cases of tracheobronchial foreign bodies aspiration.

We found that age group 1-5 years had 13 males and 16 females, 6-10 years had 5 males and 7 females, 11-17 years had 4 males and 4 females and >18 years had 2 males and 3 females. Sumanth et al<sup>10</sup> in their study found that the average time lapse between aspiration of symptoms and presentation was found to be 1–3 days. Positive history was given in only 68% cases. Cough and breathlessness were the most common presenting symptoms. The commonest clinical signs were decreased chest movement and air entry on the affected side. Collapse of the affected side was the most common radiological finding. The commonest site of impaction was the right main bronchus. Majority of the foreign bodies were vegetative, peanut being the most common. The commonest complication following foreign body aspiration was atelectasis of the affected lung. Successful removal of foreign bodies was possible in all the patients.

We observed that clinical signs were cyanosis in 3, tachypnoea in 42, irritability in 15, chest indrawing in 13, decreased chest wall movement in 38, decreased

air entry on affected side in 40, ronchi in 12, crepts in 11 and tracheal thud in 6 cases. Radiological findings were collapse of affected lung in 9, consolidation of affected lung in 1, collapse + consolidation in 6, mediastinal shift in 18 and normal X-ray in 20 cases. Rothmann and Boeckman<sup>11</sup> studied 225 cases and found obstructive emphysema in 60% cases, atelectasis in 12% cases, pneumonia in 8% cases and mediastinal emphysema in 1.7% cases. Swanson et al<sup>12</sup> assessed the level of experience in managing tracheobronchial foreign bodies (TFBs) in children (under the age of sixteen) with flexible bronchoscopic techniques. 39 kids (11 girls and 28 boys; mean age, 47.3 months) out of the 94 kids suspected of having TFBs were determined to have 40 TFBs. For the purpose of extracting TFBs from 24 patients—two of whom did not respond well to the rigid bronchoscopic procedure—only the flexible bronchoscope was utilized. In 19 children, flexible bronchoscopy was done via an endotracheal tube. In the remaining five kids, a laryngeal mask airway (LMA) was used to carry out the procedure. The device allowed the flexible bronchoscope to pass through in two more patients when the rigid bronchoscopic method did not work. Stone forceps and ureteral stone baskets were among the extraction tools used. Since 1994, the flexible bronchoscope has been the instrument of choice for all successful TFB extractions. Four patients who had rigid bronchoscopies experienced complications, including postbronchoscopy laryngeal edema that showed up as coughing, stridor, and respiratory distress.

The shortcoming of the study is small sample size.

## CONCLUSION

Authors found that an exploratory bronchoscopy should always be performed if a tracheobronchial

foreign body is suspected, even if there is a questionable history of aspiration. This is because the morbidity of the procedure is unquestionably lower than the morbidity of an unidentified or missed tracheobronchial foreign body with delayed removal.

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