

AN EXPERIENCE OF 42 CASES OF BRONCHOSCOPY AT SAIDU GROUP OF TEACHING HOSPITALS, SWAT

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Background: The objectives of our study were to find out the frequency in terms of age and sex of the patients, type and site of foreign bodies, clinical manifestations and management with rigid ventilating bronchoscope. **Methods:** It was a descriptive study carried out in the department of otolaryngology and head and neck surgery at Saidu Teaching Hospital Swat, and was conducted from March 2005 to March 2006. A total of 42 cases collected from March 2005 to March 2006, admitted through casualty, OPD and referred by pediatric unit. All of them subjected to bronchoscopy as an emergency as well as an elective procedure. **Results:** A total of 42 cases were included in the study. In 37 cases (88.09%) foreign bodies were removed successfully, while 4 cases (9.52%) were having no foreign body, only mucous plug was removed. One patient (2.32%) died due to cardiac arrest.

Key words: Foreign body tracheobronchial tree, bronchoscopy.

INTRODUCTION

Foreign body aspiration is a life threatening condition and needs urgent intervention. Bronchoscopy is a life saving procedure for foreign body removal in emergency as a therapeutic procedure and also a diagnostic tool in the tracheobronchial tree.

Most of the procedures are carried out with the rigid ventilating bronchoscope and grasping forceps, under general anesthesia. This system has brought miracles to the medical profession and has saved precious lives up till now, although flexible bronchoscope has also been used for removal of foreign body tracheobronchial tree.^{1,2} With out this system the mortality rate was very high but with the introduction of the ventilating bronchoscope this has been reduced from 24% to 2% and even less,³ provided that the patient comes in time to the department where these facilities are available. Some time tracheostomy is needed if foreign body cannot be extracted through the larynx³

Foreign body aspiration claims thousands of lives each year, because they rarely reach in time for intervention.⁴ It is the 4th leading accidental cause of death under 3 years of age and 3^d cause of death under 1 year of age.^{5,6} It usually affects children under 3 years of age.^{2,7,8} The patient may be received in a cyanosed state. Sometime there may be no history of foreign body aspiration, high degree of suspicion is needed to diagnose foreign body inhalation. But sometimes X- Rays may be inconclusive and bronchoscopy is the ultimate procedure to exclude foreign body.^{9,10}

The common clinical features with foreign body inhalation are cough, stridor, dyspnea and decreased breath sounds.^{5,6,9,11} Sometime foreign body inhalation may be asymptomatic.⁷ It may cause pneumonia or lung collapse not responding to conservative treatment.² Patients had even received

anti tuberculosis therapy for non resolving lesion in the lungs and were ultimately diagnosed as cases of foreign body inhalation.

MATERIAL AND METHODS

This study was conducted in ENT department Saidu Teaching Hospital. The duration of our study was one year from March 2005 to March 2006. The patients were admitted through casualty, O P D or referred to our department by pediatrician who were being treated as cases of pneumonia or lung collapse and were not responding to conservative treatment. A total of 42 cases underwent bronchoscopy.

The criteria for inclusion in the study were the cases having definitive history of foreign body inhalation, and patients who were referred by pediatricians, having chest pathology and were not responding to conservative treatment. All the patient who were having history of foreign body inhalation less than 24 hours were subjected to emergency bronchoscopy, while those who's history was more than 24 hours were subjected to elective bronchoscopy urgently.

Screening test for Hepatitis B and C, hemoglobin estimation were done in all cases as per policy of our unit and anesthesia department. X-Rays were performed where it was feasible pre bronchoscopy and in all post bronchoscopy cases for follow up. All the patients were subjected to rigid ventilating bronchoscopy.

Informed consent of bronchoscopy and tracheostomy was taken before the procedure and tracheostomy trolley was kept ready during the procedure. All the patients were kept under observation in the ward for 24 hours after the procedure and discharged to home after doing check X-Rays chest. The patients who were referred from pediatric units were referred back to the respective

units after 24 hours of observation. All the patients were given dexamethasone before the procedure to minimize oedema formation.

RESULTS

A total no of patients who underwent bronchoscopy were 42 cases. There was a definitive history of foreign body inhalation in 37 (88.09%). Foreign bodies were present in 38 cases (90.47%) In 37cases (88.09) different foreign bodies were removed successfully. Out of these patients, 25 (59.52 %) were males, 17(40.47%) were females. 31 patients (73.60%) were below 3 years of age. The lowest age having foreign body was 10 months old girl with a history that some sibling had put peanut in her mouth. 7 patients (16.6%) were having age 6-10 years. While 4 patients (9.52%) were of ages 11-15 years. The highest age was 15 years old girl. She had inhaled sieving needle while sieving. She had put needle in her mouth. She developed cough and suddenly inhaled the needle. The sharp end of the needle was imbedded in the left vocal cord while the other end with thread was hanging in the lumen of the trachea. It was removed uneventfully with bronchoscopy

Most common manifestations were coughing, with subsequent dyspnea & audible wheezing, asthma, cyanotic spills, choking, whistling In the order of frequency. 4 cases (10.5%) had definitive history of foreign body inhalation but no symptoms and signs at the time of admission.

X-rays chest findings in our study were radio opaque foreign bodies; 4 cases (9.52%), emphysema 17 cases (40.47%), pneumonia and segmental lung collapse 4cases (9.52%). Normal findings in 17 cases (40.47%).

The site of foreign body on bronchoscopy was, glottic 3 cases (7.89%), trachea 5 (13.15%), right main bronchus 24 cases (63.14%), left main bronchus 6 cases (15.53%).

Types of foreign bodies retrieved were, peanuts 20 cases (52.63%), metallic foreign bodies 4 cases(10.52%), beads 3 cases (7.89%) and nut shells, maize grain, been, whistle 2 cases (5.26%) each. In one case (2.63%) a piece of bone was retrieved. This patient was brought cyanosed and was in sever respiratory distress, first tracheostomy was performed and then foreign body, a piece of flat bone lying in the glottic region, was retrieved with bronchoscope.

4 patients (9.52%) were having dry mucous plug, which was sucked out and positive pressure ventilation applied. All of them improved. These patients were referred from children units with lung collapse and pneumonia who were not responding to conservative treatment. Only dry mucous plug was

obstructing the bronchi and no foreign body was found.

One case (2.68%), a two and a half years old child was referred from a local district head quarter hospital that had no history of foreign body inhalation and was treated as a case of acute asthmatic attack. Maize was removed from the trachea.

One patient (2.32%) died due to cardiac arrest as that patient was brought in a cyanosed state, bronchoscopy was attempted but it could not be completed. The patient had cardiac arrest, resuscitation done but the patient could not be rescued. Our mortality was 2.32%.

DISCUSSION

Ventilating bronchoscope was not available in this part of the province till March 2005, and the patient had to move to Peshawar. Most of them died on the way before reaching to the tertiary care hospital at Peshawar.

Bronchoscopy is the ultimate means of diagnosis and removal of foreign bodies in the tracheobroncheal tree. Others procedures can be performed like tracheostomy to bypass the obstruction in the larynx or for the removal of foreign body which cannot be extracted through the larynx.⁴ Thoracotomy, an open surgical procedure, performed for the removal of foreign body when the bronchoscopy fails.⁹

We performed all the procedures with rigid ventilating bronchoscope as in use through out the world. Flexible bronchoscope is not available in this department. Some of the authors have managed removal of foreign bodies tracheobroncheal tree with flexible bronchoscope but they suggested that rigid bronchoscope should be at hands to attempt foreign body removal if flexible bronchoscopy extraction fails.^{1,2}

In our study, there was positive history of foreign body inhalation in 88.09% cases. It is the same as reported in others studies.¹²

We confirmed the view of others that the highest incidence occurs under 3 years of age.^{2,8} In this study 73.60% of the patients were under 3 years of age. Children under 3 years of age are at risk because of their curious natures, strong oral tendency to put objects into the mouth and lacking of molar teeth.^{6,12}

In our study males are more affected than females, the ratio is 1.5:1. it is also reported in others studies that male children are more susceptible than females which is not different from previously reported cases 1.4:1.^{8,10,11} The cause of it is not known. It may be of the over active nature of the male babies as compared to the females.

Most common clinical manifestations in our study were cough, with subsequent dyspnea & audible wheezing, asthma, cyanotic spells, choking, whistling or no symptoms at all. These are similar to the studies carried out in other parts of the world.^{5,6,9,10}

Radiography is essential, especially anteroposterior & lateral view which may either show radiopaque foreign bodies, obstructive emphysema, atelectasis, lung collapse or it may be normal. In our study we have radiopaque foreign bodies in 9.52%, Obstructive Emphysema 40%, pneumonia and segmental lung collapse 9.5 % and normal finding in 40.94% of cases.¹⁰

The normal findings on X-Rays chest reported in others studies are 33%-55%.⁶ Thus normal findings on X-Rays chest do not exclude the possibility of foreign body inhalation. If a patient is in severe distress, time should not be wasted by doing investigations and patient should be immediately shifted to Operation Theater for Emergency bronchoscopy / tracheostomy. In this study we have observed that dry mucous plug may act as a foreign body. In 9.2% of our cases presented as segmental lung collapse and pneumonia. After removal of the plugs with suction and application of positive pressure ventilation, these patients improved as revealed by post bronchoscopy X-Rays performed after 24 hours.

In 10.5 % of our patients, there was history of foreign body inhalation but were having no sign or symptoms at the time of admission, so bronchoscopy should be performed in all cases having history of foreign body inhalation as suggested by others.¹³ The commonest foreign body found in our study was peanut 52.63% , which is similar to the cases reported in others studies.^{9,13} Other common foreign bodies were been, maize, whistle and bean. This is due to the fact that these commodities are widely used in this area.

We confirmed the findings of others that vegetative foreign body produces more body response in the form of increased secretions and oedema of the air ways as compare to the non vegetative foreign bodies.^{7,8,14} Dexamethasone as a state dose followed by divided doses in the next 24 hours, decreases oedema in the tracheobronchial tree.¹⁶

Most of the foreign bodies were in the right main bronchus this is related to the fact that right main bronchus is more vertical and wider than the left one.^{9,12,15} Our success rate is (97.6%) and mortality rate is (2.38%) which coincides with other international studies.⁶ Complications of bronchoscopy for foreign body aspiration may occur even in experience hands.¹⁶

One of our patients was considered as a case of acute asthmatic attack but on bronchoscopy foreign body (maize) was recovered. In children under going treatment of new onset asthma, bronchitis or pneumonia that is not responding to appropriate treatment, consider the possibility of aspiration foreign body particularly with unilateral wheezing.³

CONCLUSION

Early diagnosis and intervention is essential in children with foreign bodies in the air way to prevent mortality and morbidity. Small materials, especially food bits should be kept far away from young toddlers, parents should be educated about the risk involved with the foreign bodies' inhalation.

Whistle (toys) which are freely available in the market should be withdrawn from the market and legislation should be done in this regard. Bronchoscope should be made available at least at every district hospital to save precious lives by making an early intervention possible, as most of these patients die on the way while reaching to the tertiary care hospitals.

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