

RESEARCH ARTICLE

ANAESTHTIC CONSIDERATION OF TRACHEOBRONCHIAL FOREIGN BODY REMOVAL VIA RIGID BRONCHOSCOPY.

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Abstract

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Foreign body aspiration most commonly occurs in paediatric age group and is associated with higher rate of airway obstruction and morbidity and mortality. Life threatening complications include haemorrhage, tension pneumothorax during rigid bronchoscopy. We hereby presenting a case of 8 year old female with ingestion of zapota (chiku) seed and successful removal of the foreign body in the bronchus under general anesthesia.

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Introduction:-

Foreign body aspiration is the leading cause of mortality in children. Initial presentation of the child with a foreign body is usually with a history of choking episode. Child may present with cough, wheezing and increased respiratory rate. X ray and CT scan has low sensitivity and specificity. So the gold standard to rule out foreign body is the rigid bronchoscopy under general anaesthesia. Early diagnosis and treatment decreases the mortality.

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Case report:-

A 8 year old female child weighing 15kg was referred to our institute in view of sudden cough and breathing difficulty, one episode of blood stained sputum and with the h/fo ingestion of zapota(chiku) seed 4 hours back. After the incident child was taken to nearby hospital. CT scan was performed which showed foreign body left main bronchus. Child was referred to tertiary care centre. On clinical examination child was stable, no dyspnoea / stridor. Child was afebrile, Heart rate 136bpm, respiratory rate 32cpm, spo2 100 at room air. On auscultation Respiratory system – air entry reduced bilaterally, B/L crepitations with wheeze on the right side. CXR and x ray neck didn't show any changes. CT scan showed foreign body left main bronchus.



CBC was done with hb 12g/dl and TLC of 16000 and platelets of 3.24. Condition of the patient was explained to parents and high risk consent was taken for rigid bronchoscopy removal of foreign body. NBM to solids was 4 hours. Nebulisation with asthalin was given in the preop for 5 minutes to improve lower airway ventilation and oxygenation and to prevent bronchospasm. In the operation theatre all standard monitors like ECG and spO2 was attached and non invasive blood pressure was placed. After securing 22g IV cannula on left hand. Child was premedicated with inj. Glycopyrrolate 0.06mg, inj midazolam 0.05mgkg, inj fentanyl 2ug/kg. preoxygenated for 3 minutes, patient was induced with inj ketamine 2mg/kg and after confirmation of mask ventilation, inj succinylcholine 1mg/kg was given. Lignocaine 10% was sprayed in the larynx to prevent brochospasm. A 5mm rigid bronchoscope was introduced into the trachea and was maintained on O2 and sevoflurane. Intermittent positive pressure ventilation was maintained through the side port of rigid bronchoscope. Anaesthesia was maintained with intermittent doses of ketamine. Succinylcholine 0.25 - 0.5 mg/kg was repeated whenever necessary with atropine sulphate 0.02mg/kg. Foreign body is removed from right main bronchus. A check bronchoscopy was done to see for any trauma, bleeding. Inj Hydrocortisone 2mg/kg and inj Dexamethasone 0.08mg/kg was given and patient was nebulised whenever necessary. Patient was continuously monitored for spO2 and ECG until patient was fully conscious and then shifted to wards. Postoperative period was uneventful and patient was discharged the next day after a check CXR.



Discussion:-

Goals of anaesthesia include adequate oxygenation, controlled cardiorespiratory reflexes during bronchoscopy, rapid return of airway reflexes and prevention of pulmonary aspiration.

Foreign body aspiration in children mostly occurs with peanuts seeds and other food particles and less frequently with the metallic and plastic particles. It occurs mainly in the right main bronchus because of anatomical position of right bronchus as it is more vertical and has larger diameter leading to more air entry than the left bronchus.

Preop assessment should include location of airway obstruction.CXR is helpful in determining the location of foreign body and for evidence of secondary pathologic changes such as atelectasis, air trapping or pneumonia. If there is any hyperinflation of one lung or lobe exists, nitrous oxide should be withheld because of possible damage to affected lung.

Rigid bronchoscopy is advantageous as it provides unrestricted visualisations, good ventilator control and ability to pass various instruments to remove the FB. NBM for solids around 6 hours and 2 hours for liquids is preferred for the procedure. However if the intervention has to be urgently than, a large bore gastric tube can be used to aspirate the stomach contents before induction.

Patient should be premedicated with inj.glycopyrrolate (4 mcg/kg IV) to prevent secretions and inj.dexamethasone (0.4 - 1 mg/kg IV)to treat airway oedema and inflammation after the procedure. Induction of anaesthesia may be with inhalational or intravenous techniques. Controlled ventilation with short acting muscle relaxant is a preferred technique if FB is lodged distal to carina. Spontaneous ventilation with topical anaesthesia can be used for proximal FB. IV induction agents such sodium thiopental, ketamine or propofol can be used. In our study Ketamine was used as it is safe can be used in full stomach. It leaves cough reflexes intact, it even provides cardiovascular stability and is also a bronchodilator.

Muscle relaxation can be achieved by succinylcholine bolus or intermittent doses or shorter acting non depolarising muscle relaxants. This necessitates controlled ventilation, but decreases the requirement of anaesthesia and also prevents coughing, trauma.

In our case IV induction + muscle relaxant + jet ventilation was used. Because of this the introduction of the endoscope was very easy as there was total muscle relaxation; intermittent jets of oxygen were used to ventilate child. This was achieved by attaching the head of the bronchoscope to the O2 port.

After the bronchoscopy, the child is observed for stridor, respiratory distress, or signs of subglottic edema, haemorrhage, bronchospasm and if any airway perforation. A check x ray should be done to rule out any pneumothoax or any barotraumas.

Conclusion:-

The removal of tracheobronchial foreign body is challenging to both anaesthesiologist and endoscopist, so it should be ensure with good muscle relaxion so that foreign body retrieval is easy making the procedure fast and of with lesser complications.