Bilateral main stem airway obstruction during operative peanut extraction

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BACKGROUND

ABSTRACT

Introduction: Foreign body aspiration is most common in children under the age of 5-years-old. In the year 2000, foreign body aspiration accounted for more than 17,000 emergency department visits and 160 deaths in children aged 14 years or younger. Airway foreign bodies are the 5th most common cause of death in children younger than 1 year old.

Case description: 15-month-old male previously healthy presents to the Emergency Department with inspiratory stridor and coughing after a witnessed ingestion of peanuts. On presentation his respiratory rate was 20 BPM with a room saturation of 97%. A chest x-ray was obtained which was normal with no evidence of a foreign object identified in the patient. Based on the history and clinical presentation the patient was consented for airway examination with possible removal of foreign object under general anesthesia. In the operating room, an intravenous catheter was placed after an uneventful inhalational induction. A sufficient plane of anesthesia was obtained with the use of sevoflurane, propofol, fentanyl and glycopyrrolate. The surgeon performed a direct laryngoscopy with rigid bronchoscopy after topicalizing the vocal cords with 1% lidocaine. A peanut was identified at the mid tracheal level. Despite the peanut’s 50% obstruction of the airway lumen, the patient was adequately ventilated via the rigid bronchoscopy maintaining oxygen saturation at 98% on Fi O2 100%. An attempt at passing a Zerotip Nitrinol stone retrieval basket 1.9F was unsuccessful secondary to limited maneuverability in the lumen. Instead a peanut forceps Karl Storz was used to retrieve the peanut. On the first attempt the peanut was pushed down to the carina. On the second attempt the peanut broke into 2 fragments with one fragment obstructing the right main stem and the second fragment remaining at the carina. At this point ventilation became more difficult with oxygen saturation at 95%. A further attempt at extracting the carina fragment resulted in dislodging the fragment into the left main stem. At this point ventilation became extremely difficult with no chest rise, no breath sounds on the left chest and significant decrease breath sounds on the right chest, with decreasing oxygen saturation below 90%. A brisk mid sternum chest compression was applied. This resulted in the dislodgement of the left main stem fragment into the mid trachea allowing for better ventilation with increase oxygen saturations to 98%. The two peanut fragments were then removed without incident using the peanut forceps. Patient had an uneventful emergence. He was observed in the intensive care unit over night and then discharged to home the next day without any sequel.

Discussion: Standard first aid recommendations for total obstruction of the pediatric airway:
- Removal of foreign body with direct vision
- In the prone position with head down followed by 5 back blows in interscapular area
- In the supine position apply five chest compressions same as CPR technique
- In the Lateral position apply five lateral chest thrust
- Repeat if necessary

REFERENCES