



Infant Choking or the "A" of Resuscitation

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Choking from a foreign body is usually due to direct airway obstruction. In fatal or near fatal cases it is recognized at the time of occurrence. Along with coughing and wheezing it is the most common presenting symptom of foreign body aspiration. The sensitivity of this symptom is high (95%) but the specificity is poor [1]. Choking could also be a sign of foreign body impaction in the esophagus [2,3]. It is, however, a rare event in infants under 6 months old. Respiratory symptoms are not frequent and usually the ingestion occurs with the help of a young sibling [4]. In a review of 2,394 cases of foreign body in the esophagus, 343 were children, the youngest was 7 months old and none had respiratory symptoms [5]. Failure to recognize foreign body impaction as a cause of respiratory symptoms in infants may contribute to morbidity and mortality. In three large series of esophageal foreign bodies, no case necessitated emergency care due to sudden respiratory arrest [2,3,5].

We report a near fatal case of an infant aged 2.5 who presented to the pediatric emergency room with respiratory arrest due to a foreign body impaction.

Patient Description

A 2 month old Bedouin infant with a history of a fall and dyspnea was brought

by his parents to the pediatric emergency room. According to the parents, approximately 20 minutes had elapsed since the episode. On arrival, the infant was severely bradycardic and was not breathing spontaneously. The pupils were mid-dilated but reactive to light. Cardiorespiratory resuscitation was started immediately, including cardiac massage and bag and mask ventilation. On laryngoscopy, blood-tinged foamy secretions were found in the mouth and pharynx. A 3 mm endotracheal tube was inserted through the larynx with direct view of the open vocal cords. Following ventilation through the tube the bradycardia resolved quickly. The first arterial blood gases showed severe combined metabolic and respiratory acidosis with a pH of 6.7, serum bicarbonate 4 mEq/L and PCO₂ 140 mmHg; PO₂ was 91 mmHg. A few minutes later the pH rose to 7.1, serum bicarbonate to 14 mEq/L and PCO₂ decreased to 47 mmHg with PO₂ of 94 mmHg. However, due to resistance to manual ventilation, minimal chest movement and diminished air entry to both lungs, another laryngoscopy was performed by a senior physician, confirming that the endotracheal tube was in place. Manual ventilation was resumed, but again, resistance to ventilation was encountered with minimal chest movement and difficulty passing a suction catheter. The

endotracheal tube was removed and good suction of the mouth and pharynx was performed. Eventually a gray object lodged in the posterior wall of the hypopharynx was discovered. The object was removed with a finger sweep; it was identified as a 6 x 3 cm piece of raw potato [Figure]. The child was intubated again and ventilated easily. His chest movements improved, with good air entry on auscultation. He was admitted to the pediatric intensive care unit where he was ventilated for 24 hours and then extubated. On the following day he was sent home in good general condition and with no apparent neurologic deficit on examination.

A subsequent interview with the mother revealed that a few hours prior to the episode she had been cutting potatoes in the tent while her infant was lying on the floor. She raised the possibility that her 2 year old son, who



Figure. The potato piece that was removed from the infant's pharynx

was playing nearby, forcefully fed the infant with the offending potato piece, which was later removed.

Comment

Choking from a foreign body can be fatal if not recognized early. Normally a 2 month old infant does not have access to solid food. The occurrence of foreign body impaction in this age group is rare and the diagnosis is elusive. Chevalier [3] reported a 10 day old baby with a safety pin lodged in the cervical esophagus. In a review of 426 children with esophageal foreign bodies, the youngest patient was 25 days old and only 9 were under 6 months of age [2]. This explains why, with a vague initial history and an infant who was easily endotracheally intubated, we failed to consider the possibility of a foreign body as the cause of respiratory failure.

Foreign bodies in the esophagus are usually lodged in areas of natural constriction, such as the cricoid cartilage, the aortic arch, the left main bronchus and the diaphragm. The most common

site of impaction in children was the cervical esophagus [5] at the level of the cricoid cartilage, which is its narrowest part. If large enough, foreign bodies can compress the trachea and cause respiratory impairment [3]. The potato piece we found was stuck in the hypopharynx. It probably went down to the proximal constriction of the esophagus at the level of the cricoid cartilage. In that position it also exerted pressure on the trachea at its narrowest region (cricoid cartilage). We assume that this hard material exerted pressure on the endotracheal tube as well, and thus impaired air passage after intubation.

This case also illustrates the accident-prone child of 2 years old and older. In this instance, however, the victim was the younger brother and not the toddler himself, as reported in a previous review [4]. The question of child abuse was also raised, but was ruled out following comprehensive interviews.

We believe that this unusual case emphasizes the importance of the sequence of the ABC of resuscitation

regardless of etiology: **A**irway comes first; if any problem arises during resuscitation, one should **A**lways go back to **A**.

References

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