Abstract

Objective: To report the finding of an unusual foreign body in the airway of a child who was found unconscious after a choking episode.

Method: Case Report

Results: We present a case of airway obstruction by an unusual foreign body in a 10 month old male. The child was brought intubated to the emergency room after he was found unconscious and blue by his parents. His older sibling reported a choking episode after he placed a black object in his mouth. Chest x-ray on arrival demonstrated right-sided air trapping but no definite radio-opaque foreign body. Due to difficulty with ventilation and post-obstructive pulmonary edema on initial bronchoscopy, emergent extracorporeal membrane oxygenation (ECMO) was initiated to help stabilize the patient. Subsequent bronchoscopy demonstrated near total obstruction of the mid-trachea by an insect-like object. The object removed appeared to be a common American cockroach.

Conclusion: Airway foreign body retrieval is a common part of otolaryngology practice. Most of the time, these foreign bodies are food materials or other inanimate objects. Finding a cockroach in the airway is incredibly rare and only three cases have been reported in the literature. This case also illustrates that ECMO may be considered in a patient too unstable to tolerate temporary withdrawal of ventilatory support for endoscopy. Additionally, rapid diagnosis and treatment is important when caring for a child with suspected foreign body aspiration.

Introduction

Foreign body aspiration is a common and potentially life-threatening event in the pediatric population. It is more common in children less than 3 years old and more often presents in males. Multiple risk factors are associated with this age group including the frequent placing objects into the mouth and the presence of incomplete dentition (especially molar teeth). Typical aspirated foreign bodies include organic materials such as nuts, kernels, beans, hot dogs, etc. However, any foreign body that can fit in the oral cavity is fair game.

Fortunately, advances in endoscopic techniques have been associated with a steady decrease in morbidity and mortality related to foreign body aspiration events. The anesthesiologist plan usually involves a combination of inhaled and intravenous anesthesia while maintaining spontaneous ventilation. Sometimes, the foreign body may occlude the entire airway and ventilation may be near impossible. If this is the case, alternate methods of maintaining blood and tissue oxygenation such as extra-corporeal membrane oxygenation (ECMO) must be considered. Herein, we present a case of an unusual airway foreign body in a patient who required ECMO for stabilization prior to foreign body removal.

Case Report

A ten-month old male was brought to the hospital for suspected foreign body aspiration. No adults witnessed the event but his stepsister reported that she saw the patient place something black from the ground into his mouth before he began choking. His father performed CPR before EMS arrived about 10 minutes later. At that time, the child had turned blue and was not responsive. He was promptly intubated and transported to the hospital. EMS reported that they may have pushed something into the trachea during intubation and the patient was difficult to ventilate during transport.

Upon arrival to the hospital, the child was immediately brought to the operating room. Initial bronchoscopy was complicated by unstable, marginal oxygen saturations and poor visualization secondary to airway edema and copious secretions. Additionally, he did not tolerate temporary suspension of ventilator support for greater than ten seconds during bronchoscopy attempts. Thus, emergent vena-venous ECMO was initiated by pediatric surgery. Repeat rigid bronchoscopy demonstrated a near obstructive insect-like foreign body mid-trachea. Multiple attempts with optical forceps were unsuccessful and the object was ultimately removed by inflating a Fogarty catheter distal to it which was then withdrawn. The object removed appeared to be the common cockroach.

The child was then transported to the intensive care unit and weaned off of ECMO the next day. Postoperatively, the child unfortunately developed severe neurologic sequelae and seizure disorder from prolonged anoxic brain injury.

Discussion

This case reports the unusual finding of a cockroach as an airway foreign body which has only been reported twice in the literature. This case also demonstrates the utility of ECMO in maintaining oxygen saturation during the removal of airway foreign bodies. Patients that present with difficult ventilation, marginal oxygen saturations, and high airway pressures could potentially be bridged with ECMO. Our patient did not tolerate brief withdrawal of ventilatory support for bronchoscopy and had marginal oxygen saturations that plummeted within seconds. Once ECMO was initiated, oxygen saturation was stabilized and bronchoscopy could proceed. This provided ample time for removal of the airway foreign body. However, ECMO cannulation has its limitations and requires time and availability of pediatric surgery services which is not the case for all institutions.

Conclusions

1. Airway foreign bodies are serious and life-threatening events commonly seen in pediatric otolaryngology.
2. Although organic food material is the most commonly found airway foreign body in the pediatric population, do not discount the possibility of unusual findings.
3. In critical patients with poor oxygenation and difficult ventilation, ECMO may help stabilize them enough to allow for airway foreign body removal.

References