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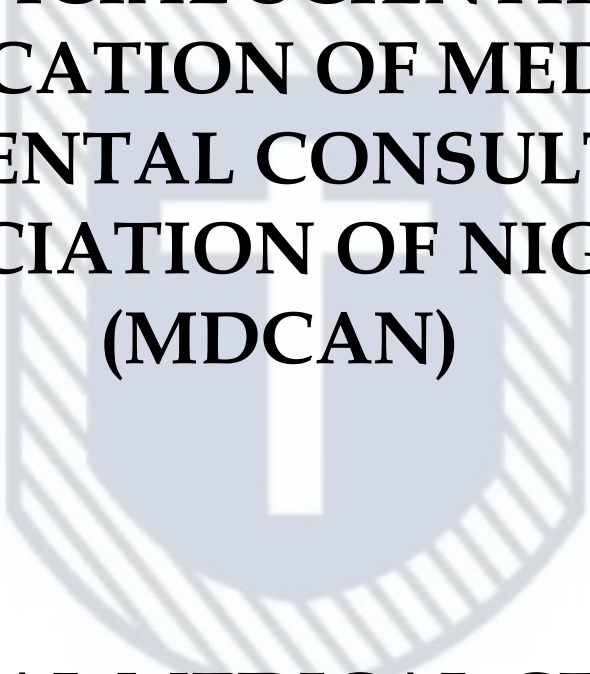
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CASE REPORT

FOREIGN BODY ASPIRATION OF A PLASTIC CAP IMPACTED AT RIMA GLOTTIDIS IN AN INFANT

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ABSTRACT

Background: Foreign body aspiration in children often occurs suddenly and dramatically, and can manifest in various ways including respiratory distress, suffocation, asphyxiation and death.

Case presentation: A 7-month old female infant presented to the children emergency ward with history of foreign body aspiration. Multiple attempts at retrieval had been made by the mother and at initial health facility prior to presentation. No neuromuscular blockade was administered and bag-mask ventilation was not performed during those initial interventions. On presentation the child was in severe respiratory distress evidenced by use of accessory muscles of respiration, dusky skin and oxygen saturation of 70% in room air. Oxygen therapy was commenced. The child was obtunded with agonal respiration. Laryngoscopy with MAC 2 blade was performed and revealed a plastic cap of Augmentin syrup located at the Rima glottides; this was carefully retrieved with Magill forceps. The colour, saturation and level of consciousness improved immediately, oxygen therapy was continued for a while and the patient was placed on intravenous dexamethasone.

Conclusion: Foreign body aspiration in the paediatrics age group can be life threatening; appropriate equipment and expertise are necessary for a good outcome.

Keywords: foreign body, aspiration, children, paediatric.



INTRODUCTION

Foreign body aspiration (FBA) is a common cause of mortality and morbidity in children under 5 years. It may present as a paediatric emergency and is among the greatest causes of death at home among children in certain regions.ⁱ

Foreign bodies can be found in the larynx, trachea or bronchi. Impaction of an aspirated foreign body at the laryngeal level especially at the rima glottidis is uncommon compared to bronchial or trachea. FBA at rima glottidis represents a rare anatomical site of obstruction in paediatric foreign body aspiration, underscoring the unusual nature of such presentations in clinical practice. Foreign bodies include both organic (eatables, peanuts) or non-organic foreign bodies.

FBA accounts for 5% of all accidental deaths in children 0-4 years old in the USA.ⁱⁱ Previous researchers, in their case

reports of groundnut aspiration, have noted patients as young as 10 months.ⁱⁱⁱ Studies in various centers have noted that groundnuts and whistles are the most frequently aspirated objects.¹

This susceptibility in children may be due to their inquisitiveness, adventurous nature, lack of molars for proper mastication, and playing or running with food in the mouth with consequent in-coordination in swallowing and glottic closure.¹

FBA most commonly presents with respiratory symptoms such as wheeze and cough after a choking episode, respiratory distress, suffocation, asphyxiation and death.^{iv,v}

A careful history and clinical examination can identify those children who need additional investigation, including bronchoscopy. However, if it causes complete airway occlusion, it may lead to asphyxia and unfortunately becomes a cause of death.^{vi} The diagnosis and

treatment of FBA requires awareness and the highest degree of suspicion.

Here, we present a case of foreign body aspiration in a 7 month old infant.

CASE PRESENTATION

A 7 month old female presented to the children emergency ward with a history of foreign body aspiration. Various attempts at retrieval by the mother were unsuccessful, necessitating a visit to a peripheral hospital where further attempts at retrieval were also unsuccessful. No neuromuscular blockade was administered and bag-mask ventilation was not performed during those initial interventions. The patient was subsequently referred to a tertiary health facility for expert care.

On presentation, the child was in severe respiratory distress evidenced by use of accessory muscles of respiration, dusky skin and oxygen saturation of 70% in room air, respiratory rate of 52 cycles/min and

heart rate of 154beat/min. Oxygen therapy was commenced with 100% oxygen through nasal prong and the anaesthesia team on call was invited. Oxygen saturation improved marginally to 82%.

Upon the arrival of the anaesthesia team, the patient's condition had worsened; the child was obtunded with agonal respiration. Laryngoscopy was performed with a MAC 2 blade, which revealed a plastic cap of Augmentin syrup located at the Rima glottides. This was carefully retrieved with Magill forceps. The colour, oxygen saturation and level of consciousness improved immediately, however oxygen therapy was continued for a period. There was no need for intubation nor ICU admission as the patient made remarkable recovery.

The patient was placed on intravenous dexamethasone 1mg 12hourly and ceftriaxone 500mg daily for 48 hours and

recovered well. The patient was discharged home 48 hours after presentation.

DISCUSSION

Foreign body aspiration is a life-threatening condition and is common among children below the age of 5 years; our patient fell within this range. Studies of patients who had inhaled foreign bodies have found that a significant percentage were aged 0-5 years.¹ Other studies involving patients undergoing bronchoscopy for FBA found that up to 90% of patients are less than 3 years old.^{vii}

The higher incidence in the first year of life may be related to the behavior of children in this period, as they are accustomed to putting small objects in their mouths and may be crying while being fed.^{viii} Also, their molars are not yet developed, making them unable to chew properly.^{ix} Another contributing factor is their immature airway protective reflexes.^x

Different aspirated foreign bodies have been reported, both organic and non-organic, the most common being food, especially dried nuts.^{xi} Literature regarding large cohorts of FBA patients shows that the most common foreign bodies are dried fruits, food-grade materials, and peanuts, while plastic objects are less common (approximately 2.4%).^{xii} This is in keeping with, a cohort study of FBA which documented that plastic accounted for <5% of aspirated foreign bodies while organic materials were the majority.^{xiii} In our patient, the foreign body was a plastic object, which is less frequently reported.

Foreign body aspiration can result in the object being lodged in the larynx, trachea, or bronchi. Most aspirated foreign bodies in children lodge in the bronchi (60-80%), followed by tracheal (10%) and larynx (2%).^{xiv} The paediatric larynx is narrowest at the subglottic region predisposing to rapid critical obstruction when compared to the larger trachea lumen which allow some

airflow unless completely occluded.¹The location of the foreign body in the laryngeal area particularly at the rima glottidis as seen in the index patient is rare. This may be as a result of the large diameter of the plastic object, making it unlikely to obstruct airway parts lower than the rima glottidis.

There are limited reports in the literature regarding laryngeal foreign bodies. These cases commonly present with acute airway obstruction, which may be partial or complete, with severe obstructive features necessitating immediate intervention. Partial airway obstruction has low mortality rate when prompt intervention is provided, while complete airway obstruction has immediate risk of fatal hypoxia and death if the obstruction is not relieved rapidly. Death may occur if the foreign body is not coughed out or aspirated further into the lower airway. Trachea foreign bodies may present with sudden choking episode,

biphasic stridor, persistent cough, wheeze, dyspnea in partial obstruction and cyanosis in complete obstruction.^{xv}

The common presentation of a laryngeal foreign body includes a history of choking, croupy or coarse coughing, wheezing, aphonia, and cyanosis.^{xvi} Symptoms appear early after the inhaled foreign body lodges in the glottic opening, accompanied by signs of suffocation, requiring immediate intervention as was seen in our case. Laryngeal foreign bodies are associated with higher mortality due to complete airway obstruction, with mortality rate of up to 45% while 27% suffered transient hypoxic brain injury.^{xvii} This illustrates the danger of airway obstruction at the glottic level.

This case report demonstrates that complete laryngeal FBA presents as a dire emergency with no time for lengthy investigation,

requiring prompt retrieval to save the life of the child.

CONCLUSION

Foreign body aspiration of a plastic cap impacted at the rima glottidis is a rare but potentially life-threatening event in children. Prompt recognition and immediate intervention by an experienced physician are essential to prevent serious morbidity and ensure a favorable outcome.

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