Case Report

Aspiration Pneumonitis: Iatrogenic or Ignorance?

Abhishek Varun[a], Pradeep Kumar Mishra[b], Mandar Ramachandra Sane[c], Pankaj Verma[a]

Abstract

Aspiration pneumonitis is seen in individuals of extreme of ages, intoxicated person or in comatose / unconscious person. Aspirate is usually food particles, teeth, dentures, petrochemical distillate substances etc. However, we report a case in which, a two months old infant was treated with gentian violet for intraoral infection at peripheral health centre. Child had sudden respiratory deterioration for which he was referred to our hospital. Laryngoscopy revealed cotton swab stained with gentian violet. Aspiration was suspected with signs of violent respiration like subcutaneous emphysema. Child succumbed in two hours of hospitalization. Clinical history, investigation and autopsy findings are discussed in detail to infer upon the manner of aspiration i.e. Iatrogenic or ignorance.

Key word: Aspiration pneumonitis, Gentian Violet, Autopsy

Introduction

Aspiration is defined as the inhalation of oropharyngeal or gastric contents into the larynx and lower respiratory tract.[1] Aspiration pneumonitis is aspiration of sterile gastric contents,[2] while foreign body (FB) aspiration is a mechanical asphyxia as a result of obstruction usually between the pharynx and trachea bifurcation.[3]FB aspiration is one of the major causes of injuries during childhood in our country and the exact number of deaths due to FB aspiration is not known accurately. But it is estimated that, up to 1000 children die yearly in USA because of FB aspiration.[4]

In the presented case, a child had a foreign body aspiration and succumbed to aspiration pneumonitis after rapidly worsening condition. An interface of parent's ignorance and perspective of treating physicians is discussed.

[a] PG Resident, [b] Professor, [c] Assistant Professor, Department of Forensic Medicine and Toxicology, Sri Aurobindo Medical College and PG Institute, Indore-453555 (M.P)

Correspondence:Dr. Abhishek Varun

Mail: abhishekvarun1@gmail.com

Case details

A case of 2 month old infant presented with oral thrush with cough since 8 days for which child was treated in local hospital in a village. Gentian Violet was applied in the oral cavity and mother was advised to use Gentian Violet for local application as treatment. Child's respiratory distress suddenly aggravated 5 days latter with development of swelling on chest and back. No further medical advice was sought by parents and they continued treatment at home. Child deteriorated and was brought to our hospital in gasping condition with severe cyanosis. On examination, crepitant swelling over face and back was found, which was treated with release incisions (Fig 1). Incidental findings on emergency laryngoscopic intubation revealed cotton swab stained with gentian violet at level of glottis, partially blocking it. It was immediately removed but child succumbed to death within hours. Medicolegal autopsy of child revealed that he was well nourished.

Cyanosis was present over finger nails and lips; subcutaneous emphysema was present over face and back. Stomach contained about 20cc of white

pasty material sticking on stomach wall, mucosa grossly normal (Fig 2). Lumen of larynx and trachea showed white pasty material similar to gastric contents sticking on wall, with lower airways showed congestion of lumen. Gastric contents were also noticed in lower airway (Fig 3). Lungs were inflated with mottling and patchy consolidation at places. Petechial hemorrhages were present over heart. All organs were congested. Lungs were subjected for histo-pathological investigation, which showed presence of chyme (amorphous exudate) in airway, associated with features of inflammatory responseof aspiration pneumonitis (Fig 4). Cause of death was opined as death due to aspiration pneumonitis.

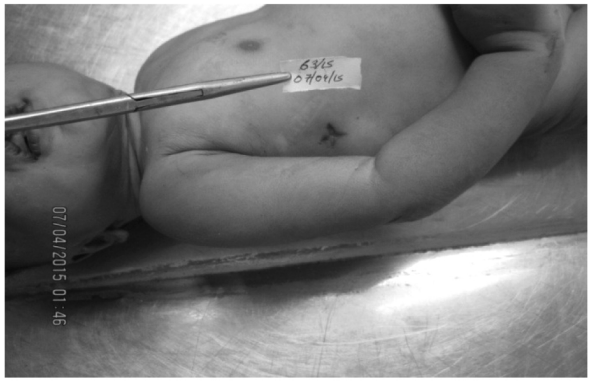

Figure1: Surgical release incision marks of subcutaneous emphysema

Figure 2:-Stomach containing 20cc of white pasty material.

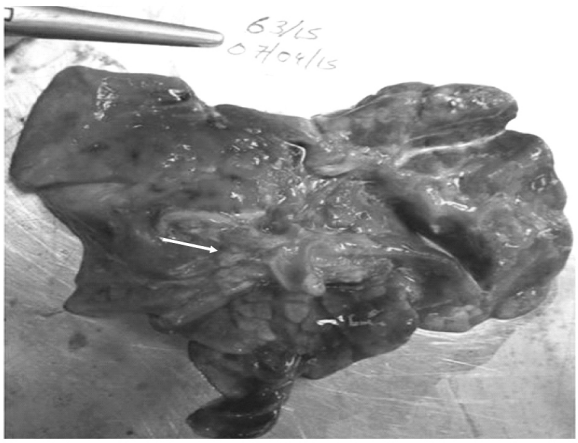

Figure 3: Cut section of right lung showing presence of gastric contents in lower airway

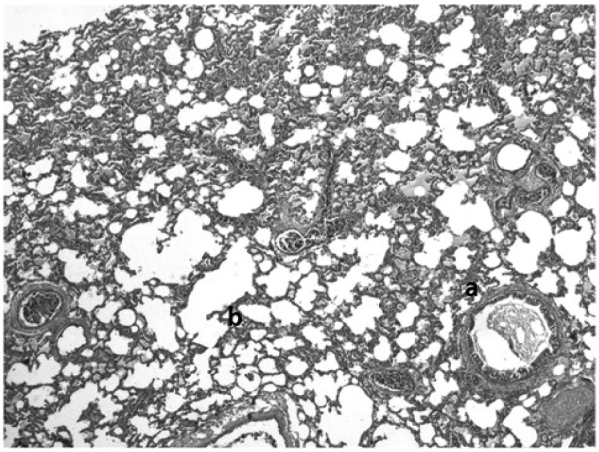

Figure 4: Lung tissue is showing amorphous chyme in airway (a) and ruptured alveoli (b) (H&E 40x)

Discussion

Aspiration pneumonitis is defined as acute lung injury after the inhalation of regurgitated gastric contents.[2]It is usually seen in individuals of extreme of ages, intoxicated person or in c omatose /unconscious person. Aspirate is usually food particles,[5] teeth,[6] dentures,[7] petrochemical distillate substances,[8] etc. However, considering aspirations in children, aspiration of food particles is more frequently encountered under 1 year of age, whereas foreign bodies other than food material are more common in older children.[9]

Airway obstruction may be either complete or incomplete. Increased intra-luminal mucus

secretion, bronchospasm, mucosal edema and inflammation may lead to secondary obstruction and asphyxia in an incomplete airway obstruction.[10]

The reasons for aspiration in children are decreased chewing power due to absence of molar teeth, curiosity to discover the outer world with oral action and forced inspiration upon being startled, crying or laughing.[11]A foreign body in the posterior pharynx causes irritation and discomfort that causes the child to cry or cough. Vigorous inspiration and crying causes the foreign body to become impacted within the airway partially blocking it; as was probable in this case. The impacted foreign body in the intrathoracic airway creates a valve-like effect that causes more airflow obstruction during expiration than during inspiration; the result is generalized or asymmetric gas trapping. Such gas trapping may lead to rupture of smaller airways leading to sub-cutaneous emphysema as in present case.

In present case, though intraoral application of Gentian violet was advised by Doctor, it also implied its timely removal. Ignorance on part of parents to subsequently remove the swab led to its lodgement in larynx. Surface sensory receptors of the respiratory tract adapt to the prolonged pressure caused by foreign body. Consequently, the child will not experience further coughing until other sensory receptors are stimulated by dislodgment of foreign body or by secretions.[12]Subsequent aspiration that of chyme compounded by inability of child to cough it out resulted into fatality in present case.

Ozdemir C[13] reported case series of foreign body aspirations in childhood and observed that ignorance of parents and community was major cause of such aspirations. Uneducated and ignorant parents were also identified as risk factor along with other factors like availability of riskful objects/foods, natural diseases with feeding difficulty and incorrect nourishment. [14]Ozdemir C reported similar case of 1 year old child with aspiration, who was admitted to a medical center and referred to a better-equipped hospital, but his parents discharged him from hospital after temporary resolution of symptoms. The child failed to respond to medical intervention when he was readmitted with worsening symptoms.[13] Failure to follow medical advice or failure to seek medical assistance in case of worsening symptoms might be the important factor for mortality in present case.

Conclusion

This case brings to fore whether such unsuspected aspiration of intraoral swab was due to iatrogenic negligence of doctor or due to ignorance of parents. A choking crisis in the child's history should alert physicians to the possibility of a foreign body aspiration. Treating physicians should be aware of aspiration accidents and should remain extra vigilant in cases of cyanotic toddlers. It remains potential area of negligence by doctor if it is proved that he failed to explain adequate procedure, side effects of intraoral swab application in children and basic life support for aspiration accidents. Proper communication with parents and their educational awareness may lead to prevention of such fatalities.

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