



DEATH DUE TO CHOKING - A CASE REPORT

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ABSTRACT

Choking is a form of asphyxia caused by an obstruction within the air passages, usually between the pharynx and bifurcation of trachea. The common agents may be piece of food, lump of meat, coins, buttons, set of false teeth, marbles, corns, etc. Food may be drawn into the larynx and trachea, either while travelling down in the mouth in the act of swallowing or may be regurgitated from the stomach. The usual mechanism of death in choking is mechanical asphyxia and reflex neurogenic cardiovascular failure.

Hereby, we present a case of 16 month old child who started coughing while playing, about 3 hours after having food and collapsed after 5 minutes. She was declared brought dead to hospital. During post-mortem cyanosis appreciated over lips and nail beds. Oesophagus showed partially digested rice particles. Stomach contained partially digested rice and sambhar particles. An unchewed and undigested peanut was found at the bifurcation of trachea obstructing the tracheal lumen. On further asking parents gave history that her mother fed the child with rice and sambhar which contained no peanuts. But after having food the child was playing in their confectionery shop where they also sell the peanuts. So this child might have swallowed that peanut without notice of parents that went into trachea and caused death of the child by choking.

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INTRODUCTION

Choking is a form of asphyxia caused by an obstruction within the air passages, usually between the pharynx and bifurcation of trachea.¹ It is a well known phenomenon in forensic literature for many centuries and has been recognized as a cause of sudden accidental death. Food may be drawn into the larynx or trachea either while swallowing or may be regurgitated from the stomach. The former occurs while the victim is laughing, crying or talking to someone during meals. The usual mechanism of death in choking is mechanical asphyxia and reflex neurogenic cardiovascular failure. Complete blockage of the air passage is not required to cause death by choking. Death can occur from laryngeal spasm, when small objects block the lumen only partially.² Victims are mainly very young, elderly or mentally retarded people. It is commonly associated with conditions that suppress the central nervous system, cause coma, or depress the gag reflex such as alcohol, narcotics and sedative drugs, anaesthesia and convulsions. Another example of choking is the entry of blood into the airways in a case of cut throat injury.³

Choking is almost always accidental. Suicidal is rare – seen in mental hospitals or prisoners where foreign body is thrust into the throat. Homicidal choking as a mode of infanticide may be caused by slipping paddy grains soaked in milk into the nostrils, stuffing a wad of paper / cloth into throat.

It is very rare.¹

Air Marshal Subroto Mukerjee – First chief of the Air Staff of the Indian Air Force died due to choking in 1960, when he was having a meal with a friend in a restaurant in Tokyo. A piece of food lodged in his windpipe, choking him to death.⁴

Café Coronary is the term introduced in 1963 by Dr. Roger Haugen. In which a healthy but grossly intoxicated person, begins a meal, suddenly turns blue, coughs violently, then collapses and dies without much fuss. It was initially thought to be coronary heart disease. At autopsy a large food bolus seen in the larynx obstructing air passage. Signs of choking were absent because of high blood alcohol which inhibits the gag reflex.^{4,5}

Diagnosis of death by choking is based on the detection of the generic signs of asphyxia, the identification of the foreign body obstructing the airways, the risk factors have been identified and the exclusion of other causes of death.

Causes of death in choking are- Mechanical asphyxia- large Foreign body impacted in pharynx, Laryngeal spasm –small objects – partial blockage, Reflex neurogenic cardio vascular failure and Delayed death- either due to Pneumonia, Bronchiectasis, or Lung abscess.¹

Case report

A 16 month old female child, about 3 hours after having food, started coughing while she was playing in her parent's

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confectionary shop. She collapsed after 5 minutes. She was taken to a hospital where she was declared brought dead. During post-mortem examination cyanosis appreciated over lips and nail beds. There were no external or internal injuries. Oesophagus showed partially digested rice particles. Stomach contained partially digested rice and sambhar particles. An unchewed and undigested peanut was found at the bifurcation of trachea obstructing the tracheal lumen. Other asphyxia signs like petechial haemorrhages over surface of both lungs and white matter of brain, congestion of visceral organs and pulmonary edema were also seen. Histopathological examination of trachea and lungs supported the gross findings.

So there could be 3 possibilities

1. The food which her mother fed her contained peanut which the child aspirated while swallowing.
2. The food which her mother fed her contained peanut which the child while playing regurgitated from stomach and aspirated.
3. The child without the notice of parents took the peanut in mouth and aspirated while swallowing.

On further asking parents gave history that her mother fed the child with rice and sambhar which contained no peanuts. But after having food the child was playing in their confectionery shop where they also sell the peanuts. So this child might have swallowed that peanut without notice of parents that went into trachea and caused death of the child by choking.



Fig 1 The photograph showing cyanosis present over lips.

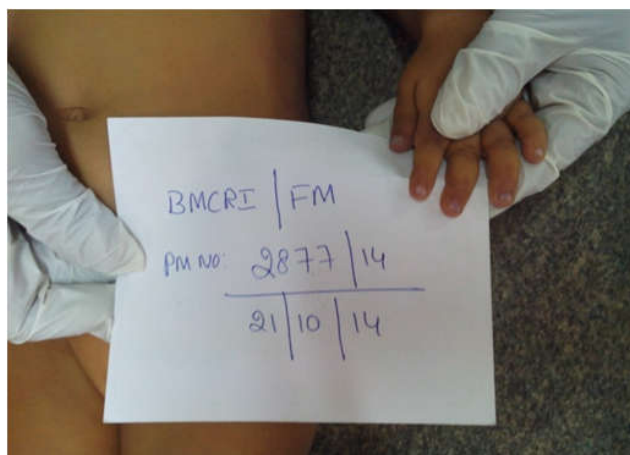


Fig 2 The photograph showing cyanosis present over finger nailbeds.



Fig 3 The photograph of oesophagus containing partially digested rice particles.



Fig 4 The photograph of stomach containing partially digested rice and sambhar particles.



Fig 5 The photograph showing an unchewed and undigested peanut found at the bifurcation of trachea obstructing the tracheal lumen.



Fig 6 The closer view of trachea showing an unchewed and undigested peanut found at the bifurcation of trachea obstructing the tracheal lumen.



Fig 7 The photograph of both lungs showing petechial haemorrhages over surface.

DISCUSSION

Choking is a form of mechanical asphyxia caused by the aspiration of foreign body, able to obstruct the airways. Finding of gastric contents in the air passages is by no means as significant as the presence of freshly swallowed food. The history, if available, is a better guide unless the material is wholly digested. In cases of doubt the smell and acid reaction to PH indicators may be useful. Knight (1976) found in 25/100 autopsies – gastric contents in air passages- Majority of them were due to post mortem spillage. The only definitive evidence of gastric contents is either reliable witnessed observation during life or the histological finding of an advanced vital reaction with infection, necrosis and definite inflammatory reaction. This is relatively late change, can not be seen in sudden deaths. So there is no reliable method of distinguishing - unless clinical or other witness evidence is available. The assumption of the presence of gastric contents in air passages as the primary and often the only cause of death may have distressing consequences in medical negligence, custodial death and sudden infant death syndrome. It may raise issue concerning adequacy of care and appropriateness of medication. The only circumstance where this assumption holds good is in acute alcoholism, where other causes of death

can be excluded by autopsy. However, it is not an autopsy diagnosis to be made lightly.⁶

In a case reported by Gardner in 1942, a young man was found dead outside his home. He was deeply cyanosed and appeared to have died due to asphyxia. Some acid fluid resembling gastric contents were present in the air passages but the air passages were not occluded by the fluid. Death was considered to be due to laryngeal spasm. The man had returned home under the influence of drink and had vomited.⁵

Wick R *et al*, studied 44 cases in 10yrs (1993-2002) in Australia. In which 43 were adults and 1 was Infant. 21 were Male while 23 were female. 57% were in the age group of 71 to 90 yrs. 61% were edentulous and 61% were having Psychiatric/Neurological disorder.⁷

Sharma L *et al*, in 2013, reported a rare case of sudden death of a 13 year old previously healthy girl. The deceased was due for a planned femoral hernia operation and kept N.P.O. She suddenly presented with acute respiratory distress on pre-op induction and collapsed. Despite re-suscitative efforts, the patient died within a few hours. The patient's family admitted giving the child a sip of a mango fruit drink just prior to induction as she was complaining of thirst. During autopsy they found complete obstruction of the trachea by a mucous plug formed due to the accidental aspiration of a fruit drink just after pre- op induction.⁸

Nayak SR *et al*, reported 4 cases of death due to choking in 2015. The deceased were from different age groups. During autopsy they found different substances like whistle, balloon, blood and partially digested aspirated stomach contents in the respiratory passages.⁹

Phanjoubam M *et al*, reported a case in 2018, which presented as death due to police torture. During meticulous autopsy they found semidigested food particles consisting of rice and vegetable matter clogged the respiratory tract up to the terminal bronchioles. This person actually died due to asphyxia resulting from choking with food particles.¹⁰

Furukawa S *et al*, reported a case of death of a 54 year old man due to choking caused by swallowing sushi rolls.¹¹

Coffey A *et al*, in 2014, reported 138 choking deaths in his study of 5 years and the age ranged from one to 96 years (mean = 57). Neurologic disease (e.g., remote cerebral vascular events, dementia, developmental disorders) was the most common risk factor for fatal choking (51%), followed by acute alcohol intoxication (13%), psychiatric illness (8%), and young age (8%). In 8% of decedents, there was no identifiable risk factor following investigation, autopsy, and toxicological examinations. The choking episode most commonly occurred in residences (62%), followed by nursing home/long-term care facilities (20%), streets/parks (6%), restaurants/bars (4%), and schools (1%, including one culinary school). Meat was the most commonly identified food object (14%); non-food objects included drug packets.¹²

Berzlanovich *et al*, in an autopsy based study, demonstrated that semisolid foods were the cause of a large number of asphyxiations, especially among the elderly, while in contrast, younger individuals choked significantly more often on large pieces of foreign material.¹³

Qureshi *et al*. report 3 cases of aspiration of a popular fruit-flavored gel snack leading to cardiopulmonary arrest and death

in 1 case and respiratory failure in 2 other cases. They commented that items lodged in the oral cavity, hypopharynx, or larynx can produce airway obstruction leading to hypoxia, respiratory failure, or even cardiac arrest. However, most items pass through the larynx and become lodged in the trachea or main stem bronchus.¹⁴

In our case child was of very young age of 16 months and he swallowed a peanut while playing in the confectionery shop of his father, which accidentally went into the trachea and choked her to death.

CONCLUSION

We described a case of 16 month old child who started coughing while playing, about 3 hours after having food and collapsed after 5 minutes and died. During autopsy an unchewed and undigested peanut was found at the bifurcation of trachea obstructing the tracheal lumen. This child was playing in the confectionery shop of his father, who accidentally swallowed a peanut which went into the trachea and choked her to death. This case highlights the need of being aware of the condition especially those infants, children and elderly who lack teeth or those tend to gulp food without mastication. This case also emphasizes the role of meticulous autopsy in detection of such cases and to differentiate choking with aspiration during agonal period.

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