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Choking Due To Multiple Etiologies - A Case Report

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Abstract

A 65-year-old male, having Alzheimer's disease was found unresponsive at home, brought dead to the Emergency Department. After the police investigation the body was subjected to medicolegal autopsy examination. During autopsy and found out that a large bolus of food material completely occluding the air passage with thick mucus in the larynx up to the minor air passages. Choking is a form of asphyxia caused by impaction of foreign body in the glottis or windpipe. Choking is quite common, mostly accidental in nature, occasionally homicidal. Complete blockage of air passage is not required to cause death by choking.

Keywords: Alzheimer's disease, Choking, Large bolus of food material

Introduction

Choking is a form of asphyxia caused by an obstruction within the air passage[1].Common culprits may include a piece of food, a chunk of meat, coins, buttons, false teeth, marbles, or kernels, etc. Victims will collapse suddenly after having meals and be found dead while seated[2].The presence of regurgitated gastric contents in the respiratory tract requires careful interpretation. Knight (1975) reported that gastric contents were found in the airways in approximately 25% of deaths from various causes such as incoordinated muscle activity during the agonal phase leading to regurgitation and inhalation in to the air passages, intoxication or unconsciousness caused by alcohol or drugs, as a sequelae of head injury[3]. Advanced age, male gender, hypnotic medications, previous history, tumours of air passages etc are identified as potential risk factors associated with choking [4,5].Complete blockage is not required to cause death. Death can occur from laryngeal spasm, when small objects block lumen only partially the air passages.

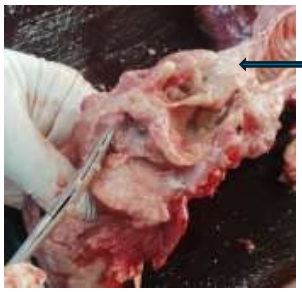
Case Report

A 65-year-old male, having Alzheimer's disease was found unresponsive and was brought dead to the Emergency Department. After an investigation by the police his body was subjected to autopsy examination. During autopsy, a firm mass measuring 3 × 2 × 1 cm was noted at the aryepiglottic fold of the larynx, with ulceration and pus at its base. A large bolus of soft rice was found completely occluding the lumen of the airway, with a copious amount of thick mucus surrounding the bolus and extending into the minor air passages. Stomach contained a handful of partially digested soft rice, vegetable pieces and other unidentifiable food particles having no unusual smell, mucosa was congested and showed submucosal haemorrhages at places. Lungs were congested and oedematous. Bit from the laryngeal mass was preserved and sent for histopathological examination and the repot revealed moderately differentiated

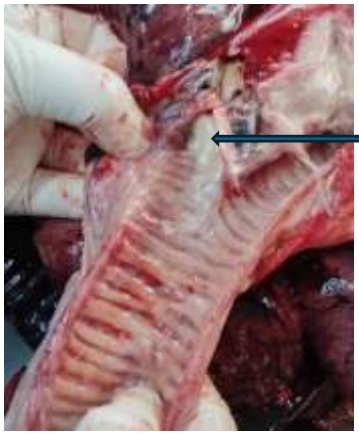
squamous cell carcinoma; tissue was partly lined by squamous cell and partly by respiratory epithelium.

Considering the autopsy and histopathological findings opinion as to the cause of death was furnished as, "Death was due to choking".

Bolus of soft rice completely occluding the larynx.



Squamous cell carcinoma at the aryepiglottic fold with pus & ulceration at base.



Thick mucus extending from the larynx to the minor air passages.

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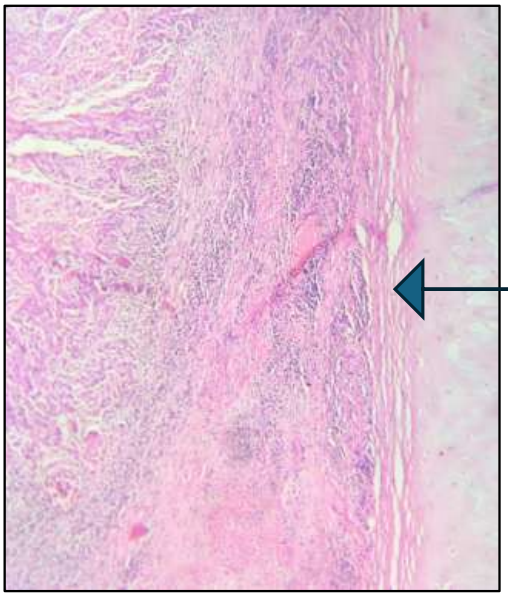
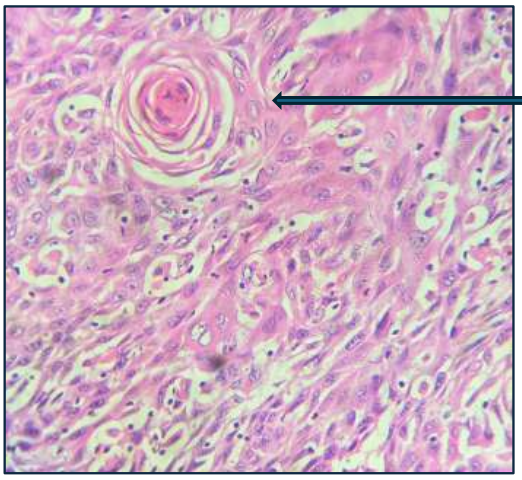
Photograph of histopathology slides



Low-power photomicrograph of the **tumour** showing infiltration of laryngeal wall adjacent to cartilage. The tumour is seen on the left, with hyaline cartilage on the right (H&E stain, ×4x).



Histological section showing invasive well-differentiated squamous cell carcinoma composed of nests of malignant squamous cells infiltrating the stroma with prominent keratinisation and keratin pearl

Discussion

Choking is a form of asphyxia caused by an obstruction within the air passages[9]. Accidental choking is most common. It is not necessary that the air passage should be blocked completely, even a small object closing the lumen partially can cause death by laryngeal spasm. Various pathological conditions can lead to choking by causing mechanical obstruction of the airway[1]. It includes tumours compressing the air passages, formation of a false membrane, acute oedema of the glottis, massive haemoptysis, epistaxis, throat injuries, retropharyngeal or peritonsillar abscesses, and ulcerating caseating lymph nodes rupturing into the trachea. Foreign bodies lodged in the pharynx or oesophagus may also obstruct the airway. Additionally, iatrogenic causes such as retained gauze pack left behind after tonsillectomy or other surgical procedures involving the pharynx or larynx can result in choking. Choking can also occur in violent sexual intercourse involving oral sex [10].

Movements of the epiglottic cartilage of the larynx prevents food or liquid from entering the airway during swallowing[11] . The most common site of laryngeal carcinoma is glottic followed by supraglottic areas[11].Risk factors include chronic gastroesophageal reflux disease, use of tobacco, chronic alcohol consumption, viral infections exposure to wood dust, asbestos, and industrial chemicals [6]. As the tumour enlarges, it progressively narrows the airway, resulting in stridor or dyspnoea. Haemorrhage or necrosis within the tumour mass

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disrupts the larynx's protective closure during swallowing, increasing the risk of aspiration. Sudden choking episode can also occur due to tumour mass causing mechanical obstruction of the airway. Inability of the larynx to safeguard the airway can result in aspiration, allowing food particles or saliva to enter the trachea.

The coexistence of advanced Alzheimer's disease and laryngeal squamous cell carcinoma in an elderly male can create a dangerous situation that significantly heightens the risk of fatal choking and asphyxiation. Alzheimer's disease causes progressive dysphagia, impaired gag reflex, and poor swallowing co-ordination. Dysphagia, is highly prevalent in the advanced stages of Alzheimer's disease, affecting 80–93% of patients. This condition frequently results in aspiration, choking episodes, and aspiration pneumonia, which rank among the leading causes of death in Alzheimer's patient. Key contributing risk factors include progressive cognitive decline, impaired gag reflex, poor coordination of chewing and swallowing mechanisms[7]. Laryngeal carcinoma leads to progressive narrowing of the airway, tumour bulk obstruction, and disruption of normal laryngeal closure during swallowing. Together, these conditions synergistically compromise both the protective and respiratory functions of the larynx, making even small amounts of food, saliva, or secretions to cause complete airway obstruction. Combination of Alzheimer's disease and laryngeal cell carcinoma places an elderly male at critical risk for fatal asphyxiation[8].This lethal combination markedly increases the likelihood of sudden choking and fatal asphyxiation in such patients[13].

In cases of choking, death is typically attributed to a combination of asphyxia, vagal inhibition, and laryngeal spasm. Once the airway is completely obstructed, death usually occurs within 4 to 5 minutes due to total cessation of oxygen supply to the lungs[3]. Characteristic autopsy findings include the presence of an impacted foreign body in the respiratory tract, signs of asphyxia, and regurgitated food particles mixed with fluid and mucus in the trachea, bronchi, and smaller bronchioles.[1].

Conclusion

This case highlights the medicolegal significance of sudden unexpected death in elderly individuals with Alzheimer's disease, particularly when coexisting with laryngeal carcinoma. In forensic practice, such deaths underscore the importance of meticulous autopsy examination to identify the interplay between neurodegenerative dysphagia and occult upper airway pathology, which can result in fatal choking even with partial obstruction. From a medicolegal perspective, these cases necessitate careful differentiation between natural disease, accidental choking, and possible neglect.

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