



A Review article on Choking

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Abstract:

Choking, medically, is an acute internal blockade of upper respiratory passage by a solid foreign object, accidentally, causing death by asphyxia generally or vaso-vagal attack occasionally; occurring mainly in the very young and the elderly; and when it occurs in adults they are usually greedy people who bait there food. Using the word choking to all the conditions where in the cause of death due to obstruction to airways is not correct. The term 'choking' excludes strangulation, drowning and gagging which all together constitute separate entities so also the death due to various diseases and or their complications can also be excluded as they are natural, pathological and insidious.

Key words: Choking, Deaths (Natural/Unnatural), Foreign Objects, Suffocation

Introduction:

Choking is commonly understood as a condition where in a solid object accidentally enters and obstructs the lumen of upper respiratory passage, preventing air from reaching the lungs and causing death instantaneously or after some hours. Café coronary is another variant cited as an example of this wherein an adult male, taking food in a restaurant coughs and collapses dead, resembling a death from massive myocardial infarction. But at autopsy an undigested solid food material is seen blocking the upper air passage, without any sign of asphyxia or massive myocardial infarction. Some authors do state that choking can occur even without the presence of a foreign body or obstruction to the air passages as seen in certain diseases and also in certain natural conditions like pulmonary edema, pleural effusion, tumors and infections of lungs; and entry of fluid (water) into respiratory passages (drowning), blood in the bronchi as a result of rupture of blood vessels in the lungs or pus from ruptured abscess; and entry of irrespirable gases like chlorine, and pressure over neck by strangulation, Hanging, blow over neck, and tongue falling backwards to close pharynx. When one consider various examples given by authors, all deaths from asphyxia i.e., hanging strangulation, suffocation, drowning and inhalation of irrespirable gases, some diseases of lungs, can come under choking. In other

words, choking could be natural/Unnatural, intentional/Unintentional with or without obstruction of air passages by solid, liquid or gas. In view of circumstances cited above, an attempt is made herein to review what are the views expressed by various in the literature of Forensic Medicine regarding what actually constitutes choking and to arrive at a conclusions regarding what choking actually is.

Discussion:

Steadman's Medical dictionary [1] describes the word "Choke" is to prevent respiration by compression or obstruction of larynx or trachea. Whereas Dorland's medical dictionary [2] states 'choke' is one that (i) interrupts respiration or compression or the condition resulting from such interruption. (ii) a burning sensation beginning in the sub-sternal region, with increasing uncontrollable urge to cough, and great apprehension and anxiety, leading to vaso-vagal attack, experienced during decompression and if further specifies water choking, laryngeal spasm caused by fluid entering the larynx especially by getting between true and false vocal cords. Concise Oxford dictionary [3] defines 'Choke" as (i) to hinder or impede the breathing of a person by constricting the wind pipe or (of gas, smoke etc..) by being unreachable, (ii) suffer a hindrance or stoppage of breath, (iii) make or

become speechless from emotion and (iv) block or clog (a passage, tube) disgusted, disappointed.

Apurba Nandi [4] describes choking in the context of occlusion of air passages by some foreign material or due to some pathology or foreign substance in the neighboring structure (esophagus). Further he adds that a person gets choked due to inhalation of irritating gas like chlorine or vapor of an acid. Grevall S.D.S [5] states that the suffocation thus caused often occur accidentally from the impaction of foreign bodies – masses of foods, for example in the throat or air passages. Spasm or edema of the glottis may cause suffocation. This may be a result of disease or of inhalation of irritating poisons, either liquids or gases. Modi[6] considers “choking” is mostly accidental and might result due to the (a) the presence of foreign bodies such as a piece of meat, potato skin etc., and that the vomited matter may regurgitate into the larynx and on inspiration they may be aspirated into smaller bronchi and may cause suffocation; and (b) diseases such as tumors pressing on some portion of the air passages, or a false membrane as in diphtheria or acute edema of the glottis, or effusion, or caseated glands ulcerating into trachea. A foreign body in the pharynx or esophagus may cause obstruction pressing on the windpipe from behind. Further Modi concludes that sudden entry of external or internal object or material into the respiratory passages or in case of acute edema of glottis; or of slowly/insidiously growing tumor over the respiratory passage or a membrane closing the Oropharynx as in diphtheria, or massive pleural effusion or foreign body in the pharynx pressing on the trachea from behind in an unknown way, or a foreign body in the pharynx closing the respiratory passages (probably gagging) constitutes choking.

Nagesh Kumar G Rao [7] opines that choking is a form of asphyxia caused by mechanical occlusion within air passage by a foreign object like metallic coin, bolus of rice particles, pieces of cloth like handkerchief stuffed into the mouth tightly occluding the air passage, tongue falling on the posterior pharyngeal wall in an epileptic attack. Narayana Reddy K.S. [8] says choking is a form of asphyxia caused by an obstruction within air passages by food, vomits, blood from facial wounds, seeds etc., and he went on to add suffocation from diseases such as diphtheria, infections from mononucleosis, H.Influenza in children, haemoptysis in pulmonary tuberculosis, laryngeal and bronchial growths, acute edema of the larynx due to inhalation of steam or ingestion of irritant substances, allergic reactions from insect bites, penicillin, a blow to front

of neck as choking. Choking is considered as a form of death produced by occlusion of air passages by a foreign body like coin, food particles, seeds or vomit etc., in case of cut injury to the throat, when blood gets into the throat, when blood gets in to the respiratory passages and causes asphyxia according to Patnaik V.P.[9]

Gonzales T.A.[10] opines that choking occurs when solid objects or materials enter and obstruct the lumen of air passage, preventing air from reaching the lungs and most of the cases are accidental. If the object passes through the narrow laryngeal aperture and reaches the trachea or bronchi; the obstruction is not always complete and death may not occur for several hours; the chief findings at autopsy would be marked cyanosis, hyper aeration of lungs over distension of groups of alveoli and scattered area of atelectasis, probably the result of excessive mucus in the bronchi. Gordon, Shapiro and Berson [11] opine that death from choking may result from impaction of foreign bodies in the bodies in the pharynx, larynx, trachea or bronchi. According to Mant A.K. [12] Choking refers to the blockage of upper air passages (glottis, larynx, trachea and main bronchi) by some solid substance. Here it is perhaps worth recalling that the presence of stomach contents in the air passages is by definition not necessarily choking.

Polson et al [13] describe Choking as a form of asphyxia caused by an obstruction within the air passages. It is usually due to the irritation of a foreign body. However, it can also be caused by the inhalation of products of diseases (or of violence) or anatomical changes due to disease. Although, strictly, the cause of obstruction in choking is within the air passages. It is convenient here to include allied circumstances when for an example a foreign body in gullet may press upon and obstruct trachea. The usual mechanism of asphyxia in choking is simple mechanical obstruction; occasionally, however, the entry of foreign material may cause sudden death from vagal inhibition (the so called Café Coronary). Further Keith Simpson(1964) [14] believe that death from choking may be so sudden that its nature is quite unknown until autopsy reveals something impacted in the air passages, usually across the glottis. Choking is most common in children and aged especially if simple minded and gluttonous, bolting the food without thought or drunk. Bernard Knight [15] uses the term ‘choking’ for impaction of unswallowed bolus of food or some other material object that gets struck in the throat. The fouling of the glottis by vomit can be better termed ‘Vomit fouling’.

Camps FE [16] further opine that it is convenient to include certain allied circumstances under choking when, for eg., a foreign body in gullet may press upon and obstruct trachea. Death from choking may be so sudden that its nature is quiet unknown until autopsy reveals something impacted in the air passages, usually across glottis. Choking is most common in children and elderly people especially if simpleminded and gluttonous, booting the foot without thought or drunk; according to Glaister et al [17].

Choking is defined as a particular form of asphyxia by the blocking of the glottis or the wind pipe by a solid substance or an abscess or edema of glottis, sloughing growth, inflammable membrane or vomit regurgitation, describes the Taylor's principles and practice of Medical Jurisprudence [18]. Sir Sydney Smith [19] implies the word choking for the impaction of a foreign body in the respiratory passage; the substances being semi solid (clotted milk, vomit), are drawn into the smaller bronchioles, and cause death from asphyxia. Suffocation can also result from diseases such as diphtheria, acute edema of larynx, laryngeal tumors, pulmonary edema, large effusions, and hemorrhage into the trachea, etc and from the effects of certain poisons.

Conclusion:

After considering the opinions expressed by the various authors aforementioned in the literature and analyzing the causation of choking, we can observe that diseases of lungs i.e. pulmonary edema, pleural effusion, tumors and infections of lungs can be excluded from choking, as their pathological conditions bereft of foreign body obstructing the upper air passage. Surgical emphysema, cellulites and edema of larynx can cause obstruction of the airways and no solid foreign body is involved in the process of causation of such obstruction. Pus from a burst abscess, blood from a ruptured blood vessel entering the air passage can also be excluded from the entity of choking as they are complications of a pathological condition. Aspiration into the air passages of the regurgitants of stomach contents from the esophagus and aspiration of blood from broken tooth by an unconscious patient can also can be cited as examples where in there are no solid foreign bodies to cause obstruction of the air way. Fluids entering the air passages and thus preventing the air movements in the airways can be better termed as drowning. Gases (irritable /non irritable) or irrespirable gases causing asphyxia are called can be better termed as 'asphyxiants' as they cannot block the air passages by mechanical means. Gagging

again is a voluntary act which is not accidental, and has to be separately described. In case of death from a blow over front of the neck, no foreign body and no obstruction to the air passages is involved. In cases of strangulation and hanging, the foreign material is not within the respiratory passage but it is over the surface of neck. Thus, choking medically implies to acute internal blockade of upper respiratory passage by a solid foreign object, accidentally, causing death by asphyxia or by vaso-vagal attack occasionally and the term 'choking' excludes strangulation, drowning and gagging which all together constitute separate entities. Similarly death due to various diseases and or their complications can also be excluded from choking as they are natural , pathological and insidious ,obstruction in such conditions are not due to a solid foreign object.

Conflict of Interest: None

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