

Commentary on: Iino M, O'Donnell C. Postmortem computed tomography findings of upper airway obstruction by food. *J Forensic Sci* 2010;55(5):1251–8.

Sir,

I read with great interest the recent paper of Iino and O'Donnell (1) on the postmortem computed tomography findings of upper airway obstruction by food. I applaud this research that gives new, original data on airway obstruction by food. I would like to comment however on the use of the term choking.

Choking and smothering are both terms used to describe asphyxial deaths by obstruction of the airways (2). Depending on the level of the obstruction, one term or the other is used. There is however much confusion in the literature on the anatomical landmark to use in distinguishing smothering from choking. Until recently, several definitions of choking coexisted: (i) synonym of food or foreign body inhalation regardless of the anatomical localization; (ii) obstruction at the level of the mouth, oropharynx, and larynx; (iii) obstruction of the larynx, trachea, or bronchi; (iv) obstruction of the airways; (v) obstruction of the internal airways; (vi) obstruction of the upper airways; and (vii) obstruction of the upper internal airways (2). There is so much variation in the classification and definition of terms that research is inevitably tinted by confusion, with similar research protocols leading to different results depending on the definitions used. In an attempt to standardize the classification of asphyxia, a unified system was recently proposed (2). In this standardized classification of asphyxia, the anatomical landmark chosen to distinguish choking from smothering is the epiglottis. Smothering is now defined as asphyxia by obstruction of the air passages above the epiglottis, including the nose, mouth, and pharynx. As for choking, it is defined as asphyxia by obstruction of the air passages below the epiglottis. If confronted with an obstruction extending above as well as below the epiglottis, it is recommended

to use the lower level of the airway obstruction in classifying the case.

Considering this new standardized classification, 12 of the 14 cases presented in the series of Iino and O'Donnell are indeed choking (cases 3–14), whereas two cases would be better classified as smothering (cases 1 and 2). Furthermore, Iino and O'Donnell defined three types of choking by food in the upper airways: type 1—food situated in the naso-oro-pharynx without affecting the position of the epiglottis; type 2—food situated above the epiglottis with the epiglottis pushed down by the food; type 3—food situated in the laryngeal inlet and pushing the epiglottis forward. In their research protocol, cases with food located beyond the vocal chords were not included. With regard to the standardized classification of asphyxia, their types 1 and 2 are subdivisions of smothering, whereas type 3 corresponds to the definition of choking.

These comments on the classification of asphyxia are not meant to diminish in any way the value and great interest of the research performed by Iino and O'Donnell. It is important however, to assure reproducibility of research and uniformity of practice, that standardized definitions are used from now on.

References

1. Iino M, O'Donnell C. Postmortem computed tomography findings of upper airway obstruction by food. *J Forensic Sci* 2010;55(5):1251–8.
2. Sauvageau A, Boghossian E. Classification of asphyxia: the need for standardization. *J Forensic Sci* 2010;55(5):1259–67.

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