D82 The Importance of Autopsy in Deaths Due to Choking

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After attending this presentation, attendees will learn about the importance of autopsies in cases with suspected deaths due to asphyxia from choking on foreign bodies which, even when material has not been identified by emergency medical responders and caregivers, warrant an autopsy.

The presentation will impact the forensic science community by emphasizing the importance of performing an autopsy on choking-related deaths, which may have medicolegal repercussions.

In the United States, choking and suffocation accounts for the third leading cause of home and community deaths, with young children and older adults at the highest risk.[1] The lack of adequate investigation, including a formal autopsy performed by a forensic pathologist, may result in the underreporting of asphyxia deaths. In the forensic community, asphyxia from choking is defined as an obstruction from food material or foreign objects within the airways below the epiglottis.[2,3] The manner of death is most commonly an accident. Besides age being a risk factor in these cases, neurologic or mental deficits, poor dentition, and alcohol intoxication are among the most common underlying reasons that increase the likelihood of choking-related asphyxia deaths.[2]

In medical forensic cases where a suspected asphyxia from choking on food occurs, emergency medical responders and caregivers will often recognize the signs of an airway obstruction and attempt to remove the food item from the airway. However, during a review of the Wayne County and Washtenaw County Medical Examiner database from 2008 to 2012, 20 cases in which food products were identified below the epiglottis at the autopsy table had not been previously identified by emergency medical responders and caregivers at the accident scene.

Information obtained from a review of the identified cases included age, predisposing risk factors, significant neurologic or mental comorbidities, on-site findings by emergency medical responders and caregivers, and final autopsy findings. In this review, decedents ranged from the age of 13 months to 89 years old, many had risk factors that included missing teeth and acute alcohol intoxication, and several carried a previously diagnosed comorbidity, including mental retardation and dementia.

Initial on-site medical response efforts in these choking cases failed to properly identify remaining food material in the airways, most likely due to the location of the food material being lodged below the epiglottis and away from direct visualization. At the autopsy table, proper visualization of food material below the epiglottis, which obstructed the decedent's airways that lead to eventual death, could more easily be identified in all cases. These autopsy findings, given the circumstances, were assigned a cause of death due to asphyxia by choking, which was accidental in manner. This highlights the importance of performing an autopsy in suspected choking-related deaths because the cause of death may be otherwise overlooked and potential medicolegal repercussions are at stake.

As noted, a significant portion of the cases in this review involved decedents with previously diagnosed comorbidities and risk factors. Initially, some forensic pathologists may choose to assign a natural cause of death in these cases based on the on-site response finding of no food material combined with a history of a neurologic or mental deficit and/or predisposing risk factors, including acute alcohol intoxication. This may lead to the decision to either forego a formal autopsy or perform a limited external exam with toxicology studies. However, these medical forensic cases warrant a formal autopsy due to the possibility of significant findings at the autopsy table, including complete obstruction of the decedent's airways below the epiglottis.

References:

1. National Safety Council. Choking. 2012. Online at http://www.nsc.org/
2. DiMaio VJ, DiMaio D. Asphyxia. In: Gerberth VJ, series editor. Forensic Pathology, 2nd Edn. Boca Raton, FL: CRC Press, 2011;235-40.
3. Sauvageau A, Boghossian E. Classification of asphyxia: the need for standardization. *J Forensic Sci* 2010;55(5):1259-67.

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