G55 Fatal Milk-Induced Pulmonary Hemosiderosis (Heiner Syndrome) in an Infant

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After attending this presentation, attendees will understand that sudden unexpected death in infancy can result from pulmonary hemosiderosis caused by milk protein intolerance.

This presentation will impact the forensic science community by stressing the importance of examining infant lung tissues stained with iron stains to aid in the diagnosis of pulmonary hemosiderosis and to highlight the association between pulmonary hemosiderosis and milk protein intolerance. To date, there have been no known previous reports in the medical literature of sudden death in an infant due to pulmonary hemosiderosis associated with milk protein intolerance attributed to Heiner syndrome.

Sudden unexpected deaths in infants often pose a unique and sometimes complex set of challenges for forensic investigators. A thorough scene investigation, complete autopsy, and review of the circumstances of death and clinical history are required before rendering an accurate opinion of the cause of the infant's death. The Cuyahoga County Medical Examiner's Office routinely stains lung tissues of infants with a Gomori iron stain to better highlight the presence or absence of pulmonary hemosiderosis. The differential diagnosis for the etiology of pulmonary hemosiderosis includes both trauma and natural processes. The reported case presentation will highlight a rare cause of pulmonary hemosiderosis associated with an infant with intolerance for milk protein.

Heiner syndrome is a food hypersensitivity pulmonary disease that affects primarily infants and is most commonly caused by cow's milk. Only a few reports have been published in the medical literature, which may be due to its clinical misdiagnosis. It has been reported that infants with Heiner syndrome that are fed cow's milk from birth will develop chronic respiratory symptoms beginning between the first and ninth month of age. Respiratory symptoms include cough, wheezing, hemoptysis, nasal congestion, and dyspnea. Other symptoms may include recurrent otitis media, recurrent fever, anorexia, vomiting, colic, diarrhea, hematochezia, and failure to thrive. The clinical diagnosis is supported with a positive milk precipitin test and symptomatic improvement on a trial of milk elimination. Severe cases may be complicated with pulmonary hemosiderosis.

A case is presented of a 3-month-27-day-old male who was diagnosed with milk protein intolerance at 2 months of age. He had a previous medical history including loose stools, persistent nasal congestion, upper respiratory tract viral infection, bilateral conjunctivitis, and poor weight gain. The infant was found by his father, not breathing and unresponsive, in a car seat three hours after the infant was placed in the car seat for a nap. Resuscitation attempts were unsuccessful.

At autopsy, the gross appearance of the lungs included pleural petechial hemorrhages, hemorrhagic pulmonary edema, and dark red-brown parenchymal congestion. Microscopically, the lungs had diffuse interstitial loose lymphoid aggregates, air space edema, and prominent alveolar siderophages. Also, a lymphocytic tracheitis, right otitis media, and changes of congestive heart failure were diagnosed. The cause of death in this case was pulmonary hemosiderosis due to milk protein intolerance, consistent with Heiner syndrome.

Forensic pathologists should be aware of the association between pulmonary hemosiderosis and milk protein intolerance when interpreting potential etiologies of siderophages in infant lungs.

Heiner Syndrome, Milk Protein Intolerance, Pulmonary Hemosiderosis

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