H103 Retinal Hemorrhages (RH) in a 6-Month-Old Child Related to Disseminated Intravascular Coagulation

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Learning Overview: After attending this presentation, attendees will understand that there are many causes of RH in children and will be able to develop a broad differential diagnosis for a child presenting with RH in addition to Abusive Head Trauma (AHT).

Impact on the Forensic Science Community: This presentation will impact the forensic science community by informing physicians about the importance of considering disseminated intravascular coagulation as a potential cause of RH and urge them to remember that RH are not always indicative of AHT.

Child victims of AHT often present with a triad of extensive RH, subdural hemorrhage, and encephalopathy.[1] RH are seen in 50%–100% of fatal cases of AHT in young children <3 years old; typical findings include RH and vitreous hemorrhages, retinal folds, retinoschisis, and optic nerve sheath hemorrhage. However, other causes of RH must be excluded. Differential diagnoses for RH include accidental trauma, intracranial hemorrhage, and cardiopulmonary resuscitation, as well as coagulopathies, hematologic malignancies, vasculopathies, meningitis, arteriovenous malformations, and metabolic disorders.[2] This report presents the case of an unresponsive infant who was resuscitated and was noted, on clinical exam, to have RH, raising the concern of AHT.

A 6-month-old child was found unresponsive in an adult bed, where he had been sleeping next to his father. Following prolonged (> 2 hours) cardiopulmonary resuscitation, he was eventually resuscitated. Ophthalmologic examination revealed RH, raising the concern of possible AHT. The child died 8.5 hours after hospital admission. Except for focal subscalpular hemorrhage, there was no trauma noted at medicolegal autopsy. The brain had early hypoxic-ischemic changes and the eyes had rare RH; there was no evidence of subdural hemorrhage or optic nerve sheath hemorrhage. The cause of death was certified as sudden unexplained infant death with a contributing factor of an unsafe sleep environment. A review of hospital clinical laboratory values indicated that the infant had Disseminated Intravascular Coagulation (DIC), which likely contributed to the RH.

Children with AHT often have a triad of extensive RH with subdural hemorrhage and encephalopathy. In this case, extensive medical intervention and clinical laboratory findings consistent with disseminated intravascular coagulation likely explain the child's RH. It is recommended that physicians are aware of the importance of considering disseminated intravascular coagulation as a potential cause of RH and remember that RH are not always indicative of AHT.

Reference(s):

1. Squier W. The "Shaken Baby" syndrome: Pathology and mechanisms. *Acta Neuropathol.* 2011. Nov; 122(5): 519–42. PMID: 21947257. 10.1007/s00401-011-0875-2.
2. Forbes B.J., Rubin S.E., Margolin E., Levin A.V. Evaluation and management of retinal hemorrhages in infants with and without abusive head trauma. *J AAPOS.* 2010 Jun;14(3):267-73. doi: 10.1016/j.jaapos.2010.03.002.

Retinal Hemorrhages, Abusive Head Trauma, DIC

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