G1 Retinal and Optic Nerve Sheath Hemorrhages Are Not Pathognomonic of Abusive Head Injury

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After attending this presentation, attendees will understand the limited value of eye evaluation in child death investigation.

This presentation will impact the forensic science community by bringing clarity to the controversial topic of retinal and optic nerve sheath hemorrhages.

For many years, the dogma of pediatric forensic pathology was "retinal and optic nerve sheath hemorrhages are pathognomonic of abusive head injury", including especially, the Shaken Baby Syndrome (SBS). Growing controversy surrounding the existence of SBS has lead to questioning of that dogma. A retrospective review of all child deaths (≤ 36 months of age) at a metropolitan medical examiner (ME) department was undertaken to establish the spectrum of retinal (RH) and optic nerve sheath hemorrhages (ONSH) encountered in a medical examiner's population. In this office, pediatric eye removal is routine, and all eyes are evaluated by consultant ophthalmologic pathologists. The medical Examiner's database had 137 cases that met age criteria over a five year period; complete case files were available on 123 cases. Of those 123 cases, 18 cases (15%) had RH and/or ONSH; eight cases had both RH and ONSH, seven had only RH, and three had only ONSH. Of these 18 cases, two were certified as natural deaths, eight were certified as accidents, and eight were certified as homicides. Evaluation of the data demonstrated statistically significant relationships between RH/ONSH and: restitution of a perfusing cardiac rhythm following advanced cardiac life support (with short term survival); and cerebral edema (regardless of etiology). Of those children who died without head trauma, but with eye pathology, 6 of 7 received advanced cardiac life support. Qualitative assessment of hemorrhage severity suggests slightly more severe retinal hemorrhages in children whose deaths were ruled homicides; these children were also more likely to have more lengthy post-injury survival periods and brain swelling. In conclusion, RH/ONSH are not limited to children who die of inflicted head injuries; instead, they may be seen in a wide variety of situations, and may be linked to cerebral edema, and sequelae of advanced cardiac life support.

Retinal Hemorrhages, Shaken Baby Syndrome, Pediatric Forensic Pathology

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