



Pathology & Biology Section – 2005

G97 Fatal Craniocerebral Trauma With Hemorrhagic Retinopathy in an Infant: Abuse or Accident?

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After attending this presentation, attendees will be aware of the limitations of certain ocular findings that are considered diagnostic for inflicted childhood neurotrauma and remember the importance of a thorough investigation before determining if a fatal pediatric head injury is intentional or unintentional.

This presentation will impact the forensic community and/or humanity by demonstrating the importance of a thorough investigation for all cases of fatal pediatric head injury.

Severe hemorrhagic retinopathy, retinoschisis and perimacular folds have been considered characteristic of inflicted childhood neurotrauma (Shaken Baby Syndrome), rarely occurring in children with intracranial hemorrhage from other causes. Observational reports and evidence-based inquiries have begun to question those assumptions. This is a report of a case of a 7-month-old infant who was left in the care of his 11-year-old brother and 10-year-old cousin for about two hours. When his mother returned from the store she found the infant unresponsive. He was transported to the local hospital where a cranial CT scan showed a non-displaced skull fracture adjacent to the coronal suture with widening of the sagittal suture, an extensive scalp hematoma, and a mixed density left subdural hematoma. Cerebral edema was noted, with diffuse effacement of the sulci over the left cerebral hemisphere and a suggestion of transtentorial herniation. After the infant was transferred to a tertiary medical center, a pediatric ophthalmology consult reported extensive bilateral retinal hemorrhages with premacular subhyaloid hemorrhage in the right eye and macular edema of the left eye consistent with a non-accidental head injury. A skeletal survey revealed no fractures other than the parietal skull fracture described on the initial cranial CT examination. A repeat cranial CT scan showed poor gray-white differentiation consistent with severe anoxic brain injury. Clinical brain death was determined about 20 hours after admission.

Major findings at the autopsy included multiple (6) contemporaneous acute skull fractures (consistent with a crush injury from quasi-static loading), subscalpular extravasated blood, subgaleal and epidural hemorrhage, subdural hematoma, diffuse subarachnoid hemorrhage, severe anoxic brain injury and a right cortical cerebral contusion. Postmortem ophthalmologic findings consisted of extensive bilateral retinal hemorrhages; intrascleral hemorrhages; retinoschisis and a perimacular retinal fold in the right eye; macular edema of the left eye; and intradural, subdural, and subarachnoid hemorrhage of the optic nerves.

Subsequent investigation revealed that the 10-year-old cousin had placed the infant in a baby carriage and taken him and his sister outside while the 11-year-old brother played basketball with friends.

Investigators doubted her story that when she came back inside she lifted the infant out of the stroller with one hand and put the stroller away with her other hand. Subsequent investigation and examination of the stroller showed that if the frame latch was not secure, releasing the latch on the handle would permit the stroller to collapse and lurch forward into the legs of the young babysitter, causing her to fall onto the stroller. Recent evidence-based reports have questioned the diagnostic specificity of certain ocular findings in infants/young children with brain injuries. Statements in the medical literature that retinoschisis and perimacular circular folds are diagnostic of shaken baby syndrome are not supported by objective scientific evidence. It is imperative that ocular findings are not viewed out of context and a thorough investigation is conducted before determining whether a fatal pediatric head injury is intentional or unintentional.

Shaken Baby Syndrome, Inflicted Childhood Neurotrauma, Retinal Hemorrhages