H123 Pediatric Dorsal Root Ganglia Hemorrhages in a Resuscitated Canine Mauling

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Learning Overview: The goal of this presentation is to highlight the importance of fundoscopic and complete spinal cord examinations in young children.

Impact on the Forensic Science Community: This presentation will impact the forensic science community by reinforcing the necessity for routine postmortem ocular and spinal cord examinations of children in traumatic and non-traumatic deaths.

Interpreting autopsy findings in pediatric deaths can be challenging due to the complicated, evolving, and occasionally conflicting body of literature regarding the specificity of certain findings. Reported here is a case of a fatal, witnessed, canine mauling that highlights the importance of a thorough autopsy to include fundal, brain, and spinal cord examination with inclusion of spinal nerve roots and dorsal root ganglia.

A 6-month-old African American male infant with a past medical history of prematurity was placed and buckled by five-point harness car seat on the living room floor by his babysitter, who then briefly left to unload her vehicle. The infant was subsequently mauled by an adult boxer mix and suffered numerous lacerated puncture wounds of the face and scalp. The mauling was witnessed in its entirety by a relative of the babysitter. He was transported by private vehicle to a local medical center and lost pulses shortly after arrival. He was intubated and return of spontaneous circulation was achieved after approximately 45 to 60 minutes of resuscitative efforts. He was flown to a level one trauma center with loss of pulses en route. He presented in cardiopulmonary arrest and was subsequently pronounced after approximately 45 additional minutes of resuscitative efforts.

External autopsy findings included a combination of lacerated puncture wounds of the face and head consistent with canine bites. Indirect ophthalmologic examination showed retinal hemorrhages of the left eye. There was fracture of the nasal bone and left orbital plate, was well as associated osseous punctures of the left temporal and parietal skull with an obvious concave deformity. Internally, there was patchy subdural hemorrhage, multifocal subarachnoid hemorrhage over the bilateral superior temporoparietal lobes, and puncture wounds of the left frontal and temporal lobes. A complete spinal cord resection with attached dorsal root ganglia by posterior approach revealed multifocal dorsal root ganglia and nerve root hemorrhages of all regions, most pronounced in the lumbar spinal cord, and confirmed in histologic sections.

Some authors previously ascribed specificity to retinal hemorrhages and dorsal root ganglia/nerve root hemorrhages of the cervical spinal cord as it relates to possible abuse head trauma (shaken baby syndrome) with hyperextension/hyperflexion injury of the neck.

With thorough scene investigation and interviews, the witness stated that there was no shaking in the attack, and that the attack simply consisted of frantic biting of the head only with the infant relatively stationary in the five-point restraint car seat. This study proposes that dorsal root ganglia hemorrhages in young children are a non-specific finding and may be seen as a component of hypoxic/ischemic reperfusion injury. This case highlights the importance of routine complete spinal cord examination and fundal examinations in young children and also highlights the importance of being cautious of ascribing diagnostic specificity to retinal hemorrhages or dorsal root ganglia/nerve root hemorrhages.

Mauling, Spinal Cord, Infant

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