## G87 Retinal and Optic Nerve Sheath Hemorrhages Associated With Non- Traumatic Subarachnoid Hemorrhage: Two Cases of Terson Syndrome in Young Children

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After attending this presentation, attendees will learn to recognize Terson syndrome and understand the direct relationship between rapidly increased intracranial pressure and ocular and optic nerve sheath hemorrhages.

This presentation will impact the forensic science community by demonstrating the direct relationship between rapidly increased intracranial pressure and intraocular and optic nerve sheath hemorrhages; and by reinforcing the need for thoroughness in investigation and postmortem medical examination of all sudden childhood deaths.

Ocular and optic nerve sheath hemorrhages in children are frequently attributed to inflicted traumatic brain injury; and when seen in conjunction with subarachnoid hemorrhage, are often mistakenly considered pathognomonic of Shaken Baby Syndrome. Two cases of nontraumatic subarachnoid hemorrhage with ocular and optic nerve sheath hemorrhage (Terson Syndrome), from Miami-Dade County are presented.

**Case 1:** A 2-year-old child was with his mother and her boyfriend when he complained of sudden ear pain and became hysterical. She was able to calm him and he fell asleep. When the mother returned to check on him, he was unresponsive. At autopsy diffuse subarachnoid hemorrhage, subdural hemorrhage and hematoma (75 grams) of the brain and spinal cord, and optic nerve sheath and retinal hemorrhages were identified. The cause of death was certified as Shaken Baby Syndrome with the manner recorded as a homicide. Subsequent investigation and review of the autopsy material revealed an intracerebellar hemorrhage with numerous, irregular blood vessels consistent with a ruptured ateriovenous malformation; and the death certificate was amended.

**Case 2:** An 8-month-old child whose parents observed her to be weak and lethargic with increased crying and loss of appetite for approximately two days. She was seen by her primary care physician, diagnosed with a stomach virus and sent home with instructions for supportive care. Her parents became concerned when she did not improve, and she was taken to the hospital. A preliminary CT scan showed basilar subarachnoid hemorrhage with possible mass effect and a ventriculostomy was placed. Despite maximum support, she died later that evening. At autopsy a ruptured giant aneurysm of the posterior communicating artery with diffuse basilar subarachnoid, retinal, and optic nerve sheath hemorrhages was identified.

Initially described in the early 20$^{th}$ century, Terson Syndrome referred to vitreous hemorrhage associated with subarachnoid hemorrahge. Today, the definition includes any degree of intraocular hemorrhage associated with intracranial hemorrhage and rapid elevations intracranial pressure. Although the findings in both of these cases mimic those described in cases of inflicted traumatic brain injury, they illustrate the importance of first excluding a natural disease process and of thorough examination of the brain in all pediatric cases.

**Terson Syndrome, Retinal Hemorrhages, Non-Traumatic**

 