



Optic chiasm and optic nerve hemorrhages in head trauma

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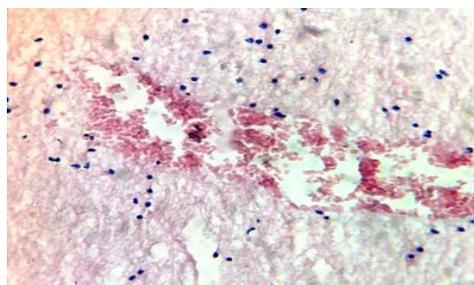
Introduction: Fatal head trauma is a major cause of death in children and adults. Postmortem differentiation of non-accidental head trauma from accidental head trauma can be a complicated process¹.

Methodology and theoretical orientation: Many studies have focused on the importance of optic nerve sheath hemorrhage as a postmortem finding in cases of Shaken Baby Syndrome, but this research has a strong impact on adults^{2,3,4}. Complete autopsies were performed on 20 adults died of acute intracranial injuries after head trauma induced by acceleration-deceleration forces⁵.

Findings: Optic chiasm and optic nerve hemorrhages were noted in all cases (Image 1). Their mechanism of production may result from severe rotational and translational acceleration.

Conclusions: Therefore, this investigation should be performed in all autopsy cases when an accidental head trauma is suspected and there is no reliable history/witnesses, confession or antemortem examination. Moreover in suspected case of subdural hematoma in adults, these findings may be used as an additional method in enabling the establishment of traumatic subdural hematoma from non-traumatic subdural hematoma⁵.

Image 1



References

1. Breazzano M, Unkrich K, Barker-Griffith A (2014) Clinicopathological findings in abusive head trauma: analysis of 110 infant autopsy eyes. *Am J Ophthalmol* 158:1146–1154.
2. Elnor S, Elnor V, Arnall M, Albert D (1990) Ocular and associated systemic findings in suspected child abuse (a necropsy study). *Arch Ophthalmol* 108:1094–1101.
3. Kiffney Jr G (1964) The eye of the “battered child”. *Arch Ophthalmol* 72:231–233.
4. Narang S, Estrada C, Greenberg S, Lindberg D (2016) Acceptance of Shaken baby syndrome and abusive head trauma as medical diagnoses. *J Pediatr* 177:273-8.
5. Puanglumyai S, Lekawanvijit S (2017) The importance of optic nerve sheath hemorrhage as a postmortem finding in cases of fatal abusive head trauma: a 13-year study in a tertiary hospital. *Forensic Science International* 276:5–11.