

Retinal hemorrhages in an infant with cerebral edema and asphyxia after prolonged cardiopulmonary resuscitation: a case report

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We present the case of a previously healthy 5 months old infant who was found unresponsive in bed by his mother. The parents called emergency medical services and started cardiopulmonary resuscitation until paramedics arrived. The infant was still unresponsive, had no measurable pulse and dilated pupils. First heart rhythm analyses revealed asystole. Circulation with measurable heart rhythm, but no palpable pulse, was established after forty minutes. After transportation to and arrival in hospital, nearly three hours later, a cerebral CT-scan was performed and demonstrated cerebral edema with poor demarcation of white and grey substance and findings consistent with severe asphyxia. There were no subdural or subarachnoidal hemorrhage, no sign of intracerebral bleeding and no sign of cervical spine injury. Full body X-ray did not reveal any previous or new fractures. Active medical treatment was terminated, but the infant was kept on ventilator for almost seven hours before life-support was ended and the infant died. While on ventilator, ophthalmology assessment with funduscopy was performed. The ophthalmologist found numerous bilateral retinal hemorrhages. The hemorrhages were located to the posterior pole of both eyes.

At autopsy there were no signs of soft tissue injury to the body including no cutaneous bruising or swelling, there were no signs of abdominal organ injury and no sign of fractures. There were no congenital malformations. Microbiology tests revealed cytomegalovirus DNA in organs. Previous medical history and autopsy findings did not indicate any coagulopathy. Death scene and post-mortem investigations found no evidence for child abuse.

Retinal hemorrhages are associated with nonaccidental head injury, but have also been described in association with other conditions such as subarachnoidal hemorrhage (Terson syndrome), other conditions with rapid increase in intracranial pressure and secondary to cardiopulmonary resuscitation. It has been reported that retinal hemorrhages in nonaccidental head trauma are more likely to be numerous, bilateral and in all layers of the retina and to extend to the periphery. This case report will present the detailed findings at funduscopy and post-mortem investigations of a case otherwise typical of sudden infant death syndrome and discuss some of the literature on retinal hemorrhages in infants.