Retinal Hemorrhages in a Neonate following Vacuum Extraction

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A full-term male neonate with birth weight of 2,760 grams was noted to have an absent red reflex and was referred for retinal examination eleven days after birth. Prior to examination, the infant’s birth history was recovered from his hospital records. An ophthalmologist examined the patient and found the anterior segment and vitreous body to be completely normal. Fundus examination was performed by indirect ophthalmoscopy using a 20D lens, and scattered retinal and foveal hemorrhages were detected in both eyes. The fundus was photographed (Figures 1 and 2) using a RetCam 120 Shuttle (Clarity Medical Systems, Pleasanton, CA, USA). Ultrasonography revealed caput succedaneum. The ophthalmologist decided that no therapeutic intervention was necessary, allowing time for the retinal hemorrhages to resolve. Five weeks after the initial examination, the infant’s hemorrhages resolved.

DISCUSSION

Vacuum extraction entails certain complications. Common complications include caput succedaneum, scalp bruising, cephalhematoma, and retinal hemorrhages which have a good prognosis;1 more serious complications, such

Figure 1. Scattered retinal hemorrhages in the right eye of the patient.
as subgaleal hemorrhage and intracranial hemorrhage, have a worse prognosis.\textsuperscript{2}

The reported incidence of retinal hemorrhage varies from 2.6 to 50%.\textsuperscript{3} This variation appears to be primarily due to the time neonates are examined. Sezen\textsuperscript{4} found the incidence to be 2.6%, three to five days after birth. The examiner’s experience, the mode of examination (direct versus indirect ophthalmoscopy), and use of a lid speculum are also thought to contribute to this variation.\textsuperscript{3}

Retinal hemorrhages associated with birth have an incidence of approximately 20% to 40% if subjects are examined within the first 24 hours of life, reducing to 10% to 15% if evaluation is performed 72 hours after birth.\textsuperscript{3} Retinal hemorrhages resolved in 86% of eyes within 2 weeks of birth and in 100% within 4 weeks.\textsuperscript{3} Superficial retinal hemorrhages resolve by 1 week (usually in less than 3 days) postpartum, while dot and blot retinal hemorrhages resolve by 6 weeks (usually in less than 2-3 weeks) postpartum. Nevertheless intrafoveal, preretinal, and vitreous hemorrhage may persist longer.

The anatomical location and appearance of retinal hemorrhages provide important clues to the diagnosis of underlying causes. While neonatal retinal hemorrhages related to birth trauma are common, benign, and heal spontaneously, other retinal hemorrhages in infancy may signify intracranial aneurysms, accidental or non-accidental injury, and a variety of ocular or systemic diseases.

In general there is agreement in the literature that birth-related retinal hemorrhages resolve quickly\textsuperscript{5} and their significance in the differential diagnosis of retinal hemorrhage due to non-accidental injury has been discussed.\textsuperscript{3,6} Emerson et al\textsuperscript{3} stated that intraretinal hemorrhage seen at
one month of age is not likely related to birth trauma.

Forbes et al\textsuperscript{6} stated that birth-related hemorrhages are small in size and number, while hemorrhages of long duration, are not great in number. This is important to remember when making a differential diagnosis. The presence of other clinical signs indicating cerebral injury will obviously arouse suspicion when found in conjunction with retinal hemorrhage, but isolated hemorrhages should also be considered carefully.

In another study\textsuperscript{7} moderate to severe retinal hemorrhage was found in 18\% of spontaneous, 13\% of forceps, 28\% of vacuum-assisted, and 50\% of sequential vacuum and forceps-assisted deliveries. Vacuum-assisted delivery was associated with decreased birth weight for gestation and decreased umbilical artery pH (less than 7.20). The mentioned study also found that more severe retinal hemorrhages are closely associated with the second stage of labor which takes less than 30 minutes. Vacuum-assisted delivery, though not very commonly used for delivery of full-term gestational age infants, is closely correlated with moderate to severe retinal hemorrhages.\textsuperscript{7}

Conflicts of Interest

None.

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