Case Report
JCAM

RETINAL HAEMORRHAGE IN A PRETERM NEWBORN – A CLINICAL CASE

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Öz

Amaç: Retinal kanamalar, sağlıklı yenidoğanlarda doğumdan sonraki saatlerde izlenen, sık görülen bir durumdur. Bunların büyük bir yüzdesi, doğumdan sonraki ilk iki hafta içinde rezorbe olmaktadır ve sadece tek bir vakada dört haftadan sonra retinal kanamalar bildirilmektedir. Olgu Sunumu: Hastamız, gebeliğin 26. haftasında doğmuş, 690 gram ağırlığında prematüre bir bebektir. Prematürite Retinofatisi taraması sırasında alakalı herhangi bir bulguya rastlanmayıp, kanama bulundu. Tarama indirekt oftalmoskopi ile yapılmış olup, fotoğraflar ise, iphone'a uyarlı welch-allyn oftaloskop ile çekildi. Kanama 20 haftanın sonunda ancak tamamiyle rezorbe edilebildi. Vakanın retcam ile dökümantasyonu, oftalmoloji bölümüne sevkinden sonra mümkün olmuştur. Tartışma: Kanamaların prematüre ve sezeryanla doğmuş bebeklerde nadiren görülmesine rağmen, çok düşük kiloyla doğan ve yapay havalandırmaya tabi tutulan bebekler için hala büyük bir risk teşekkül etmektedir.

Anahtar Kelimeler

Oftalmoloji; Kanama; Prematüre

Abstract

Aim: Retinal hemorrhages are frequently observed sights in healthy newborns examined hours after birth. A large percentage of them are resorbed in the first two weeks following delivery, with a single case reporting retinal hemorrhages after four weeks. Case Report: We present a preterm newborn weighing 690 g at birth, born at 26 g.w. A hemorrhage was found during screening for retinopathy of prematurity with no signs of retinopathy of prematurity. The screening was performed with indirect ophthalmoscopy, and a photo was taken with a welch-allyn ophthalmoscope adapted to an iphone. The hemorrhage had persisted for nearly 20 weeks before it was completely resorbed. Case documentation with retcam was possible after transportation to the Department of Ophthalmology. Discussion: Even though hemorrhages are less common in children born preterm and with C-section, infants with extremely low birth weight and those who underwent artificial ventilation are still at increased risk for retinal hemorrhages.

Keywords

Ophthalmology; Hemorrhage; Preterm

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Introduction

Retinal hemorrhages (RH) are frequently observed sights in healthy newborns examined hours after birth. They are more common in full-term babies compared to preterms. A large percentage of them are resorbed in the first two weeks following delivery, with only single cases reporting RH after four weeks. RH in infants older than one month should increase suspicion that the hemorrhage is associated with factors other than birth. The incidence of RH is higher for vacuum-assisted births than spontaneous vaginal deliveries and forceps delivery and is least for infants delivered by cesarean section. RH are observed more often in term compared to preterm neonates, which is due to the greater head circumference leading to fetal head compression and venous congestion during delivery [1].

A study from 2011 focuses on neonates with a medical history of perinatal distress which includes the following: birth asphyxia, meconium aspiration, amniotic fluid aspiration, fetal distress, transient tachypnea of the newborn, and dysphagic choking. Under these conditions, intraocular hemorrhages might result from significant hypoxia [2]. Autoregulatory hypoxic cerebral vasodilatation produces an increase in intracranial pressure, which in turn increases the retinal venous pressure [3]. Aspirated meconium, amniotic fluid, blood, or any source of airway irritation can cause mechanical obstruction. The forceful effort to extrude the irritant material may increase intrathoracic pressure and subsequently lead to cephalic venous congestion [2].

An observational study was carried out on 11 premature infants in whom retinal and/or vitreous hemorrhages had been observed within their first months of life. Contrary to the quick absorption (<1-2 weeks only) usually seen in most newborn term infants, the ocular bleeding in preterms was generally longstanding. The authors suggest that prematurity as such is added to the list of possible underlying causes when retinal bleedings are evaluated in very small infants [4].

Some maternal factors are also discussed by different authors. Maternal smoking during pregnancy causes increased frequency of retinal arterial narrowing and straightening, retinal venous dilatation, and tortuosity and intraretinal hemorrhages [5]. RH occurred with greater frequency in neonates born to women who had an intrauterine infection [1].

Case Report

We present a case of a preterm newborn from a first pathological pregnancy with a p.t.b 01.10.2016. The infant was born with a C-section on 01.07.2016, with 26 g.w. morphological maturity, weighing 690 at birth and severe asphyxia. The infant was intubated on the third minute and extubated on the third day. Subsystemic pulmonary hypertension and neonatal hepatitis were found. At day 11 a clinical picture of bronchopulmonary dysplasia was present, after which bilateral respiratory associated pneumonia developed with frequent episodes of apnea and respiratory failure. After improvement of the condition, treatment with oxygen via tent was given. Artificial ventilation was administered for a total of 15 days, CPAP – 3 days, surfactant – 2 times with oxygen therapy. Due to the severity of the child's condition screening examination for retinopathy of prematurity was possible only in 33 g.w. A hemorrhage was found on the path of the superior temporal arcade of the retinal artery in the left eye during indirect ophthalmoscopy. During follow-up three weeks later (36 g.w.) the hemorrhage blot persisted and was documented as 1.5 – 2 disk diameters large and three disk diameters away from the papilla (Fig 1-2). The screening was performed with indirect ophthalmoscopy, after which a photo was taken with a Welch Allyn iExaminer system (a panoptic ophthalmoscope adapted to an iPhone). During the control exams 38 and 40 g.w. the hemorrhage was still present. In the follow-up at 2 and 4 weeks after term, the hemorrhage started to decrease in size and documentation with a retcam was possible after transportation to the Department of Ophthalmology. Retcam examination was performed six weeks after term, and the hemorrhage was completely resorbed (Fig 3-4). Ophthalmological examination results: pupils equal, round, reactive to light with good mydriasis after Mydfrin 2,5% and Tropicamide 0,5%, lens and vitreous – transparent, papilla – vital, with clear borders, on the retinal level, vessels – with slightly increased tortuosity and normal caliber, reaching 2nd zone. No sign of retinopathy of prematurity was found during the examination.

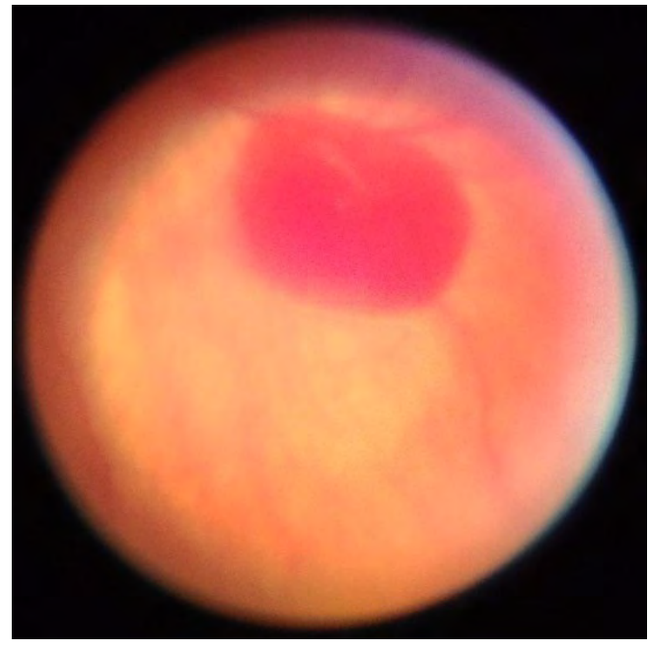


Fig 1. Haemmorhage on the superior temporal arcade of the left eye

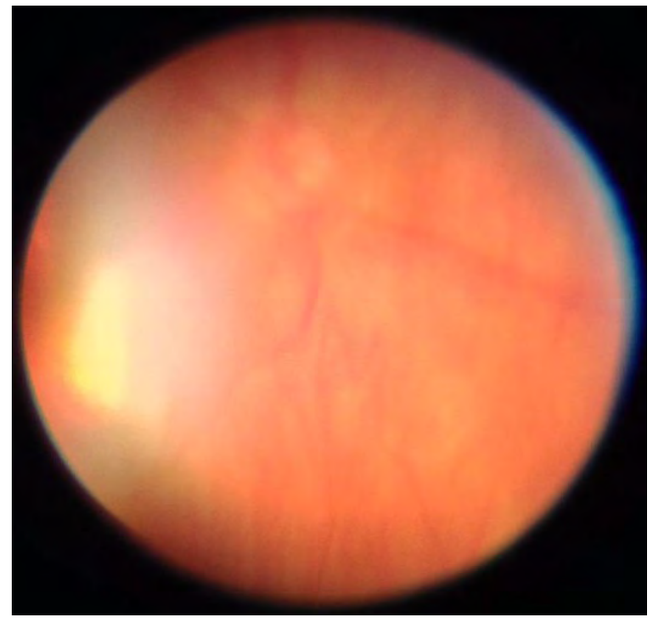


Fig2. Papilla of the left eye

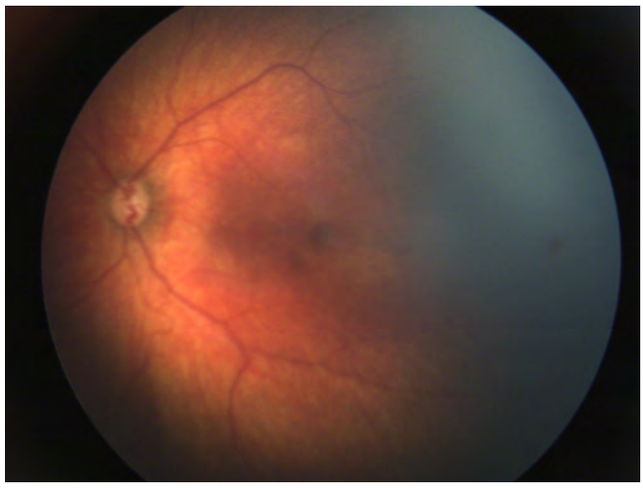


Fig 3. Left eye fundus 6 weeks after term

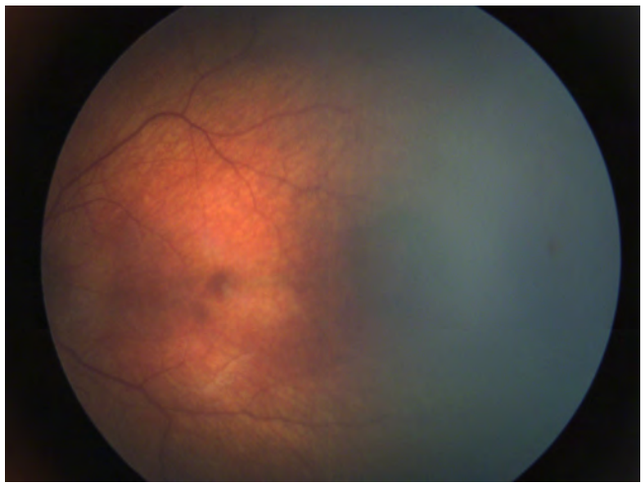


Fig 4. Left eye fundus 6 weeks after term

Discussion

The anatomical location and appearance of RH in the infant provide important clues in the diagnosis of underlying disorders. While neonatal RH related to birth trauma are common, benign, and self-limited, other RH in infancy may signify intracranial aneurysms, accidental or non-accidental injury, and a variety of ocular (e.g., Coats' disease, PHPV, retinopathy of prematurity, retinal dysplasia, hypertension, myopia) or systemic disease (e.g., hematologic or cardiovascular disorders, infection, protein C deficiency) [6].

The broad spectrum of available etiology options presents a challenge and makes differential diagnosis difficult for the screening ophthalmologists.

The most common ocular manifestation of shaking injury, present in a large majority of cases, is RH. They are thought to result from repetitive abrupt deceleration of the child's head as it whiplashes back and forth during the shaking episode. A striking feature of shaken baby syndrome is the typical lack of external evidence of trauma. The ocular adnexa and anterior segment appear entirely normal. Occasionally, the trunk or extremities show bruises representing the imprint of the perpetrator's hands.

Patients with subarachnoid hemorrhage, or other causes of rapidly increased intracranial pressure, may develop ocular hemorrhage (Terson syndrome). Clinical ophthalmologic findings may have significant diagnostic and prognostic value for clinicians [7]. A rapid increase in intracranial pressure secondary to subarachnoid hemorrhage following rupture of an aneurysm can result in sequelae similar to those found in inflicted traumatic brain injury. The case of a 1-month-old girl with bilateral RH resulting from a ruptured cerebral aneurysm is described by Joseph Scheller and Pavle Doroslovacki [8].

RH have been reported as the first manifestation of leukemia. They involve the posterior fundus and can have some correlation with other aspects of the disease such as anemia, thrombocytopenia, or coagulation abnormalities. The RH in leukemia can resemble those associated with intracranial hemorrhages and trauma.

RH can be seen after cardiopulmonary resuscitation but are rarely extensive by the hands of experienced personnel.

Even though we can exclude the most common causes for RH (the child is born pre-term, via C-section, there is no indication of trauma or shaken baby syndrome, leukemia, cerebral aneurysm or increased intracranial pressure), extremely low birth weight remains a primary suspect and is a sufficient factor on its own as a cause of the hemorrhage. Possible secondary factors include artificial ventilation, neonatal hepatitis, neonatal distress, and trauma during surgery. The severe prematurity is also the reason for the prolonged retention of the hemorrhage.

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Competing interests:

The authors declare that they have no competing interests.

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