

Abstract 378

MANAGEMENT OF MACULAR HEMORRHAGE IN RETINOPATHY OF PREMATURITY

Alyamac Sukgen E.*

Adana City Training and Research Hospital ~ Adana ~ Turkey

Introduction:

Retinal hemorrhage (RH) in retinopathy of prematurity (ROP) is caused by the fragile and abnormal blood vessels that can easily rupture, leading to hemorrhage. These hemorrhages can occur at various stages of ROP and can differ in severity. Clinically, they typically present in peripheral retina with several forms, such as preretinal hemorrhage, intraretinal hemorrhage or vitreous hemorrhage. Macular hemorrhage (MH) is a rare but devastating form of retinal hemorrhage and can result in significant and permanent visual impairment in premature infants.

This case report aims to summarize clinical characteristics, diagnostic techniques, and management strategies for macular hemorrhage in a premature infant along with long-term outcomes.

Materials and methods:

A retrospective review of a single case with literature review and case discussion.

Case :

A male infant with gestational age (GA) of 24 weeks and birth weight of 570 grams was referred at 35-week postmenstrual age (PMA) due to treatment-requiring ROP. Comprehensive ophthalmic examination revealed dense tunica vasculosa lentis, prominent plus disease and flat neovascularization involving zone I, diagnosed with aggressive ROP, urgent intravitreal anti-VEGF treatment was planned.

However, during the examination the next day, a dense macular hemorrhage along with extensive peripheral preretinal hemorrhage was detected in the left eye before the injection. On the same day, bilateral intravitreal injections of 1 mg/0.025 ml aflibercept were administered.

Results:

Follow-up examinations showed regression of plus disease, and the peripheral retinal hemorrhage disappeared completely within two weeks. At 38 weeks PMA, the macular hemorrhage had significantly resolved, although some residual intraretinal hemorrhages remained at the fovea. The infant continued to be closely monitored for any signs of ROP reactivation or other complications. Bilateral reactivation was observed, and a second anti-VEGF injection was administered at 49 weeks PMA. At the corrected age of 24 months, refraction measurements revealed left anisometropia (Right: +0.25, Left: -4.0 -0.75 x 100). Additionally, the left eye exhibited esotropia and retinal pigment epithelial atrophy in the fovea approximately the size of one optic disc.

Conclusions:

This case highlights the challenges in managing extremely premature infants with aggressive forms of ROP complicated by macular hemorrhage. Despite our prompt attempt to intervene within 24 hours, this case illustrates that even a one-day delay in treatment can be critical for AROP cases. The rapid progression of AROP emphasizes the need for more immediate and proactive management to prevent severe complications such as macular hemorrhage and potential permanent visual impairment.

Additionally, a case report indicates retinal hemorrhages following examinations involving scleral depression(1). Therefore, avoiding scleral depression during the examination of infants with AROP can prevent various types of retinal hemorrhages.

Foveal and vitreous hemorrhages in premature infants may persist longer and require close monitoring and prompt treatment due to the amblyogenic nature of this age group(2). Retinal hemorrhage is an indicator of severe ROP associated with a poor retinal prognosis(3). In this case, anti-VEGF therapy effectively led to the regression of ROP and the resolution of the macular hemorrhage. However, it was not effective in preventing retinal pigment epithelial atrophy in the fovea.

In conclusion, Managing A-ROP in extremely premature infants requires careful screening without scleral depression and urgent treatment.

Further studies is needed to establish standardized guidelines for the prevention and management of macular hemorrhage in premature infants to improve long-term visual outcomes.

Sources:

1. Jensen, A. K., Forbes, B. J., Wilson, L. B., Prieto, D., & Binenbaum, G. (2011). Widespread retinal hemorrhages after retinopathy of prematurity screening with scleral depression. *Journal of American Association for Pediatric Ophthalmology and Strabismus*, 15(6), 609-611.

2. Choi, Y. J., Jung, M. S., & Kim, S. Y. (2011). Retinal hemorrhage associated with perinatal distress in newborns. *Korean journal of ophthalmology: KJO*, 25(5), 311.

3. Li Q, Han T, Wang Z, Tang H, Feng Z. Clinical characteristics, risk factors and short-term prognosis of retinopathy of prematurity complicated with retinal hemorrhage. *Eur J Ophthalmol*. 2022 Oct 30:11206721221136314.