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Hemi-Central Retinal Vein Occlusion in a Premature Infant: A Case Report

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Abstract

Background: This study reports the case of an infant patient with organized vitreous hemorrhage (VH) due to hemi-central retinal vein occlusion (Hemi-CRVO) secondary to thrombocytosis.

Case report: A twenty-seven-day-old female infant with the gestational age of 30 weeks and 2040 grams weight at the time of birth and the history of a twenty-five-day admission in a neonatal intensive care unit (NICU) due to idiopathic hydrops was referred to the retinopathy of prematurity (ROP) clinic of the Khatam-al-Anbia Eye Hospital, for usual ROP screening. We found an organized VH in her left eye; so, we vitrectomized her eye. With the diagnosis of hemi-CRVO due to thrombocytosis, she is under observation.

Conclusion: In this report, thrombocytosis showed to be a cause of hemi-CRVO; and the patient's laboratory test review is important in such cases.

Key Words: Case Report, Hemi-Central Retinal Vein Occlusion, Infantile, Retinopathy of Prematurity, Thrombocytosis, Vitreous Hemorrhage.

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1- INTRODUCTION

Vitreous hemorrhage (VH) in infants is a rare condition (1). Hemi-central retinal vein occlusion (Hemi-CRVO) is not yet reported as the cause of VH in infants.

Thrombocytosis is defined as a platelet count of more than 500,000 per mL and can be classified as primary and secondary (or reactive). Neonatal thrombocytosis is rarely associated with complications (2), like hemi-CRVO.

In this report, we are going to describe an infant with a history of idiopathic hydrops and thrombocytosis, who was vitrectomized due to organized non-clearing VH with a final diagnosis of hemi-CRVO.

2- CASE REPORT

A twenty-seven-day-old infant girl with the gestational age of thirty weeks and 2040 grams weight at the time of birth was referred to the retinopathy of prematurity (ROP) clinic of the Khatam-al-Anbia Eye Hospital for ROP screening examinations. She had the history of a twenty-five-day admission in neonatal intensive care unit (NICU) for edema and ascites with a diagnosis of hydrops. She was managed with serum therapy, antibiotic therapy, and mechanical ventilation. Brain and kidney sonography as well as echocardiography were performed, showing normal results. Her blood cultures were negative, and her laboratory tests results showed no significant abnormality. Finally, she was discharged at the gestational age of thirty-three weeks and four days weighing 1530 grams, with a final diagnosis of idiopathic hydrops.

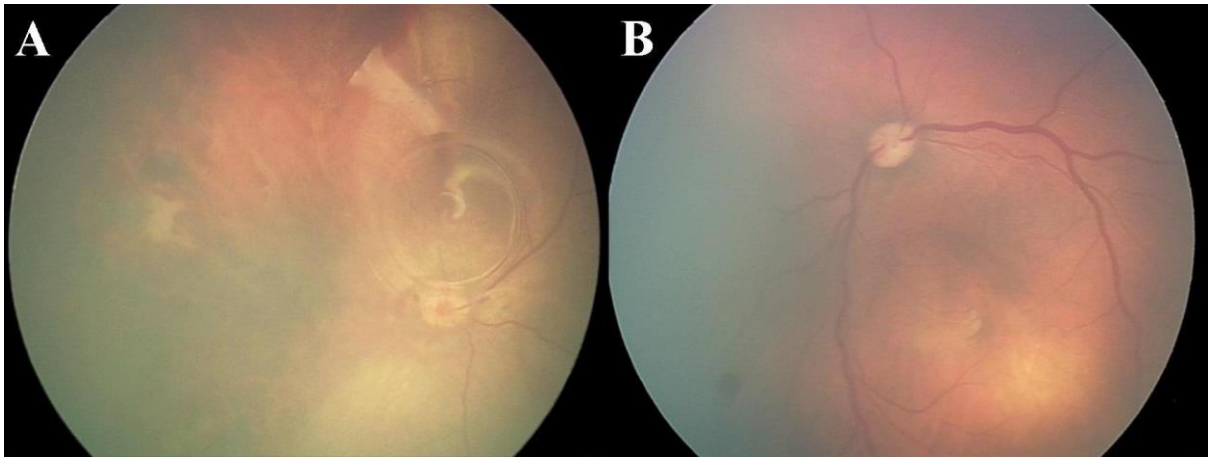
When the patient became twenty-seven days old, she underwent her first fundus examination as ROP screening. We noticed a densely organized VH in her left eye and the state of ROP in the right eye was stage 1 in zone II without plus disease (3). We planned to do a vitrectomy for the left eye as soon as possible, and a weekly follow-up examination for the right eye.

We did a three-port 27-gauge pars plana vitrectomy. After removal of all blood clots from the vitreous, we found RVO-like retinal hemorrhages, venous tortuosity, and dilatation in superior quadrants. We assumed that a venous occlusive incident had occurred. After the surgery, she was admitted to NICU for postoperative care. She received packed red blood cells due to hemoglobin 8 g/dL. Her platelet count was 1,131,000 /µL. After three days, she was discharged with 1800 gram weight and referred to a sub-specialist of pediatric hematology and infectious diseases for evaluating anemia, thrombocytosis, and infections, especially TORCH (Toxoplasmosis Other (syphilis, varicella-zoster, parvovirus B19), Rubella, Cytomegalovirus, and Herpes infections).

The evaluations showed normal vitamin E levels, positive cytomegalovirus (CMV) IgG antibody, negative CMV IgM antibody, and normal coagulation profile studies (PT, PTT, and INR). Hemoglobin was 10.3 g/dL and platelet count was 1.290.000 /µL. There was no identifiable cause of thrombocytosis, and no evidence of coagulopathies. The infant is, currently, under the care of a neonatologist.

After surgery, we examined the patient in the Khatam-Al-Anbia ROP clinic, weekly. Her retina was attached and her right eye showed no other pathologies until she was forty-eight days old. At the age of forty-eight days, in ROP screening examination, we found that the right eye's ROP state progressed to stage 2 in zone II with plus disease. We scheduled her for a bevacizumab injection into her right eye (**Fig. 1**).

In her final fundus examination of the left eye up to now, at the age of seventy-eight days, we observed multiple occluded veins and ischemic retina.



(A) (B)

Fig 1: A fundus photo (RetCam) of the left eye shows the RVO-like hemorrhages in the temporal retina. B, fundus photo of the right eye after bevacizumab injection for ROP, shows no pathology in the posterior pole.

3- DISCUSSION AND CONCLUSION

The causes of VH in children are different from those in adults. So far, few studies have been conducted in this field. The most common causes are trauma, ocular tumors, inborn errors of metabolism, and congenital vascular malformations (4). In premature infants, a variety of causes may lead to VH including severe stages of ROP, subarachnoid hemorrhage (5), infections such as herpes or fungal sepsis (6), thrombocytopenia (7), and iatrogenic causes such as intravitreal injections (8).

Retinal vein occlusion (RVO) occurs rarely in premature infants. Phalak et al., in 2014, reported a CRVO following pan-retinal photocoagulation for an infant with ROP (9).

In this report, we described a premature infant with a history of idiopathic hydrops and thrombocytosis, referred for ROP screening examinations. We found a dense VH in her left eye and scheduled her for a three-port 27-gauge pars plana vitrectomy. After removal of all blood clots from the vitreous, we found RVO-like hemorrhages, and venous tortuosity and dilatation in superior quadrants. In systemic evaluations, we assessed the patient about any causes of hypercoagulopathy including inborn errors of metabolism, especially hyperhomocysteinemia, and infections. Based on the results of our systemic evaluation, we concluded that the most probable cause of RVO, in this case, is thrombocytosis. Thrombocytosis may have a role in ROP pathophysiology. Del Rey Hurtado de Mendoza et al. showed that thrombocytosis was associated with ROP in very preterm infants, but not with the other prematurity-associated complications (10). However, in this study, we showed that RVO due to thrombocytosis can occur in preterm infants, which can be presented as a dense VH.

4- AVAILABILITY OF DATA AND MATERIALS

The datasets used during the current study are available from the corresponding author on reasonable request.

5- COMPETE OF INTERESTS

None.

6- FUNDING

None.

7- AUTHORS' CONTRIBUTIONS

All the authors contributed significantly to this report, and all authors agree to be accountable for all aspects of the work. All authors read and approved the final manuscript.

8- SETTING

Khatam-al-Anbia Eye Hospital, Mashhad University of Medical Sciences, Mashhad, Iran.

9- FINANCIAL DISCLOSURE

The authors declare that they have no conflict of interest.

8- REFERENCES

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