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CLINICAL IMAGES

Self-resolving Anemic Retinopathy

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Abstract

Anemic retinopathy is quite common, with a prevalence of 20–28.3% and may be due to a variety of causes. This includes retinal edema; attenuation of arteries; venous tortuosity; cotton wool spots; hard exudates; and hemorrhages which may be present at all levels of the retina and choroid and Roth spots. Despite causing sudden loss of vision, these usually resolve on their own on addressing the cause without ophthalmological intervention. We present a clinical image to show how systemic control dramatically resolved the anemic retinopathy and restored vision in a 12-year-old child.

Brief History

A 12-year-old female with presented with sudden painless diminished vision in her right eye for 3 days. There was history of generalized weakness and loss of appetite since the past 2 weeks. There was no history of any trauma, fever, or vomiting. There was also no history of any systematic diseases, any prior intervention, or drug intake. She was vegetarian by diet.

On general examination, the patient was conscious and well oriented to time, place, and person. She was afebrile with blood pressure of 98/78, pulse of 100/min and stable vitals. Pupillary responses and intraocular pressure were normal. Fundus examination showed multiple subinternal limiting membrane hemorrhages along with a neurosensory serous detachment at the macula and Roth spots in the right eye and multiple subinternal limiting membrane macular hemorrhages in the left eye [Figure 1]. Systemic workup revealed the following: Hemoglobin (Hb) – 3.8% g, white blood cell count: 2900/cmm; differential count: 87/10/2/1; platelet count – 42,000/cumm; PT/INR – 22/1; indirect/direct coombs test – negative; total bilirubin – 3.1; SGOT/PT – 40/45; D-dimer – 1056 ng/ml; serum B12-31 pg/ml (normal range: 180–914 pg/ml); urea – 32; and creatinine – 0.3. Peripheral smear revealed pancytopenia with reduced RBCs. RBCs were predominantly

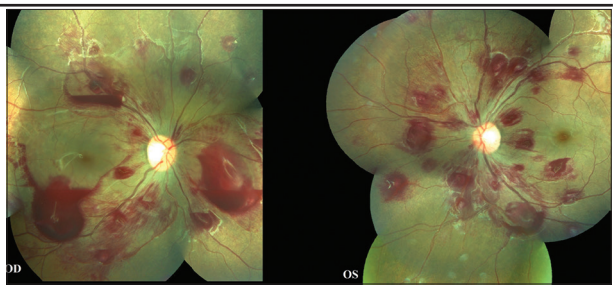

Figure 1: OD – Fundus photo of the right eye showing multiple subinternal limiting membrane hemorrhages along with a neurosensory serous detachment at the macula and Roth spots. OS – Fundus photo of the left eye showing multiple subinternal limiting membrane macular hemorrhages

macrocytic, normochromic with marked anisopoikilocytosis with macroovalocytes, elliptocytes, and tear drop cells. Stool for occult blood was negative and chest X-ray and ultrasound abdomen was normal. Echocardiogram showed an ejection fraction of 65% with mild pericardial effusion.

The patient was diagnosed with macrocytic anemia likely secondary to Vitamin B12 deficiency with thrombocytopenia and was admitted under the internal medicine department. She received two units of blood transfusion and injectable folic acid,

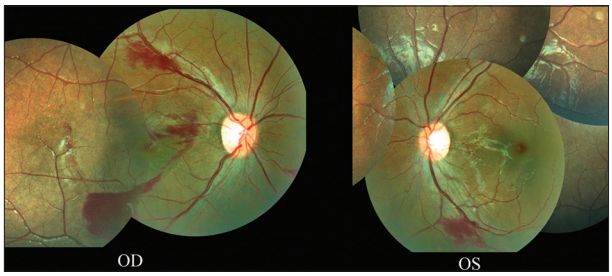

Figure 2: OD – Fundus photo of the right eye showing resolving hemorrhages temporal to the disc, along the superior arcade and inferior to the macula. OS – Fundus photo of the left eye showing an inferiorly resolving hemorrhage

methylcobalamin, niacinamide, and Vitamin C supplementation. Within a week of treatment, her Hb improved to 9.2% g and platelet count was 2.3 lakhs/cumm. On ophthalmological examination, her best corrected visual acuity improved to 6/18 in the right eye and 6/6 in the left eye, and her fundus was mostly normal with a few resolving hemorrhages not involving the macula [Figure 2].

Case Discussion

Retinopathy due to anemia has a prevalence of 20–28.3% and may be due to iron deficiency anemia, aplastic anemia, vitamin B12 and folic acid deficiency, beta-thalassemia, sickle cell disease, and drugs.[1] Reasons for anemic retinopathy are many including venous stasis, anoxia, increased capillary permeability, angiospasm, and thrombocytopenia itself causing bleeding. In most cases, only treatment of the causative factor is needed, and retinopathy generally resolves on its own.[2] This retinopathy includes retinal edema; attenuation of arteries; venous tortuosity; cotton wool spots; hard exudates; and hemorrhages which may be present at all levels of the retina and choroid; white-centered hemorrhages called Roth spots, and in some cases, optic disk pallor.[1-3] Here, hemorrhages can occur when hemoglobin falls below 8 g/100 ml or if the platelet count falls below 50,000/cumm as thrombocytopenia increase the risk of retinal hemorrhages in a severe anemia.[1]

Common causes of anemia in women are malnutrition; menorrhagia; and multiple pregnancies, and these may be associated with higher maternal and perinatal mortality, premature births, and low birth weight infants.[3] Hence, it is important to identify this prevalent underlying etiology with a multidisciplinary effort.

Conclusions

Anemic retinopathy commonly causes severe decrease in vision, and hence, it is important diagnose it early and prevent the development of comorbidities and their long-term consequences.

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Conflicts of Interest

None declared.

Statement of Equal Authors' Contribution

All the authors meet the requirements for authorship. The manuscript has been read by all the authors and each author believes that the manuscript represents honest work. There has been no prior publication of this work and none of the authors have any financial interest in any of the materials and methods used in this study. I would like to mention that the manuscript, to the best of the author's knowledge, does not infringe on any copyright or property right of any third party.

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Declaration of Consent

Written consent to publish was obtained from the patient.

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