

Case Report of Anaemic Retinopathy in a 25 year old Male

Authors: Jagdish P, All India Institute of Medical Sciences (AIIMS) Guwahati

ABSTRACT

Anemic retinopathy, characterized by retinal hemorrhages and other vascular abnormalities, is a rare ocular manifestation associated with systemic conditions such as anemia (1). We present a case of a 25-year-old male diagnosed with anemic retinopathy presenting with Roth spots, flame-shaped hemorrhages, and pre-retinal hemorrhage. This report underscores the importance of recognizing ocular manifestations of systemic diseases and highlights the significance of prompt ophthalmologic evaluation in patients with anemia.

Keywords: Anemic retinopathy, Anemia, Roth spots, Flame-shaped retinal hemorrhages, Pre-retinal hemorrhage, Ocular manifestations of systemic disease

INTRODUCTION

Introduction: Anemic retinopathy is a clinical entity characterized by retinal vascular changes secondary to systemic conditions such as anemia. It encompasses a spectrum of retinal findings, including hemorrhages, cotton-wool spots, and vascular tortuosity (2,3). Although rare, anemic retinopathy can manifest with various ocular symptoms and may serve as an important clinical indicator of underlying systemic diseases. Here, we present a case of anemic retinopathy in a young adult male, highlighting its clinical presentation, diagnosis, and management (Figure 1).

Case Report: A 25-year-old male presented to the OPD, Ophthalmology, Muzaffarnagar Medical College, Muzaffarnagar with a two-week history of progressively worsening vision in both eyes. He reported fatigue, pallor, and exertional dyspnea over the past few months. His medical history was significant for iron deficiency anemia, for which he had been non-compliant with oral iron supplementation.

On examination, his visual acuity was 6/60 in the right eye and 6/60 in the left eye. Anterior segment examination was unremarkable bilaterally. Fundus examination revealed bilateral Roth spots, flame-shaped hemorrhages distributed along the arcades, and pre-retinal hemorrhage in both the eyes (Figure 2).

Laboratory investigations revealed microcytic hypochromic anemia with hemoglobin levels of 3.4 g/dL (normal range: 13.5-17.5 g/dL), total R.B.C. count 1.14 mln/cumm (normal range: 4.5-6.5), and mean corpuscular volume (MCV) of 65 fL (normal range: 80-100 fL). Iron studies demonstrated low serum iron levels and elevated total iron-binding capacity, consistent with iron deficiency anemia.

The patient was counselled regarding the importance of iron supplementation and compliance with treatment. He was started on oral iron therapy and referred to a hematologist for further evaluation and management of his underlying anemia.

FIGURES AND IMAGES



Figure 1. Clinical photographs of the patient showing marked pallor of the lower palpebral conjunctiva (left) and pallor of the palms (right), consistent with severe systemic anaemia.

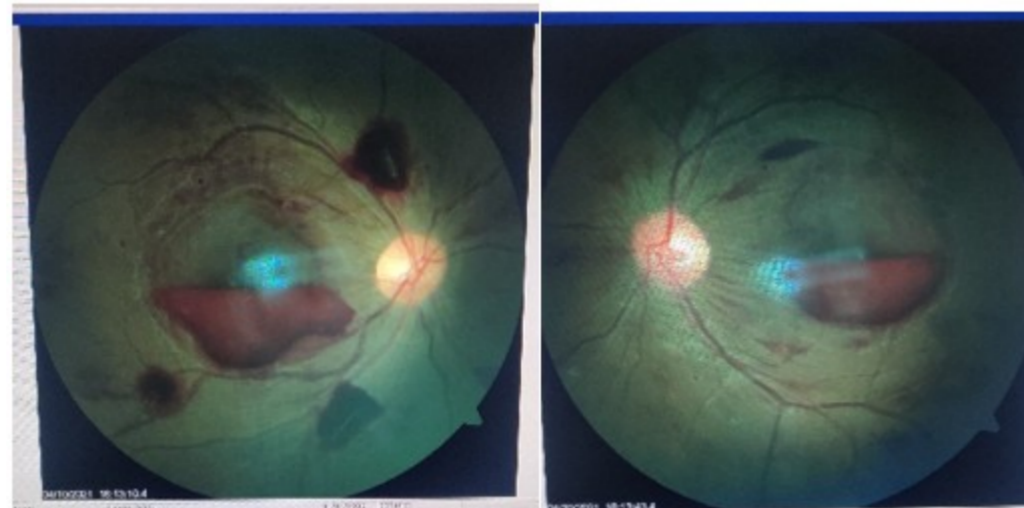


Figure 2. Color fundus photographs of both eyes showing multiple intraretinal hemorrhages with prominent flame-shaped and blot hemorrhages, along with large boat-shaped preretinal hemorrhages in the posterior pole, consistent with anemic retinopathy in a 25-year-old male.

DISCUSSION

Discussion: Anemic retinopathy is a rare manifestation of systemic anemia and is characterized by various retinal vascular changes (4). The hallmark findings include Roth spots, which represent retinal hemorrhages with white-centered exudates, and flame-shaped hemorrhages along the retinal nerve fiber layer (5,6). Pre-retinal hemorrhage, as observed in our patient, is less common but can occur in severe cases.

The pathogenesis of anemic retinopathy is multifactorial and involves impaired oxygen delivery to the retina due to decreased hemoglobin levels, resulting in retinal ischemia and subsequent vascular abnormalities (7). Prompt recognition of these ocular findings is essential as they may serve as early indicators of underlying systemic diseases, particularly anemia.

Management of anemic retinopathy primarily focuses on addressing the underlying systemic condition. In cases of iron deficiency anemia, oral or parenteral iron supplementation is the cornerstone of treatment (8). Close monitoring of hemoglobin levels and ophthalmologic follow-up is crucial to assess for resolution of retinal findings and to detect any recurrence or progression of ocular manifestations (9).

CONCLUSION

Conclusion: Anemic retinopathy is a rare ocular manifestation associated with systemic anemia and can present with characteristic retinal findings such as Roth spots, flame-shaped hemorrhages, and pre-retinal hemorrhage. Ophthalmologists play a pivotal role in the early recognition and management of these ocular manifestations, highlighting the importance of interdisciplinary collaboration between ophthalmology and hematology in the comprehensive care of patients with anemia. Early diagnosis and prompt initiation of treatment of the underlying systemic condition are essential for optimizing visual outcomes and preventing further ocular complications.

REFERENCES

1. Carraro MC, Rossetti L, Gerli GC. Prevalence of retinopathy in patients with anaemia or thrombocytopenia. *Eur J Haematol* 2001;67:238-44.
2. Lam S, Lam BL. Bilateral retinal haemorrhages from megaloblastic anaemia: Case report and review of literature. *Ann Ophthalmol* 1992;24:86-90.

3. Lee AR, Bhullar PK, Fekrat S. Aplastic anemia presenting with bilateral, symmetric preretinal macular hemorrhages. *Can J Ophthalmol* 2016;51:e159–60.
4. Mishra A, Gururaja R, Aggarwal S, Bhargav N, Chaudhary N. Megaloblastic anaemia in a teenage patient. *Med J Armed Forces India*. 2015;71(Suppl 2):S435-39.
5. Carraro MC, Rossetti L, Gerli GC. Prevalence of retinopathy in patients with anaemia or thrombocytopenia. *Eur J Haematol*. 2001;67:238-44.
6. Vidya H, Neelam P, Anupama B, Sowmya PD. Subhyaloid haemorrhage in severe dimorphic anaemia and thrombocytopenia- A case report. *Journal of Clinical and Diagnostic Research* .2010;4(5):3201-02.
7. Venkatesh R, Reddy NG, Jayadev C, Chhablani J. Determinants for Anaemic Retinopathy. *Beyoglu Eye J*. 2023;8(2):97-103.
8. Jojo V, Singh P. The eye: A lifesaver! An unusual case of Anaemic Retinopathy secondary to Malnutrition and its recovery. *J Fam Med Prim Care*. 2020;9(8):4421-24
9. Shah GY, Modi R. Anaemic retinopathy: Case reports and disease features. *Retina. Today*. 2016:30-32.