Case Report

Anaemic retinopathy in megaloblastic anaemia

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Abstract

Introduction: Anaemias are the commonest haematological disorders which cause ocular manifestations. With the progression of disease, retinal haemorrhages, dilated and tortuous veins, cotton wool spots may occur in the ocular fundus.

Case: An 18-year-old female patient presented to our out patient department with the sudden, painless, non-progressive blurring of vision in both eyes (best-corrected visual acuity in the right eye is 6/60, and left eye is 6/36) for two days.

On Ophthalmological examination, bilateral pale tarsal conjunctiva, yellowish discolouration of the sclera, hyperemic optic discs, macular haemorrhages, superficial and deep haemorrhages with Roth spots were observed. The haematological evaluation showed the presence of Megaloblastic anaemia (with haemoglobin - 2.5g%). There was severe pallor on general examination. Mild hepatomegaly and splenomegaly were noted on the systemic examination and confirmed by ultrasound abdomen. Intraocular pressure was 11 mmHg in both eyes.

Conclusion: This case documents the occurrence of bilateral macular haemorrhages and Roth spots in megaloblastic anaemia without thrombocytopenia. Other causes of Roth spots were excluded. Treatment of anaemia showed resolution of Roth spots.

Key words: Megaloblastic anaemia, Macular haemorrhages, Roth spots.

Introduction

Anaemia is the most prevalent haematological disorder presenting with a variety of ocular manifestations (Duke-Elder S, 1967). Retinal haemorrhages are usually seen in diabetic, hypertensive retinopathy, trauma, bleeding diathesis and with increased intracranial pressure Mishra A, 2015 and Macauley M, 2011). Retinopathy due to megaloblastic anaemia has been reported rarely in the literature (Gupta V, 2001).

Case Report

An 18-year-old female presented with sudden bilateral painless non-progressive loss of vision for two days. There was a history of fever for two months which was insidious in onset, high grade, intermittent, associated with chills and rigours, vomitings and breathlessness for which she was on medication. The patient has no history of Diabetes mellitus or Hypertension, ocular and head trauma, blood transfusions, vasculitis and blood dyscrasias. The patient was conscious, coherent and co-operative on

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general examination. Severe pallor was present, and vitals were normal. Best-corrected Visual acuity of the right eye was 6/60, and left eye was 6/36. Anterior segment evaluation showed the presence of bilateral Conjunctival pallor and yellowish discolouration of the sclera. All other findings were normal. Intraocular pressure was 11mmHg in both eyes.

Fundus examination of both eyes with direct and indirect ophthalmoscopy showed the presence of hyperemic disc, multiple deep and superficial haemorrhages with central fibrin suggesting Roth spots, dilated and tortuous veins, haemorrhages at the macula.

Investigations suggestive of anaemia included Hemoglobin 2.5 g%, Red blood cell count 0.78 million/cumm, White blood cell count 2700/ cumm. Differential count was Neutrophils - 53%, Eosinophils - 02%, Basophils - 0%, Lymphocytes - 41%, Monocytes - 04%. Packed cell volume was 8.5 vol%, and Reticulocyte count was 1%.

Platelet count was 1.45 lakh/cumm, which is normal. Serum Vitamin B12 was 81pg/ml which is below biological reference interval value 180-914pg/ml. Serum bilirubin was 4.1mg/dl; Prothrombin time was 16.38 sec, INR was 1.30 sec, APTT was 39.3 sec, ESR was 90mm/1hr. HIV screening test (tri-dot method) was non-reactive. Plasmodium falciparum and Plasmodium vivax for Malaria was tested negative, and the Widal test showed no agglutinations. Peripheral smear showed the presence of macrocytic anaemia with anisopoikilocytosis consisting of teardrop cells, macro ovalocytes and elongated cells. Bone marrow biopsy showed the presence of macrocytes. On the Ultrasound abdomen, borderline hepatomegaly and splenomegaly were present. 2DEcho was normal.

The patient was treated with Vitamin B12 and folate supplements and received one unit of blood transfusion. Her best-corrected visual acuity was improved to 6/9 in the right eye, 6/6 in the left eye, and her haemoglobin was 8.0 gm% after two weeks of blood transfusion. Roth spots resolved after treatment for megaloblastic anaemia (Figure 3 and 4).

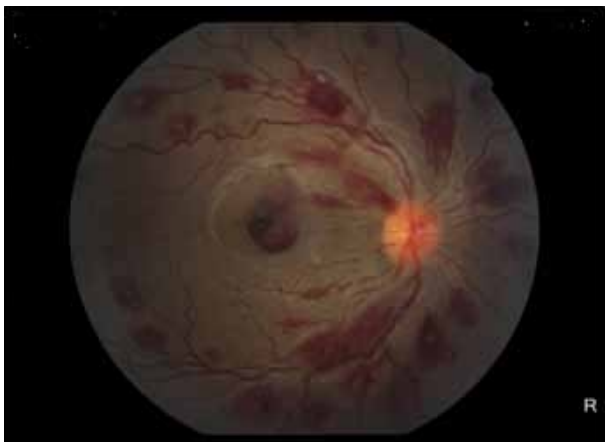

Figure 1: Right eye shows multiple Roth spots and macular haemorrhages on fundus photograph.

Figure 2: Left eye shows multiple Roth spots and macular haemorrhages on fundus photograph.

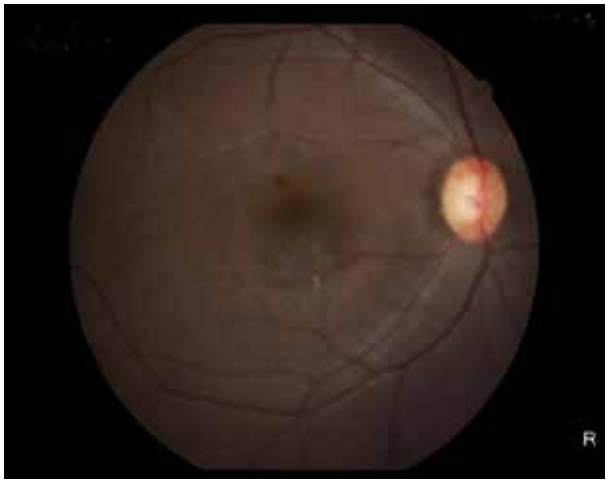

Figure 3: Right eye shows resolved haemorrhages on fundus photograph.

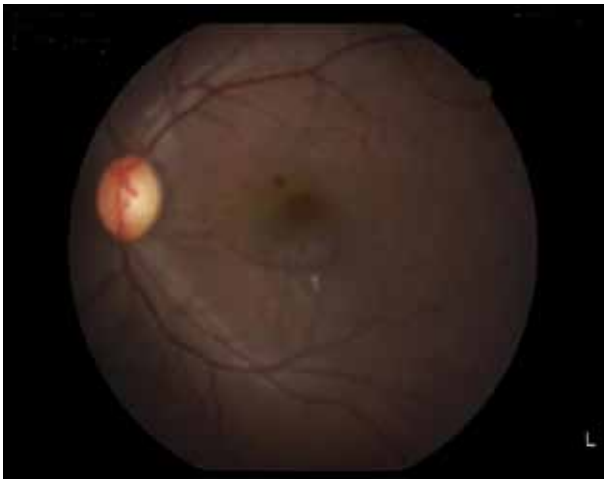

Figure 4: Left eye shows resolved haemorrhages on fundus photograph.

Discussion

In 28.3% of patients, anaemia causes retinopathy, especially when thrombocytopenia (38%) is a co-existing factor. The risk of retinopathy increases with the severity of anaemia, mainly when the haemoglobin (Hb) level is below 8 gm/dL (Carraro MC, 2001). The Factors that are implicated in the pathogenesis of anaemic retinopathy are anoxia, venous stasis, angiospasm, increased capillary permeability and thrombocytopenia.

Roth spots or white centred retinal haemorrhages have been described in patients with leukaemia and bacterial endocarditis. The pathology is capillary disruption and subsequent hemostatic fibrin plug formation (Zehetner C, 2011). Roth spots in a case of megaloblastic anaemia are considered rare (Lam S, 1992). However, in our case, severe bilateral superficial and deep haemorrhages with Roth spots were seen. Bilateral macular haemorrhages secondary to anaemia are rare (Vaggu SK, 2016 and Belfort RN et al., 2009). But in our case, there were bilateral macular haemorrhages. Treatment of megaloblastic anaemia showed resolution of Roth spots.

Conclusion

This is a case of megaloblastic anaemia with bilateral severe Roth spots and macular haemorrhages without thrombocytopenia.

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