Research Paper

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Anemic Retinopathy in A Case of Dimorphic Nutritionalanaemia.

Medical Science

KEYWORDS : Anaemic retinopathy, dimorphic anaemia, megaloblasticanaemic retinopathy, Roth spots.

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ABSTRACT

We report the case of a 37 year old male patient who presented with sudden, non progressive loss of vision in the both eye since 7 days. An ophthalmological evaluation revealed the presence of flame shaped hemorrhages, Roth's spots with cotton wool spots with subhyaloid hemorrhage involving the macula in the both eye. Hematological evaluation revealed the presence of Vitamin B12 Deficiency anaemia and Iron deficiency anaemia. In this case we present a case of dimorphic nutritional deficiency anaemia (Vit B12 and Fe deficiency anemia) where decreased vision was the presenting complaints.

Introduction

Anaemic retinopathy can present as retinal flame shaped hemorrhage , white centered hemorrhage(Roth spots), cotton wool spots, dilated retinal veins, disc edema and cotton wool spots.[1]

We are reporting a case of dimorphic nutritional anaemiathat presented with decreased vision in both eyes and showed rapid resolution of ocular signs and improvement in vision after treatment of systemic condition.

Case Report

A 37 year old male patient presented to the outpatient department of a RIMS & R, Saifai, in Uttar Pradesh with a complaint of sudden non progressive decreased vision in the both eyes since 7 days. There was no history of trauma or long term intake of any anticoagulant or antiplatelet medication. The patient was a vegetarian.

On examination, his Best Corrected Visual Acuity (BCVA) in the right eye was FC at 1metre and in the left eye was 6/36. His anterior segment findings were unremarkable.Fundus examination showed the presence of flame shaped haemorrhages, with Roth spots and cotton wool spots in both the eyes(Fig 1a and 1b respectively). Macula of the right eye showed sub-hyaloidhaemorrhage (Fig 1a).

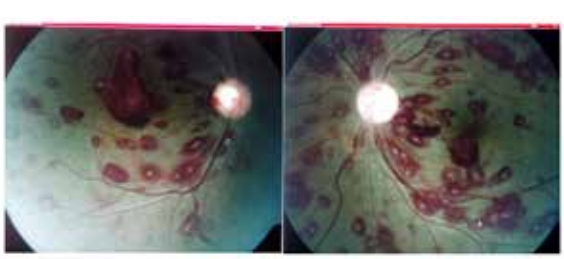

Fig 1a (Right eye) Fig 1b (Left eye)

The intraocular pressure in right & left eye by GoldmannApplanation tonometry was 14 and 16 mmHg respectively. Systemic examination revealed no organomegaly. Clinical impression was anaemic retinopathy and blood investigations done to find out cause of anaemia.

His haemoglobin level was 5.2gm% with a hematocrit of 13.8%. He had an RBC count of 1.0 million / cu mm, platelet count of 40,000 /cumm and a total leukocyte count of 4200/cumm. The MCV was 110 fL, MCH 29.2pg and MCHC was 32.6gms/dL.His bleeding time, clotting time and prothrombin time were normal. Theperipheral blood smear report suggested features of dimorphic nutritional anaemiadecreased Mean Corpuscular Hemoglobin Concentration, decreased Mean Corpuscular Hemoglobin, different shapes of RBCs, hypersegmented neutrophils and thrombocytopenia. A value of 170pg/ml on serum Vitamin B12 assay confirmed the diagnosis of a co-existent megaloblastic anemia with iron deficiency anemia.

He was treated with 3 pints of packed cell transfusion with intravenous vitamin B12 injection 1000 µg daily for 5 days, then every week intravenously for 6 weeks, then was advised to take injections once every 1months for 6 months. Iron supplementation of 180 mg of elemental Iron given daily. His haematological parameters improved. After one week of treatment, the laboratory parameters were as follows: haemoglobin 9.2 g/dL, total leucocyte count 6200/cu mm, platelet count 140,000/cu mm. The vision in the right eye had also improved to 6/60 and left eye improved to 6/9 with the subhyaloid hemorrhage and peripheral hemorrhage showing signs of resolution in both eyes. At one month follow up, his vision improved to 6/12 in right eye and 6/6 in left eye with resolution of the subhyaloid hemorrhage and stabilization of the hematological parameters (Fig 2a and 2b).

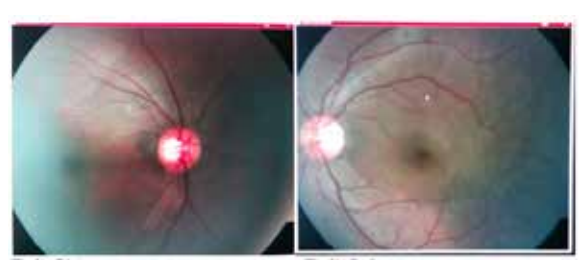

Fig 2a (Right eye) Fig 2b (Left eye)

Discussion

The pathogenesis of anemic retinopathy has been attributed to factors such as anoxia, venous stasis, angiospasm and increased capillary permeability with a higher prevalence in patients with Hb< 8g/dl.[2,3] The association of thrombocytopenia is known to

be associated with a more severe hemorrhagic ocular manifestation.[2] Thrombocytopenia in vitamin B12 deficiency, as noted in our case, is due to impaired DNA synthesis leadingto ineffective thrombopoiesis[1].Vitamin B12 deficiency is also known to be associated with hemorrhagic manifestations as bleeding from skin, subcutaneous tissue, epistaxis and even threatening haemorrhage from gut as well as intracerebral bleed, requiring emergency blood transfusion.[4]The response to vitamin B12 in such cases is rapid resolution of ocular hemorrhages and improvement of hematological parameters[5]. The only source of vitamin B12 is of animal origin i.e. egg, fish and dairy products5. Hence pure vegetarians are prone to develop megaloblasticanaemia and megaloblasticanaemiaassociated retinopathy[5].

Megaloblasticanaemia induced retinopathy has been reported in alcoholics due to the deficiency of folate and Vitamin B12.5,6The purpose of this report is to highlight the occurrence of anemic retinopathy due to combined nutritional deficiency of Vit B12 and Iron in developing countries in a Rural area of Uttar Pradesh.

This case report shows that retinopathy is reversible after treatment of systemic disease5,6.

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