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Dapsone Associated Anemic Retinopathy in Lepromatous Leprosy Patient

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Abstract: *A 43 year old male patient presented to the emergency department with history of acute high grade fever with chills, productive cough, 3 episodes of vomiting, 1 episode of syncope and blurring of vision since 2 days. Patient is a known case of lepromatous leprosy on multidrug therapy since 3 months. General physical examination showed pallor, icterus and splenomegaly. Anterior segment slit lamp examination was essentially normal, with visible corneal nerves. Dilated fundoscpic examination showed anemic retinopathy. Patient was investigated and was found to have pancytopenia and bone marrow biopsy showed hypercellularity with megakaryocytosis. Patient was treated for anemia and followed up regularly.*

Keywords: *Anemic Retinopathy, Roth Spots, Lepromatous Leprosy, Disc Edema, Splenomegaly.*

CASE REPORT

A 43 year old male patient presented to emergency department with history of high grade intermittent fever with chills, associated with burning micturition since 3 days. History of productive cough, 3 episodes of vomiting, 1 episode of syncope was present and there was no history of seizures. History of blurring of vision present since 2 days, insidious in onset, progressive. There was no history of floaters, watering, redness, photophobia or trauma to the eye. No history of pain abdomen, chest pain.

Patient is a known case of lepromatous leprosy diagnosed based on punch biopsy taken from the lesion and he was started on multidrug treatment (MDT) consisting of Dapsone (100mg), Rifampicin (600mg), Clofazimine (300mg) from 3 months.

General physical examination showed that the patient was moderately built and nourished, conscious, co-operative and well oriented. Pule rate - 76bpm and BP- 126/84mmHg. Pallor (fig.1), Icterus (fig.2) were present; cyanosis, clubbing, lymphadenopathy, oedema were absent. Multiple skin/ tan coloured papules were present over the fore head (figure 2) and cheek, ear lobe infiltration present.

On systemic examination Cardiovascular, Respiratory, Central nervous system systems were found to be normal, Per Abdomen examination showed mild to moderate splenomegaly. Peripheral nervous system examination showed bilateral thickened ulnar nerves with no other focal neurological deficit and normal sensory system.

Ocular examination showed UCVA RE: 6/12, LE: 6/9, normal colour vision. Both eyes had normal adnexa, conjunctiva, cornea with visible corneal nerves and normal corneal sensitivity. Anterior chamber, iris, pupil, lens were normal with normal pupillary reaction, bilaterally.

Dilated funduscopic examination showed bilateral disc edema with venous tortuosity and engorgement. Peripapillary area showed multiple superficial flame haemorrhages and deep intra retinal haemorrhages present. Retinal oedema along with few pale centred retinal haemorrhages (Roth spots) were also seen. Foveal reflex was absent and minimal macular edema was present (Figure 3).

At presentation the laboratory investigations were Hb – 4.6 gm%, RBC – 1.26 million/ mm3, WBC - 2620 cells/mm3, Platelets 1.0 lakhs, LFT was normal. HIV, HBsAg, Widal test, dengue test and Weil Felix Test were negative. Slit skin smear was negative for acid fast bacilli. Serum electrolytes were S. Na+: 130meq/L, S.K+: 3.30meq/L. RBS: 122mg/dl, Vitamin B12: 159pg/ml (reduced) and LDHi: 2940U/L (increased). Peripheral smear showed normocytic normocytic blood picture with leukopenia and thrombocytopenia. Bone marrow aspiration showed hypercellularity with increased erythropoiesis and megaloblastosis.

Reticulocyte count: 0.5%. USG abdomen and pelvis showed splenomegaly. Other causes of pyrexia like lepra reaction, UTI etc., were ruled out. Other causes of anemia were also excluded.

Dapsone was withdrawn and other MDT were continued. 3 units of O+ve blood transfusion was done. One course of cefriazone and antipyretics was given.

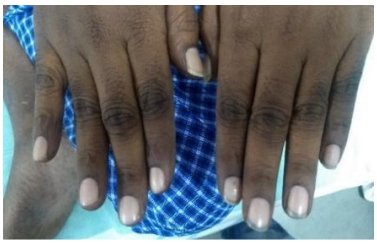

Figure1. *Pallor of nail beds*

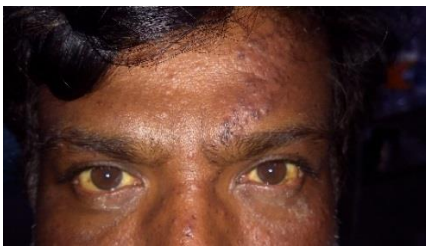

Figure2: *skin lesions on forehead with icterus*

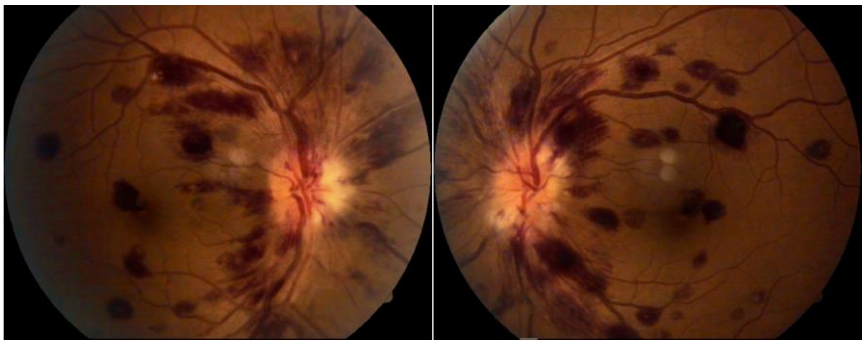

Figure3: *Anaemic Retinopathy with Disc Edema (OU)*

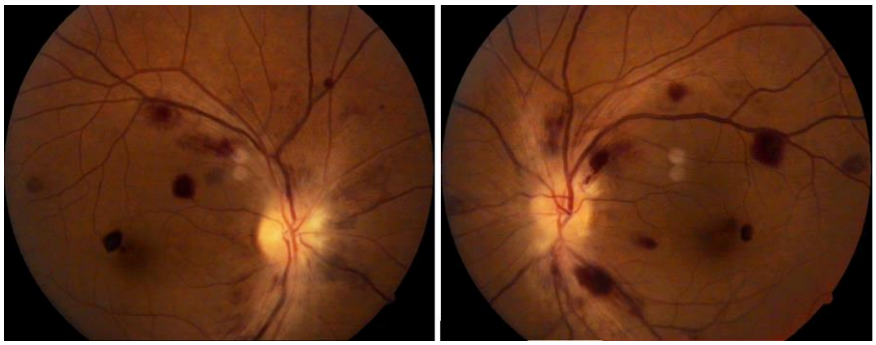

Figure4. *Resolving haemorrhages - Anaemic Retinopathy with Disc Edema (OU)*

At 1 week follow up, visual acuity had improved - UCVA RE: 6/9, LE: 6/6(p). Anterior segment examination was normal. Dilated funduscopic examination showed bilateral disc edema with venous tortuosity and engorgement. Multiple resolving haemorrhages were present around the disc (figure 4). Visual improvement corresponded with improvement in haemocrit and haemoglobin values. Patient is on regular follow up.

DISCUSSION

Ocular manifestations are seen in patients with severe anaemia which may be multifactorial. Superficial flame shaped haemorrhages are commonest, followed by sub-hyaloid haemorrhage. [1]

Prevalence of anaemic retinopathy is around 28% in patient with severe anaemia. Haemoglobin level less than 6gm% have a high higher incidence of anaemic retinopathy. Coexisting thrombocytopenia may hike the prevalence up to 38%.

Anaemia causes retinal hypoxia, resulting in vasodilation and increased transmural pressure. This causes retinal edema and haemorrhage. Most of the asymptomic patients may show macular edema, haemorrhages or hard exudates, Roth spots, disc edema or optic neuropathy. [2]

Roth spots, which are pale or white centred retinal haemorrhages, common in severe anemia. The white centre is attributed to inflammatory infiltrates, fibrin and platelets, neoplastic cells, or focal areas of ischemia. [3]

Several reports related to dapsone induced hypersensitivity syndrome (sulfone syndrome) showed that it can present with fever, malaise,

lymphadenopathy, anaemia, jaundice, exfoliative dermatitis and liver necrosis. This usually occurs within 6 weeks after starting dapsone. If patient tolerates 6 months of therapy, he is less likely to develop any adverse side effects. [4-6] the patient here had fever with chills, vomiting and blurring of vision in both eyes since 3 days. These acute symptoms can be attributed to sulfone syndrome.

Withdrawal of Dapsone and blood transfusion improved the general symptoms and vision significantly within a week. The rapid improvement in vision, is probably due to the increased retinal perfusion and thus the improved retinal function. This shows that it is probably due to the Dapsone induced anaemic retinopathy.

Dapsone, a part of MDT regimen for leprosy was the cause of fever with chills and decreased haematocrit values and hemoglobin levels because a low grade hemolysis resulting in significant anemia. [7]

CONCLUSION

Dapasone used in the treatment of Leprosy can result in severe anemia causing retinopathy with macular edema, disc edema, retinal haemorrhages and Roth spots. Conservative management with blood transfusions and withdrawal of Dapsone therapy can resolve the retinal lesions.

Declaration of patient consent: The authors certify that they have obtained all appropriate patient consent forms. In the form the patient(s) has/have given his/her/their consent for his/her/their images and other clinical information to be reported in the journal. The patients understand that their names and initials will not be published and due efforts will be made to conceal their identity, but anonymity cannot be guaranteed.

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