

# Resolution of Roth Spots during Treatment of Chronic Myelogenous Leukemia

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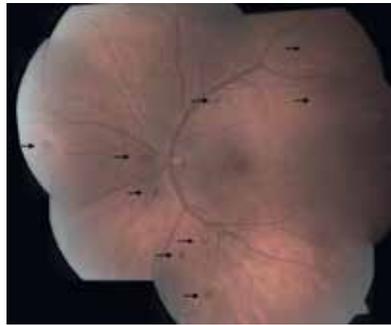
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**A** 54 year old man was admitted for evaluation of leukocytosis. His medical history was unremarkable but a routine blood count showed  $256.7 \times 10^9/L$  white blood cells. Polymerase chain reaction (PCR) for *BCR-ABL* was positive (70%) and a diagnosis of chronic myelogenous leukemia (CML) was established.

Although no visual complaints were noted, a complete ophthalmological examination was performed as part of the initial clinical evaluation. Visual acuity and anterior segment were normal. Dilated fundus examination revealed multiple white-centered retinal hemorrhages in both eyes [Figure 1], consistent with the clinical diagnosis of Roth spots. Imatinib mesylate therapy was initiated. Within 3 months the patient's blood counts had returned to normal and quantitative PCR for *BCR-ABL* was 4.6% positive. Follow-up ophthalmological examination 11 weeks after initiation of treatment showed clearance of the retinal lesions [Figure 2], concurring with the patient's hematological remission.

Past histological studies established Roth spots to be a fibrin-platelet thrombus surrounded by extravagated blood at a site of retinal capillary damage. Originally described in subacute bacterial endocarditis, Roth spots are now known to also appear in various medical conditions including leukemia, human immunodeficiency virus, sepsis, diabetes, hypertension and vasculitis

**Figure 1.** Left eye: multiple white-centered retinal hemorrhages



[1]. Treatment of the underlying medical condition results in resolution of the retinal hemorrhages [2].

Previous reports have noted a prevalence of 39–44% of retinal changes in patients with CML [3]. Holt et al. [4] reported no prognostic significance in patients with these retinal findings as compared to CML patients with normal retina, although this report was based on nine patients and in an era where no effective therapy was available. This finding is in stark contrast to retinal changes in acute leukemia where patients with ophthalmic manifestations have significantly poorer prognosis than those without such findings [5]. A report of Roth spots resolving with imatinib therapy in a patient with severe visual disturbances was published previously [1]. In contrast, our patient presented with similar clinical findings, although he was completely asymptomatic and had no visual complaints. His retinal manifestations improved following hematologic remission under imatinib therapy.

We hope this report will raise awareness to the retinal changes associated with the

**Figure 2.** Left eye: clearance of the retinal lesions



diagnosis of CML. We have also highlighted the importance of an initial ophthalmic evaluation in hematological malignancies, and in monitoring progress during the treatment of such conditions.

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