

Combined central retinal vein and branch retinal artery occlusion in hyperhomocysteinaemia

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DESCRIPTION

A woman aged 30 years reported of blurred vision in the right eye (RE) for 2 days. Visual acuity was 6/24 in the RE and 6/6 in the left eye (LE). Funduscopy of RE showed combined non-ischaemic central retinal vein occlusion (CRVO) and supero-temporal branch retinal artery occlusion (BRAO) (figure 1A). LE examination was normal. Optical coherence tomography (OCT) of the RE showed thickening of inner retinal layers corresponding to the area of BRAO (figure 1A: white arrow). Thorough systemic investigations and cardiac workup revealed raised serum homocysteine levels (37.21 µmol/L). She was started on oral

folic acid and pyridoxine. Over the next 6 months, her visual acuity improved to 6/12 with clearing of retinal whitening and resolution of retinal haemorrhages (figure 1B–D).

Combined CRVO and BRAO in a young individual is a rare entity and occurs in clinical settings of cardiac valvular disease, hyperhomocysteinaemia, vasculitis, hypercoagulable states, ophthalmic migraine and oral contraceptives.¹ Hence, thorough systemic evaluation is warranted. In the setting of hyperhomocysteinaemia, oxidative stress and activation of proinflammatory factors may play a role in the pathogenesis of atherosclerosis. Moreover, homocysteine act as a weak prothrombotic factor and hence, can predispose to vascular occlusions.²

Retinal whitening in BRAO is due to axoplasmic flow stasis in the inner retinal layers caused by acute ischaemic insult. This can be seen on an OCT image as increased reflectivity of the inner layers of the retina due to intracellular oedema.³ Retinal opacification usually resolves over 4–6 weeks with subsequent loss of neuronal cells and development of acellular scar of the inner retinal layers.

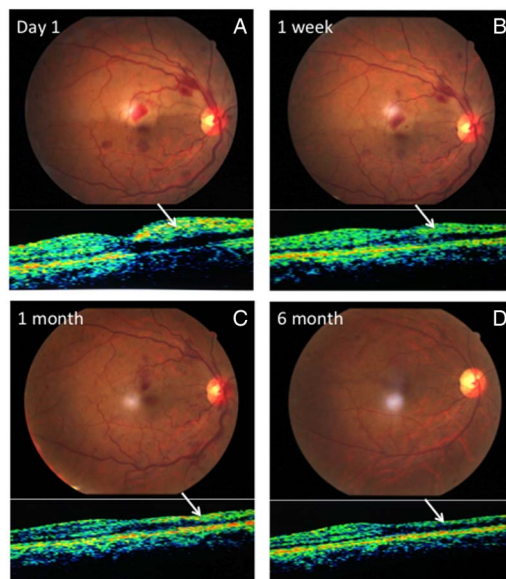


Figure 1 Funduscopy of the right eye (RE) showing dilated tortuous retinal veins with multiple retinal haemorrhages in all four quadrants and area of retinal whitening at the posterior pole along supero-temporal arcade sparing foveal centre suggesting combined non-ischaemic central retinal vein occlusion with supero-temporal branch retinal artery occlusion (A). Optical coherence tomography (OCT) of RE passing from the centre of the fovea showed thickening of inner retinal layers corresponding to the area of retinal opacification (A: white arrow). Follow-up fundus pictures at 1 week (B), 1 month (C) and 6 months (D) showing clearing of retinal whitening, resolution of retinal haemorrhages and narrowing of retinal veins. Follow-up OCT of RE showed progressive thinning of inner layers (B–D: white arrow).

Learning points

- ▶ Thorough systemic evaluation should be performed in young patients with retinal vascular occlusion.
- ▶ Retinal opacification in a branch retinal artery occlusion resolves over 4–6 weeks with development of atrophy of inner layers of the retina.

Competing interests None declared.

Patient consent Obtained.

Provenance and peer review Not commissioned; externally peer reviewed.

REFERENCES

- 1 Kondamudi V, Reddy R, Kondamudi N, *et al*. Sudden painless unilateral vision loss caused by branch retinal artery occlusion: implications for the primary care physician. *Am J Med Sci* 2004;327:44–6.
- 2 Zhou J, Austin RC. Contributions of hyperhomocysteinemia to atherosclerosis: causal relationship and potential mechanisms. *Biofactors* 2009;35:120–9.
- 3 Hayreh SS, Zimmerman MB. Fundus changes in central retinal artery occlusion. *Retina (Philadelphia, Pa)* 2007;27:276–89.



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