

# Case notes

## Central retinal vein occlusion

### Patient details

**Initials:** BA

**Age:** 76 years

**Gender:** Male

**Reason for visit:** Reduced acuity RE at distance and near since yesterday morning.

Acuity is profoundly reduced and patient is not able to see any small details with right eye.

**Refraction:** RE: -0.50/-0.75x175

LE: -2.50/-1.00x175

**Distance Acuity:** RE: 3/60 no ↑PH, LE 6/7.5

**Reading add:** RE & LE: +2.50D

**Near acuity:** RE: N48 just, LE: N5

**General health:** Hypertension, hypercholesterolaemia, had stroke 2 years ago left side, is under GP for 'borderline diabetes' but no definite diagnosis at the moment

**Medication:** Lisinopril, amlodipine, bisoprolol, atorvastatin

**Ocular history:** Bilateral pseudophake (RE 2 years ago, LE 3 years ago), discharged HES

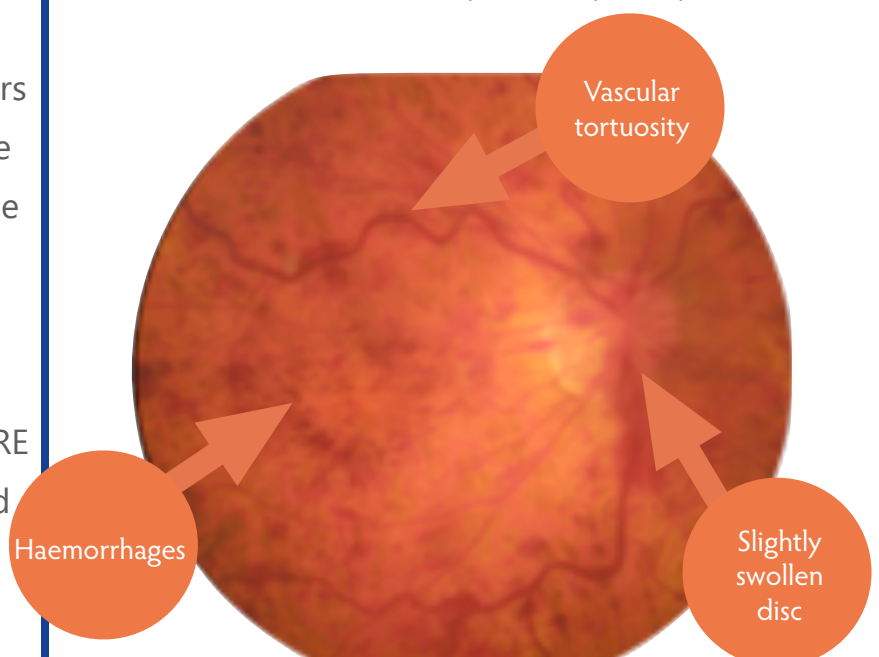
**Smoking status:** 20 per day

### Examination

#### Slit lamp & dilated Volk 90D

Right eye	Structure	Left eye
Normal	<b>Lids &amp; lashes</b>	Normal
Clear	<b>Cornea</b>	Clear
Grade 4	<b>van Herick</b>	Grade 4
Posterior chamber	<b>IOL</b>	Posterior chamber
No PCO		No PCO
Disc slightly swollen	<b>Disc</b>	C:D 0.40
Haemorrhages++	<b>Macula</b>	No abnormalities
Haemorrhages++	<b>Periphery</b>	No holes/tears/detachment
Vascular tortuosity		
Positive	<b>RAPD</b>	Negative
13mmHg	<b>NCT @3pm</b>	15mmHg

(IOL = intra-ocular lens; PCO = posterior capsular opacification)



## Diagnosis

BA has suffered a central retinal vein occlusion (CRVO) in his right eye. Vein occlusion can occur where the retinal vein is compressed by a sclerosed retinal artery as they share an adventitial sheath where they cross.

Venous occlusion can either be of a central or branch retinal vein. The condition is relatively common with approximately 80 and 440 cases per million, respectively, and is more common in men than women.<sup>1</sup>

## Classification

CRVO can be classified as either non-ischaemic or ischaemic.

**Non-ischaemic** is more common and less severe. Patients present with reasonably good VA, fewer retinal haemorrhages and cotton-wool spots and no RAPD.

**Ischaemic** CRVOs are more severe and present with worse VA (<6/60), extensive retinal haemorrhages, cotton wool spots and RAPD.

## Sequelae

Patients who have suffered retinal vein occlusion may develop retinal neovascularisation (new vessels at the disc and/or elsewhere) and iris neovascularisation. The latter can cause neovascular glaucoma, which typically occurs around 3 months after the original CRVO.

Some individuals also develop macular oedema, as was the case for BA.

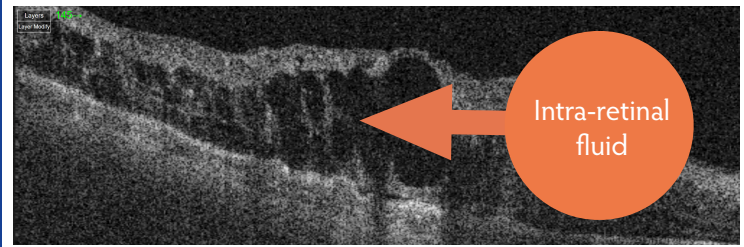
Retinal collaterals can develop which arise from the capillary bed and 'bypass' the occluded vein.

## Referral

The College of Optometrists states that patients with CRVO should be referred to an ophthalmologist within 2 - 4 weeks of presentation and should also be referred urgently to their GP for medical investigation and management.<sup>2</sup>

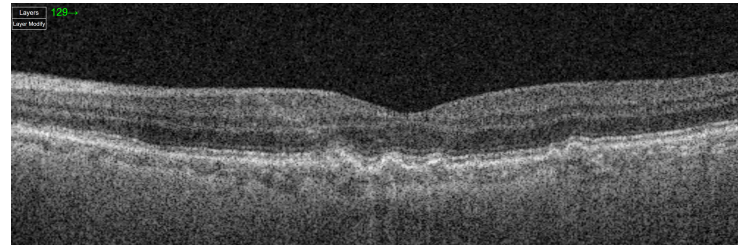
If IOP is raised on presentation, referral should be on an urgent/priority basis and the optometrist should telephone the hospital for triage. An emergency referral (within 24 hours) should be made when IOP is 40mmHg or more.<sup>3</sup>

## OCT



At a clinic appointment 1 month after his CRVO, OCT of BA's right eye showed gross cystoid macular oedema. Central retinal thickness was greatly increased at 560µm (normal values are around 240 - 260µm). BA was listed for a course of 3 intra-vitreous injections of Eylea at monthly intervals with a review appointment at 4 months.

## Follow-up



When BA returned for follow-up 1 month after his final Eylea injection, he reported that his blood pressure was under much better control. His macula oedema was significantly improved with central retinal thickness reduced to 264µm. Some retinal pigment epithelial changes were noted, so he was given advice regarding diet, smoking cessation and self-monitoring with an Amsler chart. A review was planned for 3 months.

At his next appointment, BA's macular oedema had returned to its original level. He was given a further course of 3 Eylea injections and when there was no improvement, a course of 2 Ozurdex (slow-release dexamethasone steroid implant placed in the vitreous). BA's intra-ocular pressure increased as a response to the steroid, so latanoprost was added. Over time, his macular oedema resolved somewhat, but his visual acuity never improved to better than 6/60.

1: London & Brown (2011). <https://pubmed.ncbi.nlm.nih.gov/21460724/>

2: College of Optometrists (2023). <https://www.college-optometrists.org/clinical-guidance/clinical-management-guidelines/retinal-vein-occlusion>

3: College of Optometrists (2021). <https://www.college-optometrists.org/clinical-guidance/guidance/guidance-annexes/annex-4-urgency-of-referrals-table>

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