Ocular Ischaemic Syndrome: disease presentations and treatment outcomes

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Introduction

- Ocular Ischaemic syndrome (OIS) is a spectrum of ocular diseases related to ocular hypoperfusion. Prevalence of OIS is known as low, but it is likely undiagnosed due to its wide/ varied clinical presentations.
- OIS is often associated with significant carotid artery stenosis and systemic co-morbidities of cardiovascular disease; with reports of 40% mortality (from myocardial infarction or stroke).
- Recent decades of improved enhanced ophthalmic imaging with widefield fundus fluorescein angiography (FFA) allows early detection of OIS peripheral retina ischaemia; carotid doppler scan however remains the only non-invasive easily assessable test to detect presence of related carotid artery stenosis as the causative factor.

Purpose

To characterize features of patients who presented with OIS retinopathy, including presentation severity, progression, and visual outcomes with currently available treatment options.

Design

- Retrospective study – single hospital/ centre.
- Data collection from identifying eye patients who had carotid doppler scan for OIS suspect and had subsequent FFA of OIS confirmation.

Results

Initial presentation

- 28 patients (37eyes); Female:Males = 25%:75%.
- Age: mean 58.6years (SD 14.3,range 30-89years).
- 68% unilateral.
- 60% has BCVA better than 6/12, 24% BCVA 6/15-6/60 and 16% BCVA worse than 6/60.
- 68% were known glaucoma patient already on treatment of glaucoma FU.
- 36% of patients had diabetes, 61% had ≥2 cardiovascular risk factors; 48% were on a statin or blood thinner.
- Presentation features: "CRVO" (46%), asymmetrical diabetic retinopathy (16%), peripheral retinal haems only(11%), vitreous haemorrhage (16%) and Rubeosis (22%). See also Figure 2.

Follow Up (FU)

- Mean FU period: 7 years (SD 2.78, range 0.58-11 years).
- 100% of eyes underwent FFA.
- 46% patients have ICA stenosis/atheroma.
- Only 27% of OIS eyes have CMO(most are asymptomatic).
- 10.7% (2/28 patients) had died from systemic cardiovascular complications

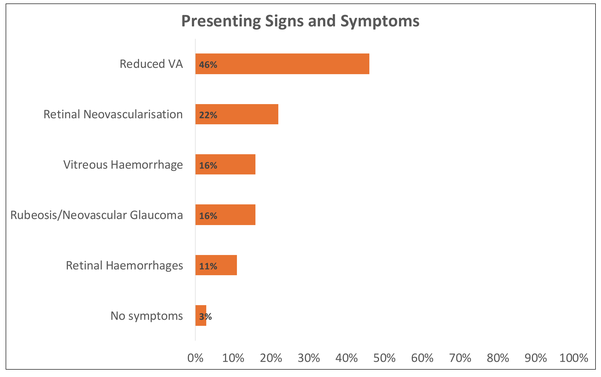


Figure 2: Signs and symptoms reported at presentation.

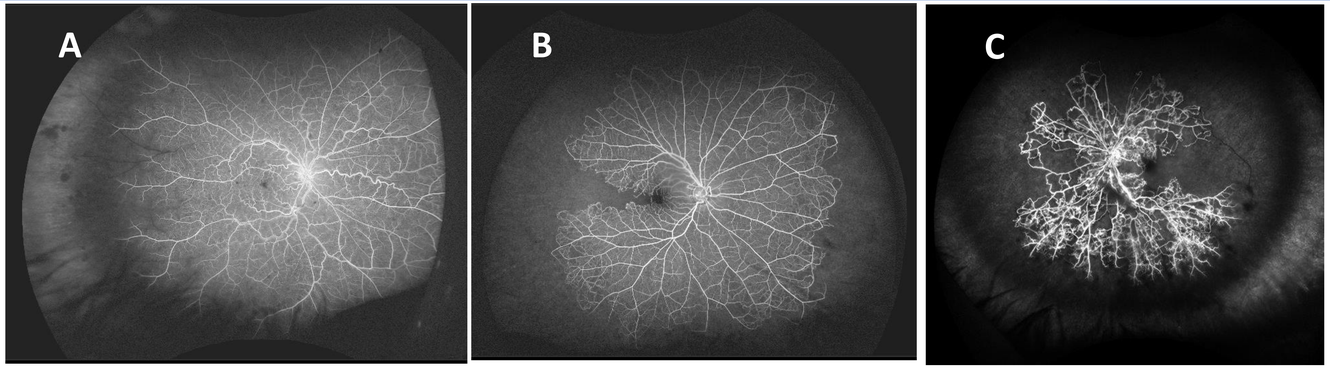


Figure 1 : widefield FFA showed patient (A) with typical early OIS involved only sector far peripheral ischaemia, good vision; patient (B) with typical OIS with extensive 360 peripheral ischaemia and wedge shape temporal macular ischaemia progression, sparing fovea hence still good vision; patient (C) with late OIS presentation showed 360 extensive severe pan-ischaemia affected fovea, irreversible poor vision.

Treatment

- Peripheral retinal laser applied as main treatment (at least once) in 92% of eyes.
- Anti-VEGF intravitreal injections were given in 62% of eyes with CMO (average 12 injections, SD 10.6, range 1-38).
- 32.4% received laser alone; 59.5% received combination of treatments.

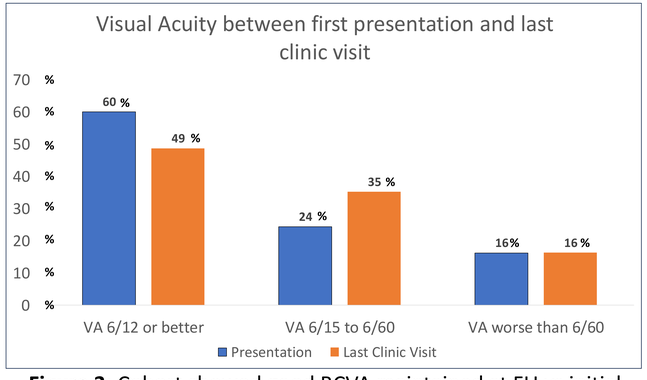


Figure 3: Cohort showed good BCVA maintained at FU vs initial presentation.

Discussion and Conclusions

- Our cohort showed OIS retinopathy presentations remain variable and mostly sharing diabetic retinopathy and vein occlusion features; with a high prevalence of known glaucoma on anti-glaucoma eyedrops.
- Published literature reported OIS as a disease with poorly understood disease progression prediction; with visual loss varied from gradual visual loss (80%) to profound acute visual loss of (12%) of neovascular glaucoma.
- Our cohort reported similar incidence of severe visual loss (16%) as other reported literature; however, we do not share the high prevalence of "gradual visual loss" rate.
- The explanation is likely due to early detection of OIS from FFA and subsequent application of preventative retinal laser treatment to ablate retinal ischaemia hence preventing disease progression.
- Retinal laser / treatments do not however alter visual outcome of the initial severe disease presentation with poor vision.
- A high index of suspicion is required to improve early OIS diagnosis and treatment to prevent progression to profound visual loss.