

Background

Acute retinal necrosis (ARN) is a severe panuveitis associated with poor visual outcomes, most commonly due to retinal necrosis, retinal detachment and subsequent optic atrophy. However, visual loss in ARN is frequently multifactorial and not solely attributable to retinal detachment or macular involvement.

Other important contributors include optic disc infarction and optic neuropathy, marked peripheral retinal ischaemia with associated visual field loss, chronic cystoid macular oedema, epiretinal membrane formation, cataract, sequelae of complex retinal detachment repair (often requiring long-term silicone oil tamponade), and secondary glaucoma with pressure-related optic nerve damage. Many of these mechanisms remain under-recognised in routine prognostication despite having a substantial impact on long-term visual function.

Aim

To evaluate the features associated with poor visual outcomes in patients with PCR-proven acute retinal necrosis (ARN) at a tertiary referral centre in the UK.

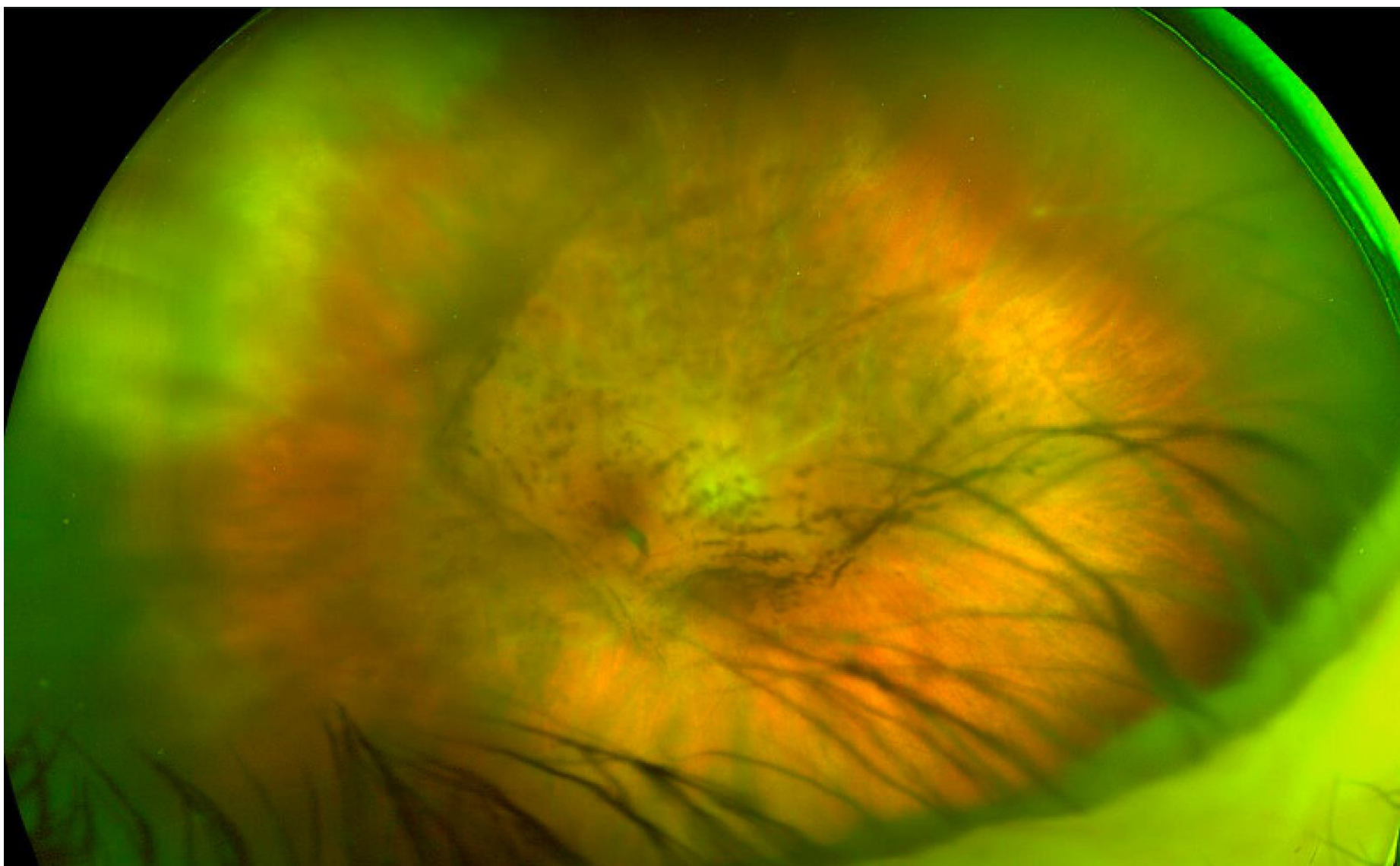
Methods

Clinical records were reviewed to extract demographic data, laterality, best-corrected visual acuity (BCVA), intraocular pressure (IOP), degree of anterior and posterior segment inflammation, treatment modality, treatment duration, and length of follow-up. Multimodal imaging was specifically reviewed for structural and vascular features relevant to visual outcomes, including macular oedema, retinal ischaemia, optic disc involvement, epiretinal membrane formation, and complications related to retinal detachment and secondary glaucoma.

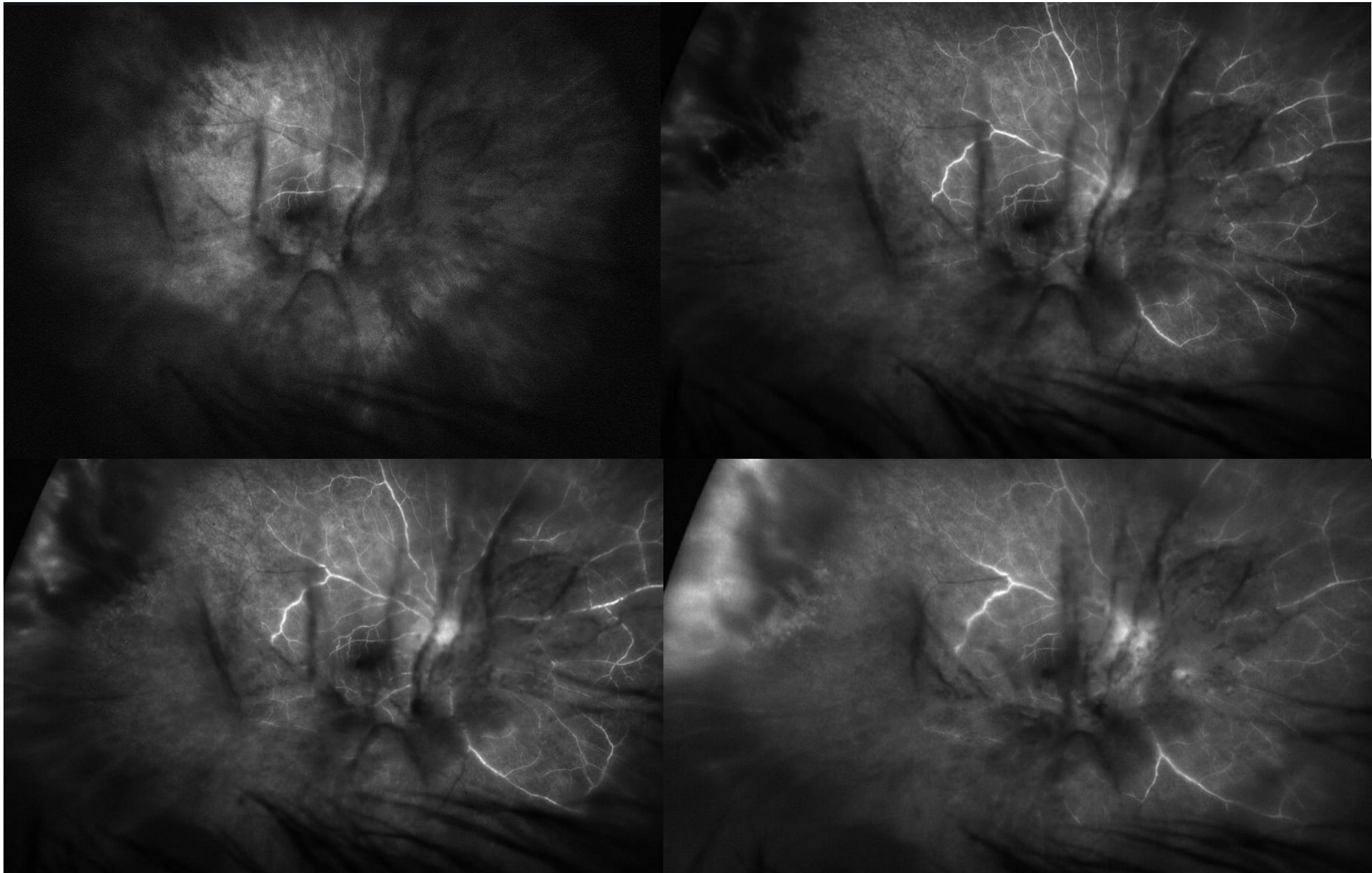
Results

Twenty-three eyes of 21 patients were diagnosed with ARN during the study period. The mean age at last follow-up was 62 years, with a mean follow-up of 40 months. PCR testing identified VZV in 73.9% of eyes, HSV-2 in 13.0%, HSV-1 in 8.7%, and Toxoplasma in 4.3%. Mean presenting BCVA was 0.86 LogMAR (range 0.1–4.0).

A distinct subgroup of five eyes (21.7%) demonstrated optic atrophy, retinal sclerosed vessels (arterial and or venous), or FFA-confirmed retinal ischaemia without macular retinitis involvement, highlighting alternative mechanisms of visual loss beyond macular necrosis or retinal detachment.



Fundus photograph demonstrating extensive peripheral retinal scarring with posterior pole involvement and vitreoretinal traction.



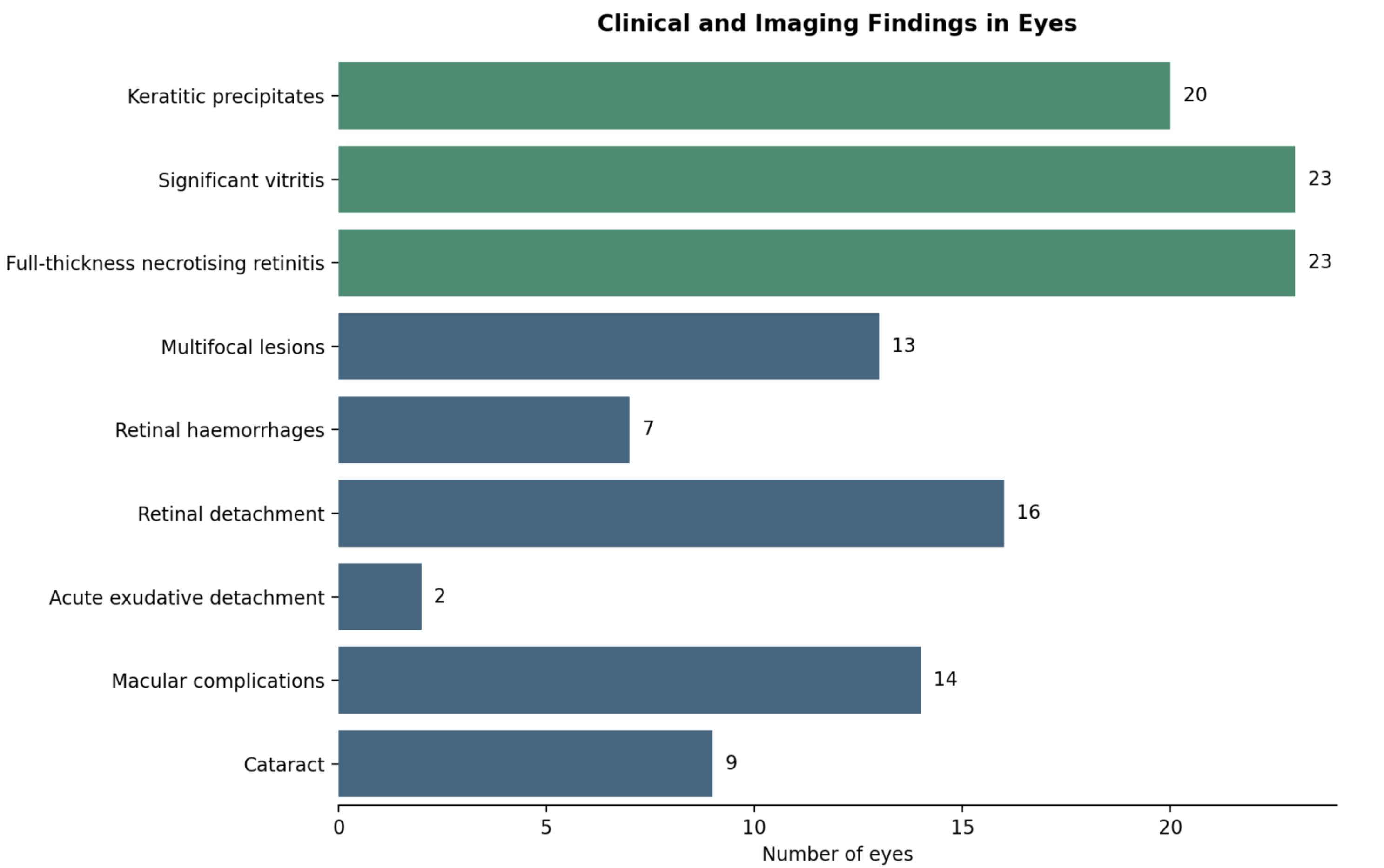
Sequence of FFA images - Top left – top right – then bottom left and bottom right (early phases to progressively late phases)

Conclusions

1. Poor visual outcomes in ARN arise from multiple mechanisms including macular complications, retinal vasculopathy, and optic nerve injury.

2. Optic atrophy and retinal ischaemia may occur even without macular retinitis.

3. Systematic FFA and multimodal imaging are valuable for documenting ischaemia and explaining discordance between macular appearance and visual acuity.



References

1. Mojarrad A, Omidtabrizi A et al., Acute retinal necrosis. Management and visual outcomes: a case series. Int J Retina Vitreous. 2022 Sep 15;8(1):66. doi: 10.1186/s40942-022-00417-w.
2. Aksu-Ceylan N, Güner ME et al., Association Between Prognosis of Acute Retinal Necrosis and Retinal Involvement. Turk J Ophthalmol. 2022 Dec 28;52(6):405-411. doi: 10.4274/tjo.galenos.2021.58609.