Title: A case of painful visual loss after an episode of herpes simplex encephalitis.

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Key words: Acute retinal necrosis (ARN), Herpes virus, encephalitis

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Herpes simplex virus associated acuter retinal necrosis is a rare but potentially devastating consequence of ocular involvement of one of the herpes viruses, usually occurring post an episode of HSV associated meningitis or encephalitis. Prompt recognition is paramount because this condition is both sight threatening and in addition, has a risk of involving the contralateral eye. Antiviral treatment and systemic anti-inflammatories with prednisolone are the main stay of therapy.

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A 72 year old male with a past history of benign prostatic hyperplasia, gastro-esophageal reflux disease and an episode of dermatomal herpes zoster 12 years previously, presented to an emergency department with a three day history of fever, confusion, nausea and vomiting. Magnetic resonance imaging(MRI) of the brain demonstrated extensive edema involving the right medial temporal lobe consistent with HSV encephalitis and lumbar puncture was positive for Herpes simplex type 1 DNA on polymerase chain reaction . On day 32, after he completed 21 days of intravenous acyclovir at 10mg/kg,he was transferred to a neurological rehabilitation unit. On day 48 the patient described 5 minutes of visual 'flashes and floaters' that resolved. On day 54 the patient awoke with severe left sided orbital pain and loss of vision in the left eye. On ophthalmic examination his visual acuity was 20/20 on the right with acuity reduced to only light perception on the left. He had a left relative afferent pupillary defect. A severe panuveitis obscured any view of the retina. An orbital ultrasound and MRI brain were performed and the patient was presumptively diagnosed with HSV associated acute retinal necrosis with detachment. He was commenced on intravenous acyclovir 10mg/kg TDS and high dose oral steroids with prednisolone 1mg/kg. He went on to have a vitreal biopsy which identified herpes simplex 1 DNA on polymerase chain reaction. On Day 10 post monocular visual loss the patient was transferred to a private hospital for definitive surgical intervention consisting of vitrectomy, membrane peel and gas-fluid exchange. On Day 3 after procedure the patient was able to finger count and perceive objects and was transferred back to inpatient rehab. Now, 4 months post episode of viral retinitis and retinal vasculitis, the patient has vision of 6/60 with no involvement of the contralateral eye.

Herpetic uveitis (manifesting as acute retinal necrosis (ARN) or herpetic retinal vasculitis) is a rare but potentially devastating complication of herpes simplex virus (HSV) infection. ARN may also be associated with other herpes viruses including HSV-2, varicella-zoster virus, Epstein Barr virus and cytomegalovirus^{2,3}. The diagnosis is usually made clinically with unilateral findings of uveitis/vitritis, occlusive vasculitis and peripheral retinal necrosis.¹ There is also a high incidence of secondary retinal detachment. Specialist ophthalmic examination is critical as misdiagnosis of this condition as papillitis, optic neuritis or other inflammatory eye disease may result in incorrect monotherapy with steroids and worsening of the retinal necrosis and usually resulting in complete loss of vision.

ARN typically affects immunocompetent adults with an annual incidence of 0.5 per million⁴. The time from central nervous system (CNS) infection to ocular disease is variable, with cases occurring from days to decades following HSV CNS disease.⁵ The risk of contra-lateral eye involvement further highlights the importance of diagnosis and prompt initiation of therapy. Treatment with acyclovir has been associated with a reduced risk of contra-lateral eye involvement in observational studies.^{5,6}

Therefore, clinicians across multiple disciplines need to remain alert for the need to critically examine any patient reporting visual disturbance after an episode of CNS infection with a herpes virus, and to urgently refer for an ophthalmologist opinion and management to detect and treat these potentially devastating eye complications.

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Figure 1. Axial MRI images of the orbit demonstrating retinal and choroidal detachment in the left globe (arrows)

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