Acute Retinal Necrosis Secondary to Herpes Simplex Virus
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Case Report

A healthy 45 year old male presents with blurred vision in the left eye for one week. A thorough examination of the retina reveals severe vitritis and necrosis of the periphery.

I. Case History

- Patient demographics: 45 y/o Caucasian male
- Chief complaint: Sudden onset of blurry vision OS for one week. Blurred vision is associated with dull pain and irritation OS. Patient was told he had iritis by his primary optometrist two days ago.
- Ocular history: LASIK OU
- Medical history: Overall healthy, no significant medical conditions.
- Medications: Prednisolone Acetate 1% q 1.5 hours, prescribed by primary optometrist two days ago.

II. Pertinent findings

- Clinical: BCVA 20/40 OD, 20/400 OS; pupils no APD; Full EOMs OU; FTFC OD, OS; slit lamp: keratic precipitates OS, 2+ cells in anterior chamber OS, otherwise unremarkable OU; IOP 13/15; DFE: OD 0.3 and unremarkable; no view OS due to severe vitritis.
- Other: B-scan, OCT macula, fundus photography
- Laboratory studies: polymerase chain reaction-based analysis

III. Differential diagnosis

- Primary: Acute retinal necrosis caused by Herpes virus family (VZV or HSV), or less commonly, CMV.
- Others: PORN, syphilis, toxoplasmosis, Behçet’s disease, Fungal or bacterial endophthalmitis, large cell lymphoma.

IV. Diagnosis and discussion
Acute retinal necrosis (ARN) is a clinical syndrome that causes retinal whitening (necrosis) in the peripheral retina. There is an accompanied inflammatory reaction in the vitreous and anterior chamber, while the posterior pole is typically spared.

The triad of: anterior uveitis and vitritis, occlusive vasculitis and peripheral necrosis is often used to define ARN.

ARN usually occurs in immunocompetent individuals, aged 20-50 years, male and females equally. However, it can occur in immunocompromised patients or infants. The etiology of ARN is most commonly the varicella zoster virus (VZV) or the herpes simplex viruses (HSV-1 or HSV-2). Cytomegalovirus (CMV) occasionally causes the condition.

The prognosis of ARN is very poor. It progresses rapidly and is potentially devastating, as it can result in retinal detachment (40-75% of patients) and bilateral involvement (35% of patients). The second eye is typically involved within 6 weeks of the initial presentation. Light perception is often the final visual outcome of these patients.

Various laboratory tests are useful in the determining the underlying cause. Polymerase chain reaction analysis of the intraocular fluid can aide in the diagnosis and treatment of many cases.

V. Treatment, management

Treatment of ARN should begin immediately. As a primary care optometrist, it is necessary to diagnosis the syndrome and refer immediately to a specialist. The goal of treatment is decrease the incidence of the bilateral involvement. Retinal detachment cannot be prevented in the first eye, unless a controversial PPV is performed.

Traditional therapy includes 10-15 mg/kg/day of intravenous acyclovir given every eight hours, for at least seven days. Immunocompetent patients can switch to oral antiviral medication for up to 6 weeks, to decrease the incidence of bilateral involvement. However, immunocompromised patients should continue anti-viral therapy for three to four months. The herpes simplex virus has less than a 1% resistance to acyclovir in immunocompetent patients, but it has up to a 14% resistance in immunocompromised individuals. VZV resistance to acyclovir is rare.

Intravitreal foscarnet may also aide in therapy because it has shown to reduce the rate of retinal detachment in various studies.

Laser photocoagulation is another controversial treatment option. Some clinicians believe that a laser barricade can reduce the risk of retinal detachment. However, others believe the laser will not prevent a detachment from occurring and the dense vitritis may limit the view of the posterior pole, making laser treatment different.

Bibliography: Available upon request
VI. Conclusion

Although ARN is a rare syndrome, it is necessary for primary care optometrists to be aware of this diagnosis so appropriate and immediate referrals can be sought. Additionally, this case illustrates the importance of dilating and completing a thorough examination on patients with uveitis.