Flashes and Floaters

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KEYWORDS

• Retinal tear • Retinal detachment • Migraine • Vitreous hemorrhage
• Posterior vitreous detachment

KEY POINTS

- Monocular flashes and floaters suggest an underlying ocular condition. In a middle-aged adult with no prior medical or ocular conditions, the most common cause is a posterior vitreous detachment. However, all patients deserve an immediate and thorough dilated examination with an ophthalmologist to evaluate for vitreous hemorrhage or a retinal tear.
- Bilateral flashes of specific size and pattern can reflect an underlying neurologic condition. Flashes preceding or following headache raise concern for migraine.
- New onset of floaters in a patient with known diabetic retinopathy or ischemic retinopathy raises concern for vitreous hemorrhage.
- Symptoms of pain or decreased vision in conjunction with flashes and floaters should be evaluated by an ophthalmologist immediately.

MONOCULAR SYMPTOMS

Monocular flashes and floaters often reflect an underlying ocular cause. The major monocular causes of flashes and floaters include vitreoretinal traction and vitreous hemorrhage. Additional, although less likely, ocular causes of flashes and floaters include uveitis, endophthalmitis, vitreous lymphoma, and retinal degenerations. Symptoms of pain or decreased vision in conjunction with flashes and floaters should be evaluated by an ophthalmologist immediately. Although rare, monocular flashes and floaters in conjunction with headache can reflect a subset of migraine referred to as retinal migraine. Retinal migraines are painless and temporary visual disturbances that present with auras, including scintillating scotoma, flashes, and other visual aberrations, but commonly occur unilaterally, unlike typical migraine. However,

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the focus of this article is the more common causes of monocular flashes and floaters in a primary care setting.

Vitreoretinal Traction

The vitreous is densely attached to the retina at the vitreous base, which is the area of 3 to 4 mm posterior to the ora serrata, at the junction of the retina and ciliary body. The vitreous is also attached, although less firmly, at the optic nerve, macula, and retinal vasculature. As the vitreous ages, it condenses and separates from the retina. As this separation happens, the vitreous can tug on the retina at these focal attachments. This retinal tugging causes photoreceptor and neuronal signals, leading to flashes. Floaters occur because of opacities in the vitreous media that cast shadows on the underlying retina. The most common cause of a floater in the setting of vitreoretinal traction is a posterior vitreous detachment, which reflects vitreous separation from the optic nerve head. The remnant of this attachment is called a Weiss ring (**Fig. 1**), or an opaque area in the posterior vitreous directly over the optic nerve that is circular in configuration and reflects the site of prior attachment. Floaters can also be a sign of hemorrhage, and can occur if the vitreous tugging is forceful or unsuccessful, thereby causing vasculature injury or a retinal tear.

Posterior vitreous detachment

Disease description Posterior vitreous detachment (PVD) is a common cause for monocular flashes and floaters in middle-aged adults. However, it is not limited to middle age, and can occur in all age groups, in association with high myopia, ocular trauma, or prior ocular surgery.

Definition PVD refers to the separation of the vitreous from the retina posterior to the vitreous base.

Prevalence/incidence The prevalence of PVD increases with age. It is generally rare in emmetropic patients less than 40 years of age, but by the age of 90 years, the reported prevalence ranges from 57% to 86%.[1,2]

Risk factors Risk factors for PVD include age, myopia (near-sightedness), prior ocular surgery, prior ocular laser therapy, ocular trauma, and inflammatory ocular disorders.

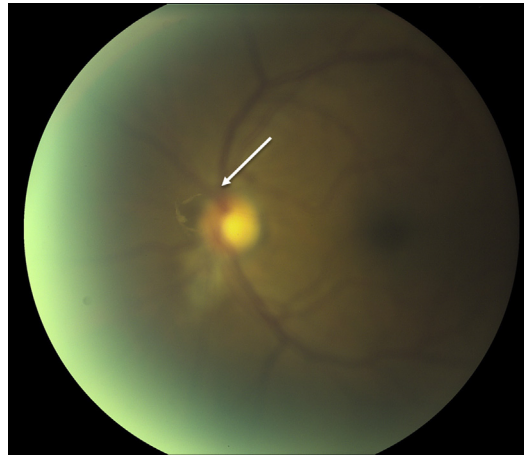

Fig. 1. Fundus photograph showing a Weiss ring (*arrow*) seen in a posterior vitreous detachment. The vitreous is in focus and therefore the background retinal blood vessels and optic nerve are purposely blurred.