

Posterior Vitreous Detachment: Floaters and Flashes

The vitreous is the clear gel that fills the central cavity of the eye. It occupies approximately 80% of the volume of the eyeball and is formed by a network of collagen fibrils and macromolecules of hyaluronic acid. The formed vitreous gel liquefies with age and eventually falls away or separates from the retina, which is the neurosensory tissue that lines the back wall of the eye. This event is called a posterior vitreous detachment (PVD) and is a normal event occurring in most people sometime between 40–70 years of age. A PVD will often occur at an earlier age in people who are nearsighted or have undergone cataract surgery.

As the gel separates and falls away from the retina one will often see floaters. These appear as dots, spots, or curly lines that appear suspended in front of you and move with your eye. People often think these floaters are flying bugs. Floaters often consist of glial tissue (fibrous tissue) that is pulled off of the optic nerve as the vitreous gel separates. Flashes of light are also a common symptom of a PVD. These are due to pulling on the retina as the gel separates. This pulling stimulates the retina resulting in a flash of light. If a retinal blood vessel is broken from the pulling a vitreous hemorrhage can occur. A small amount of blood may be seen as a shower of spots. Larger hemorrhages can cause large dark blobs in the visual field or a overall decrease in vision. If the gel is abnormally adherent to the retina or the retina is weak in a certain area a retinal tear can occur as the gel separates and pulls away from the retina. Once a retinal tear develops there is a significant risk of the liquid vitreous going through the break and detaching the retina from the back wall of the eye. This is why a PVD is such a significant event. A PVD is the initiating event of most retinal detachments although only 10% of PVD's will develop a retinal tear.

Awareness of the symptoms of a PVD is the critical first step in preventing a retinal detachment. If you have new symptoms of a PVD (floaters, flashes, shower of spots) it is important to have a prompt and thorough examination of the retina to search for any retinal breaks. If a retinal break can be discovered before a retinal detachment develops it can be treated with the laser to seal the break and prevent a retinal detachment. Finding a retinal break can be difficult and requires a very complete examination of the edge of the retina (the retinal periphery). The pupil must be dilated for a proper exam, which includes indirect ophthalmoscopy with scleral depression. This is the exam where the ophthalmologist wears a light source on his or her head and examines the retina with a hand-held lens while pushing in on the edge of the eyeball with a stick-like instrument (scleral depressor) through the lids to bring the periphery of the retina, where most breaks are, into view. Examination with a special contact lens for viewing the retinal periphery may also be performed to be sure any and all retinal breaks are located. Sometimes ultrasonography is helpful in determining the status of the vitreous and the location of a retinal break. Fortunately the great majority of PVDs do not cause a retinal tear and not all retinal breaks will lead to a detachment. In general, though, if a tear is associated with a symptomatic PVD it is at high risk for leading to a retinal detachment and should be treated. Sometimes a PVD, tear and detachment can occur without any symptoms and sometimes there can be lots of annoying symptoms without any retinal breaks. See the section on retinal detachment for further discussion on the diagnosis and treatment of detachments.