What is a vitreous hemorrhage?

The vitreous is the clear jelly-like substance that fills the eye. When bleeding into the vitreous occurs, it is called a vitreous hemorrhage. Bleeding can occur as a result of a ruptured microaneurism in diabetics (a small balloon-like protrusion from a weak area in a blood vessel), leakage from abnormal vessels in retinal vascular conditions, or from damage to the retina.

Microaneurisms usually occur in patients who have diabetic retinopathy. When the blood sugar is high, the blood vessels get damaged, causing localized weak areas. Over time, these weak areas start to protrude out, forming an microaneurism. When an aneurism bursts, blood enters into the vitreous, causing a vitreous hemorrhage.

Abnormal vessels that grow in response to low oxygen levels in retinal vascular conditions (proliferative diabetic retinopathy, vein occlusions, etc) are very fragile and tend to leak. Sometimes these abnormal vessels grow from the retina into the vitreous cavity and leak blood, causing a vitreous hemorrhage.

Mechanical damage to the blood vessels of the retina can occur from a retinal tear or trauma to the eye. Like any other part of the body, if a blood vessel gets damaged, it will start to bleed. If mechanical damage occurs to the retina, retinal blood vessels can get damaged and bleed into the vitreous cavity, causing a vitreous hemorrhage.
Who can get a vitreous hemorrhage and what are the risk factors?

A vitreous hemorrhage can occur in anyone, though the incidence of occurrence is relatively small with only 7 cases per 100,000 people in the United States. Factors that increase the possibility of developing a vitreous hemorrhage include:

1. Age
2. Proliferative Diabetic Retinopathy
3. Retinal Tear
4. Retinal Vein Occlusion with proliferative retinopathy
5. Posterior Vitreous Detachment without a tear
6. Retinal Detachment
7. Trauma to the eye

What are the symptoms of a vitreous hemorrhage?

Depending on the severity of the vitreous hemorrhage a patient may not experience any symptoms, though this usually isn’t the case. Typically a patient will experience one or more of the following symptoms:

1. Decreased vision
2. Sensation of looking through hazy or smoke
3. Multiple new floaters
4. Cobweb shapes, dark streaks
5. Flashes of light

How can the doctor determine if I have a vitreous hemorrhage?

The doctor will perform a dilated exam using a slit lamp to determine if there are any blood cells within the vitreous and if the hemorrhaging is originating near the macula (the center of the retina). To check the outer retina for hemorrhaging, the doctor will use an indirect ophthalmoscope. When the view to the retina is blocked by a large amount of blood, the doctor will need to perform an ultrasound of your eye to determine the extent of the hemorrhage and possible underlying causes of the hemorrhage.

What tests are performed?

Testing is important because it helps the doctor to precisely document the amount of blood in the vitreous, the location where the hemorrhage is originating from and measure changes that occur. Both the OCT and ultrasound images described below are performed in our clinic.

**Optical Coherence Tomography (OCT)** is a high definition image of the retina taken by a scanning ophthalmoscope with a resolution of 5 microns. These scans are used to determine the extent of the vitreous hemorrhage and if there has been any leakage of blood into or under the retina in addition to the vitreous hemorrhage. The doctor will use OCT images to objectively document the progress of the disease throughout the course of your treatment.

**Ultrasound of the eye (B-scan)** uses sound waves that reflect off the different tissues in the eye to form an image. These images can determine the amount of blood in the eye and evaluate the retina when the view inside is obstructed.

What treatments are available?

If there is only a small amount of hemorrhaging into the vitreous, the body may be able to reabsorb the blood and only close observation over several weeks is necessary. If the blood does not go away within this time period, other options will be discussed. If there is a large amount of blood in the eye or if a serious underlying condition causing the hemorrhage is present (a retinal detachment), surgical intervention is necessary to remove the blood and/or treat the underlying condition urgently.