

# Retinal Vein Occlusion

# Retinal Artery Occlusion

Arteries carry blood from the heart to other parts of the body, and veins carry the blood back to the heart. A blockage in an artery or vein is called an occlusion.

The retina is the layer of light-sensitive tissue that lines the back of the eye. It converts light into signals that are sent via the optic nerve to the brain, where they are recognized as images. Conditions that affect the retina affect the ability to see.

## RETINAL VEIN OCCLUSION

When a retinal vein is blocked, it cannot drain blood from the retina. This leads to hemorrhages (bleeding) and leakage of fluid from the blocked blood vessels.

There are two types of retinal vein occlusion:

**Central retinal vein occlusion (CRVO)** is the blockage of the main retinal vein.

**Branch retinal vein occlusion (BRVO)** is the blockage of one of the smaller branch veins.

## Causes of RVO

Certain conditions increase the risk of developing retinal vein occlusion. These include diabetes, glaucoma, high blood pressure, high cholesterol, vascular (blood vessel) disease, and blood disorders.

## Symptoms of RVO

RVO often causes a sudden, painless blurring or loss of vision. It may also cause a person to see floaters or flashing lights. However, some people with retinal

vein occlusion have pain, and some have no symptoms.

## Complications of RVO

*Macular edema.* The macula is the small, central area of the retina that allows sharp, detailed vision, such as that necessary for reading. Blood and fluid leaking into the macula cause swelling, a condition called macular edema, which causes blurring and/or loss of vision.

*Neovascularization.* RVO can cause the retina to develop new, abnormal blood vessels, a condition called neovascularization. These new vessels may leak blood or fluid into the vitreous, the jelly-like substance that fills the inside of the eye. Small spots or clouds, called floaters, may appear in the field of vision. With severe neovascularization, the retina may detach from the back of the eye.

*Neovascular glaucoma.* New blood vessels in certain parts of the eye can cause pain and a dangerous increase in pressure inside the eye.

*Blindness.* The complications of RVO, especially if they are not treated, can lead to irreversible loss of vision.

## Diagnosis of RVO

*Ophthalmoscopy.* The changes caused by RVO may be seen by examination of the retina with an instrument called an ophthalmoscope.

*Fluorescein angiography.* This is a test procedure in which a dye that is injected into a vein in the arm travels to the retinal blood vessels. Special photographs allow the physician to see the vessels.

### **Treatment of RVO**

Currently, there is no known way to cure RVO. Treatment with steroids, either by injection or via an implant (Ozurdex), or with drugs such as ranibizumab and bevacizumab that are injected into the eye to prevent new blood vessel growth and leakage, may lead to improvement in vision. In some cases, laser treatment may be used.

Someone who has had an RVO has an increased risk of having another one. This risk may be reduced with management of any conditions, such as diabetes or high blood pressure, that contribute to development of RVO.

### **RETINAL ARTERY OCCLUSION**

When a retinal artery is blocked, blood cannot get to the retina. Like RVO, RAO may affect the central retinal artery or a branch artery.

### **Causes of RAO**

RAO is usually caused by a small clot.

### **Symptoms of RAO**

RAO causes sudden, painless, complete (central artery) or partial (branch artery) loss of vision. Atherosclerosis, diabetes, heart disease, glaucoma, high blood pressure, and high cholesterol are among the conditions that increase the risk of RAO.

### **Complications of RAO**

Unless the blood supply to the retina can be restored quickly, the affected area will not survive, and vision loss will be permanent.

### **Diagnosis of RAO**

The changes caused by RAO may be seen by examination of the retina with an ophthalmoscope.

### **Treatment of RAO**

There is no treatment that has been proven to be successful. Potential treatments include eye massage, removal of fluid from the eye, oxygen therapy, and injection of drugs that dissolve clots. The outcome is more likely to be better if the occlusion is partial and treatment is begun promptly.

People with RAO often have serious underlying health problems that require thorough medical evaluation.

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