Retina Consultants of Texas

RCA Research

RETINAL VEIN OCCLUSION

What is a retinal vein occlusion (RVO)?

A **retinal vein occlusion** (RVO) occurs when one of the small veins in the retina becomes blocked. Some patients experience symptoms such as blurred and distorted central vision or decreased sensitivity to light. Others have no symptoms.

How RVO affects vision

Light enters your eye and is detected by the **retina**, light-sensing nerve tissue lining the back of your eye. The information it receives is transmitted through the **optic nerve** to the brain, where it is interpreted as the images you see. The **macula** is the part of the retina responsible for sharp, central vision.

Blood vessels play an important role in maintaining the health of your retina and optic nerve by supplying them with oxygen and nutrients. **Arteries** bring blood to your tissues; **veins** drain blood away from your tissues.

When a retinal vein becomes blocked, it prevents blood from being properly carried away from the eye, causing an accumulation of blood to back up into the retinal tissue. This accumulation of blood causes flame shaped hemorrhages and retinal swelling.

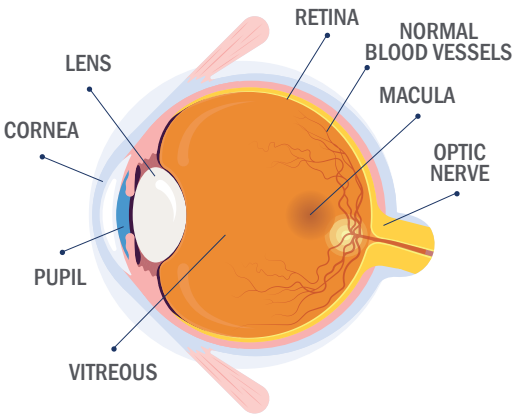
There are three types of occlusions:

- **Branch Retinal Vein Occlusion (BRVO)** occurs when one of the smaller branch retinal veins becomes blocked.
- **Central Retinal Vein occlusion (CRVO)** is a blockage in the central vein.
- **Hemi Retinal Vein Occlusion (HRVO)**, which is a subtype of CRVO/BRVO. This occurs when an entire hemisphere (half) of the retina is affected by an occluded vein.

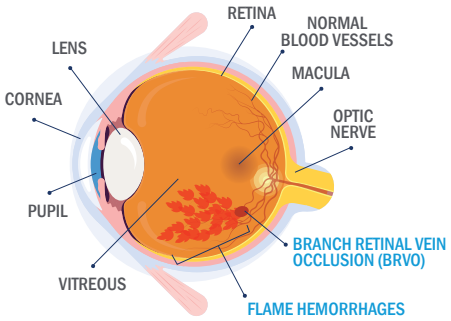
Blocked retinal veins may also cause:

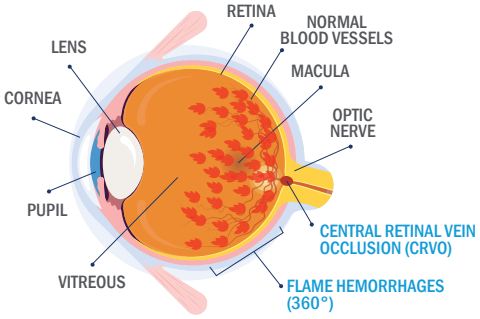
- **cystoid macular edema** (CME), in which multiple, cyst-like areas of fluid appear in the **macula** and cause retinal swelling.
- **ischemia** (inadequate blood flow to the retina)
- **neovascularization**, in which abnormal, fragile blood vessels grow from the surface of the retina and form scar tissue. Rarely, these abnormal vessels grow on the iris and/or drainage canals in the eye leading to **neovascular glaucoma** (increased eye pressure).

HEALTHY EYE



AFFECTED EYE





Risk factors for RVO

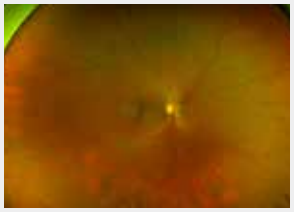
Risk factors include diabetes, high blood pressure, high cholesterol and smoking. Other underlying conditions can cause RVO, including glaucoma, inflammation and hypercoagulable states (abnormal tendency towards blood clotting). Depending on your condition, age and health, we may evaluate you for these less common conditions.

Examination and diagnostic testing

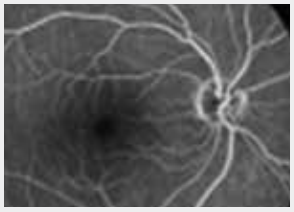
Your ophthalmologist may obtain several types of ocular imaging, including color photography, **optical coherence tomography** (OCT), which uses light waves to take cross-section pictures of your retina and **fluorescein angiography** (FA), which uses dye injected into the peripheral veins to highlight and photograph the blood flow of vessels in the back of the eye.

WHAT YOUR DOCTOR SEES

HEALTHY EYE



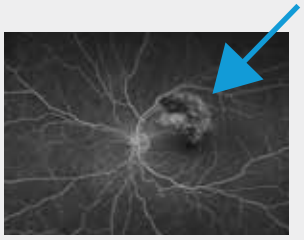
Normal retina, seen on color photography



Normal macula, seen on FA

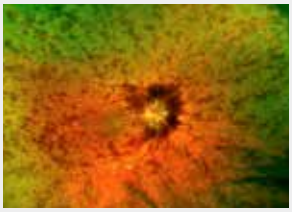
EYE WITH BRVO
Branch Retinal Vein Occlusion

BRVO, seen on color photography



BRVO with leaking abnormal blood vessels, seen on FA

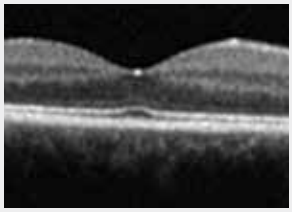
EYE WITH CRVO
Central Retinal Vein Occlusion



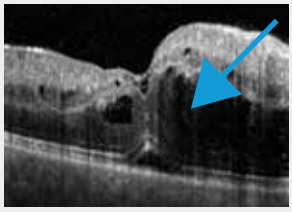
CRVO, seen on color photography

CRVO, seen on FA

EYE WITH CME
Cystoid Macular Edema



Normal macula, as seen on OCT



Macula exhibiting cystoid macular edema (CME) associated with a vein occlusion, as seen on OCT

Treating RVO

Treatment may include: **close clinical observation**, **intravitreal injections** of Anti-VEGF medications (Lucentis, Avastin, Eylea), **steroids** or **laser therapy**.

It is also important that you work with your primary care physician to control all cardiovascular risk factors, including diabetes, blood pressure, cholesterol and weight, all of which can affect the health of your eyes.

Scan here to watch a video featuring our own Dr. Richard Fish discussing retinal vein occlusions

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