



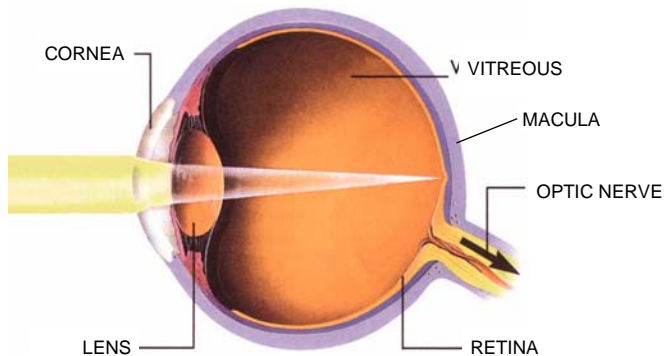
BRANCH RETINAL VEIN OCCLUSION

Branch retinal vein occlusion (BRVO) is a cause of painless vision loss in the upper, lower, or central field of vision. It may also occur with no symptoms. Occlusion occurs when blood flow in a vein is reduced or blocked.

When BRVO occurs, we look for associated

conditions. If vision is affected, treatment with laser may improve vision, or reduce the risk of further vision loss. In most cases, we wait for spontaneous improvement. If vision is blurred, treatment is guided by techniques which have been tested in national controlled clinical trials.

HOW THE EYE WORKS



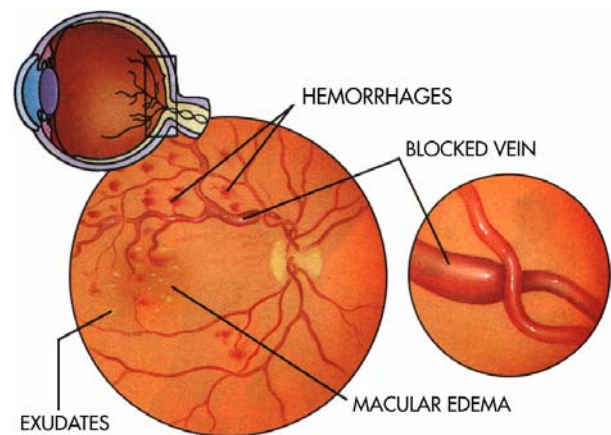
The eye works like a camera. The lens and cornea focus light rays into the back of the eye. The retina works like the photographic film in a camera. The macula is part of the central retina, with which we see fine details and color.

Arteries bring blood to the retina. Veins take blood away from the retina. The main vessel which leads through the optic nerve to the heart is the central retinal vein. The smaller veins, or branch veins, lead to the central vein.

OBSTRUCTION OF BRANCH RETINAL VEIN

In BRVO, there is usually an artery crossing over the retinal vein at the point of obstruction. This can pinch the vein, like stepping on a garden hose, and thereby cutting off blood flow. The area of retina which drained through this vein may become congested or swollen. Areas of the retina may bleed, or die. Sometimes the obstruction is reversible, and sometimes it is irreversible.

The leading cause of blurred vision in BRVO is macular edema. This is swelling of the central retina caused when blood can't flow through the blocked vein, so water leaks into the retina.



CAUSES OF A BRANCH RETINAL VEIN OCCLUSION

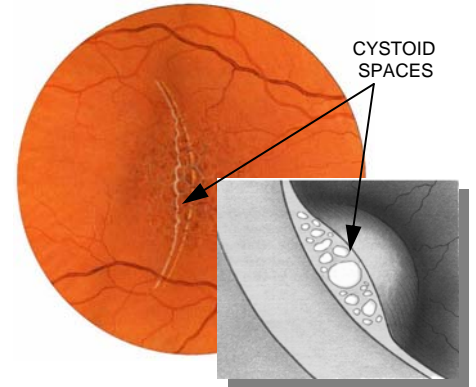
The most common cause of BRVO is no cause. However, it may be more likely to occur in people with a history of hypertension, diabetes, glaucoma, ocular inflammation, or carotid artery disease. BRVO may also occur in hyperviscosity syndromes, where the blood is too

thick. The conditions associated with BRVO are detected with complete ocular and general examinations, and with laboratory or blood tests. Blood tests are most often done in those under 55 years. If a systemic condition is found, treatment reduces risk for the fellow eye.

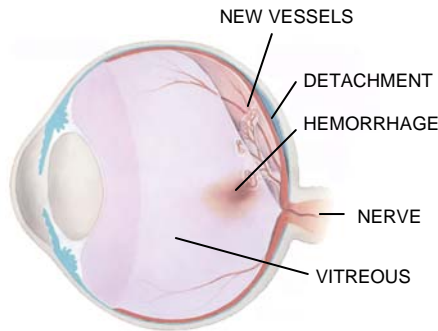
VISUAL LOSS: PROLIFERATION AND MACULAR EDEMA

At its worst, BRVO can rarely cause closure of vessels in the macula, and non-function. Sometimes, areas of retina with poor blood flow may call for new blood vessels to grow on

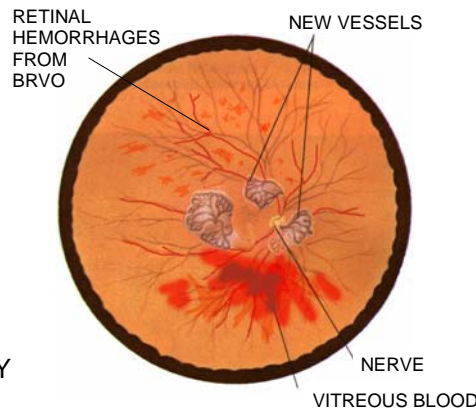
the back surface of the vitreous gel. When these vessels grow, they are fragile. They can break, bleed, and fill the eye with blood. Symptoms of floaters, or cobwebs may be present.



Macular edema is the most common cause of vision loss in BRVO. Cyst-like spaces form within the retina. This causes swelling and potentially reversible visual loss.



BRVO PROLIFERATIVE RETINOPATHY



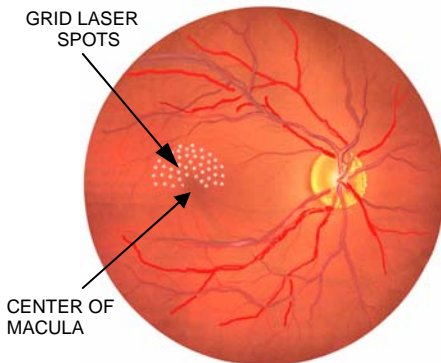
TREATMENT FOR BRANCH RETINAL VEIN OCCLUSION

Laser is a light focused to a pin-point. It can dry swollen retina, or burn retina which has new vessels. Laser for macular edema is very brief. A grid pattern of laser is used if vision

is 20/40 or worse, for 2-3 months with cystoid macular edema.

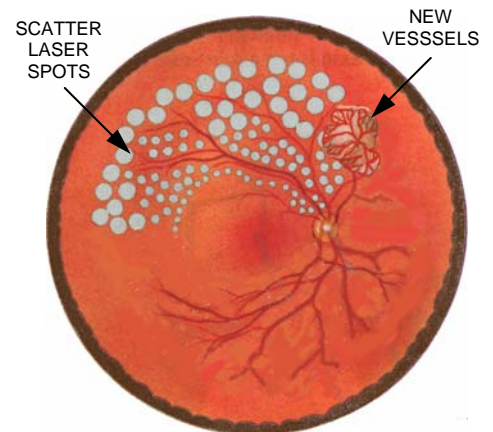
Laser is a simple outpatient procedure done in the office. Occasionally, laser must be repeated, if there is still swelling 3 months after laser treatment.

If new vessels grow, scatter laser photocoagulation indirectly treats these vessels, reducing the risk of bleeding.



An alternative treatment for macular edema instead of, or in addition to laser is the injection of triamcinolone in the vitreous. This is also done in the office.

Surgery on the obstructed vein and the overlying artery to relieve the blockage with a vitrectomy shows some promise.



BRANCH RETINAL VEIN OCCLUSION: PROGNOSIS

Many branch retinal vein occlusions are asymptomatic. If vision is affected, laser for macular edema increases the chances of vision improvement by over 60%. An injection of steroid

may help in those where laser alone doesn't help.

If vitreous bleeding takes place, scatter laser reduces the chance of severe visual loss in over 85%. The blood usually clears spontaneously.