

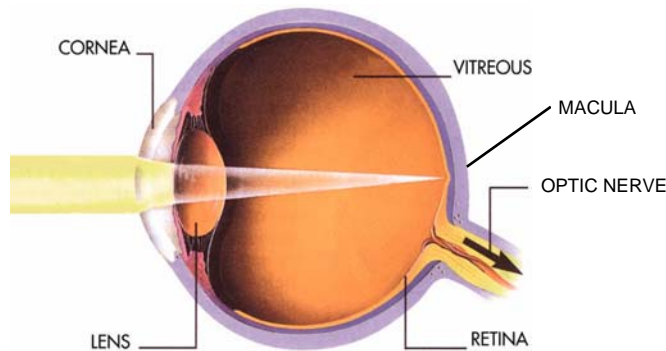


CENTRAL RETINAL VEIN OCCLUSION

Central retinal vein occlusion (CRVO) is a cause of painless vision loss throughout the field of vision, often worst centrally. It may also occur with minimal symptoms. Blood flow in the main vein draining the retina is blocked or reduced. If vision is poor due to swelling of the

central retina, we can do an injection or surgery to improve vision. If vision is severely affected, we sometimes do laser to prevent a painful glaucoma. Treatment guidelines have been developed by national controlled clinical trials to stop bad blood vessels from growing in the eye.

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.

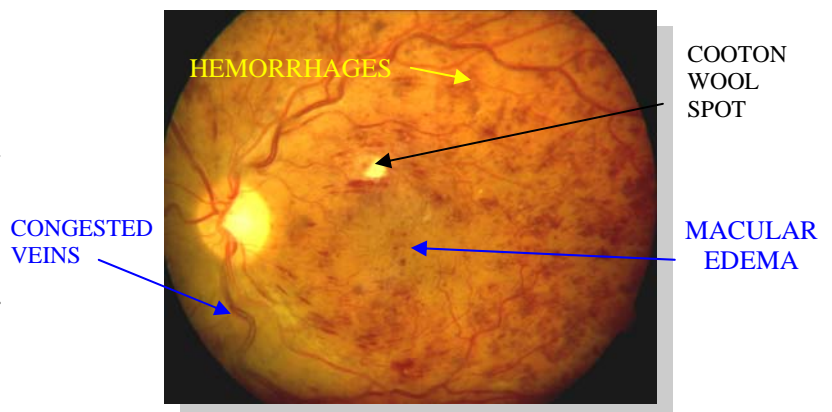
Arteries bring blood to the retina. Veins take blood away from the retina. The main vessel which leads from the retina through the optic nerve to the heart is the central retinal vein.

OBSTRUCTION OF THE CENTRAL RETINAL VEIN

In CRVO, there is usually an obstruction of the central retinal vein in the optic nerve. The vein may be pinched, like stepping on a garden hose, cutting off the flow. The retina may bleed, die, or become congested and swollen. A leading cause of blurred vision in CRVO is macular edema. In some cases, we treat this to improve vision, especially if vision at presentation is poor.

If vision has dropped to 20/200, there is up to a 20% chance of improving to 20/100 or better without treatment. Only 6% improve by 3 lines. If vision is good to begin with, it often stays

good. If the vision is fair, it may worsen in 47%.



CAUSES OF A CENTRAL RETINAL VEIN OCCLUSION

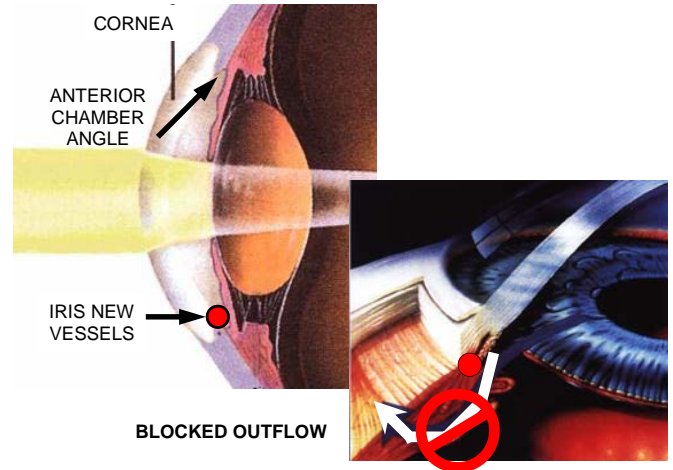
The cause of CRVO is usually undiscovered. It is more likely to occur in people with a history of hypertension, diabetes, glaucoma, ocular inflammation, or carotid artery disease. It may also occur in hyperviscosity syndromes, where

the blood is too thick. The conditions associated with CRVO are detected with complete ocular and general examinations, and with laboratory or blood tests. Their treatment may reduce risk of vein occlusion in the fellow eye.

NEOVASCULAR GLAUCOMA

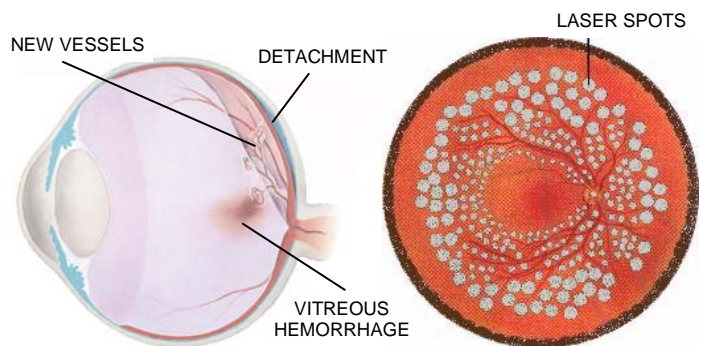
The worst complication of CRVO is growth of new blood vessels in the drain for fluid inside the eye, or anterior chamber angle. If the retina has lost blood flow and vision is very poor, the retina produces a chemical that calls for vessels to grow, which can cause a painful glaucoma.

Eyes with severe CRVO should be followed every month for six months, then three months later. If new vessels are found, then laser treatment may stop this vessel growth, control intraocular pressure, and prevent pain in the eye.



RETINAL NEOVASCULARIZATION

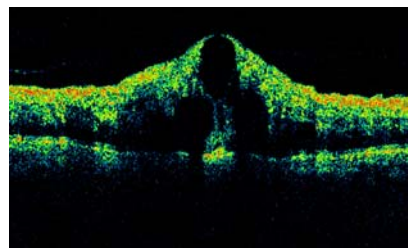
Rarely, new vessels grow from the surface of the retina. These new vessels may break, bleed, and fill the eye with blood. Retinal detachment is a late cause of vision loss. Laser treatment, with focused intense light may cause the blood vessels to disappear and preserve some vision. If the eye fills with blood, surgery is occasionally indicated to restore a little vision. However, reading vision is generally poor.



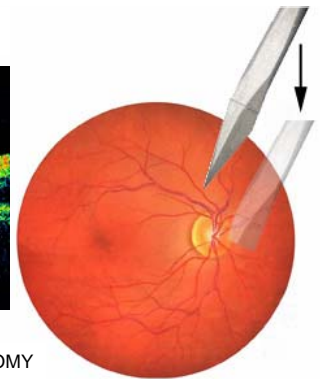
MACULAR EDEMA

Swelling of the retina is a common cause of vision loss in CRVO. In eyes where there is still blood flow to the macula, intravitreal steroids may lead to visual improvement, but not in all cases. More than one injection may be needed. In others, vitrectomy with radial optic neurotomy may be indicated. Not everyone with CRVO and macular edema is a candidate for treatment with intravitreal steroid injection, or radial optic neurotomy. Ask your doctor for details.

SWOLLEN MACULA AS SHOWN BY OCT



RADIAL OPTIC NEUROTOMY



CONCLUSION

CRVO is a significant cause of vision loss and discomfort. Frequent follow-up is often required.

We are able to improve vision in some eyes, and appropriate laser may prevent severe glaucoma.