CONDITION

Retinal vein occlusion

Retinal vein occlusion is a blockage in a vein that drains blood from the light-sensitive tissue at the back of the eye.

WHAT IT IS
Blocked drainage vein in the light-sensitive retina

BODY SYSTEM
Eyes and vision

MAIN SYMPTOMS
Sudden blurred vision, distorted vision, dark patches, floaters

WHAT CAUSES IT
Blood-flow blockage, often linked to vascular risk factors

HOW IT IS DIAGNOSED
Dilated retinal examination and optical coherence tomography

MAIN TREATMENT
Eye injections, monitoring, and sometimes laser or steroids

CAN IT BE CURED?
No - treatment controls effects, not blockage

IS IT AN EMERGENCY?
Sometimes - sudden vision loss needs same-day assessment

LONG-TERM OUTLOOK
Often manageable, but lasting vision loss can occur

Overview

Retinal vein occlusion happens when a vein carrying blood away from the retina becomes blocked. The retina is the light-sensitive layer at the back of your eye. It changes light into signals that your brain uses to form an image.

The blockage causes blood and fluid to leak into the retina. This can reduce vision, especially if fluid collects in the macula. The macula is the central part of the retina used for reading, recognising faces, and seeing fine detail.

There are two main types:

A branch occlusion usually affects part of the retina. A central occlusion can affect most or all of it. Either type can cause mild to severe vision changes, but central occlusions are more likely

to cause widespread damage.

Retinal vein occlusion usually affects one eye. Treatment cannot normally remove the original blockage, but it can reduce swelling, protect the eye from complications, and improve or stabilise vision in many people.

- Branch retinal vein occlusion , or BRVO, affects one of the smaller retinal veins
- Central retinal vein occlusion , or CRVO, affects the main vein draining the retina

Symptoms

The usual symptom is a painless change in vision in one eye. It may appear suddenly or become noticeable over several hours or days.

Symptoms can include:

Some branch occlusions cause few symptoms, particularly if the macula is not affected. They may be found during a routine eye examination.

Pain is not typical. A painful, red eye can occur if abnormal blood vessels later cause a major rise in eye pressure. This needs urgent assessment.

- Blurred or dim vision
- Distorted vision, such as straight lines appearing bent
- A dark, missing, or cloudy area in your sight
- New floaters, which look like dots, threads, or cobwebs
- Reduced central vision when the macula is swollen

Causes and risk factors

A retinal vein can become blocked when blood flow slows or a blood clot forms. In branch occlusion, a nearby artery may press on a vein where the two vessels cross. In central occlusion, blockage occurs in or near the point where the main retinal vein leaves the eye.

The risk rises when blood vessels have been affected by other health conditions. Important risk factors include:

Retinal vein occlusion can also occur in younger adults or people without an obvious risk factor. In selected cases, especially when someone is young, has repeated occlusions, or has clots elsewhere, clinicians may investigate uncommon clotting or inflammatory conditions.

The blockage is not caused by ordinary eye strain, reading, or using screens. Stress alone is not considered a direct cause, although long-term stress can make blood pressure and other health risks harder to manage.

- High blood pressure
- Diabetes
- High cholesterol
- Glaucoma or raised pressure inside the eye
- Smoking
- Increasing age
- Conditions that affect blood clotting

Diagnosis

A retinal vein occlusion is confirmed by examining the retina. An eye specialist usually places drops in your eye to widen, or dilate, the pupil. This provides a clearer view of retinal bleeding, swollen veins, and other characteristic changes.

You will often have optical coherence tomography , commonly called OCT. This painless scan uses light to create detailed cross-sectional images of the retina. It shows whether the macula is swollen and helps track the response to treatment.

You may also have fluorescein angiography . A fluorescent dye is injected into a vein, usually in the arm, while a camera photographs its movement through the retinal blood vessels. This can show leakage, blocked circulation, and areas of retina receiving too little blood.

Other checks may include vision testing, eye-pressure measurement, and examination of the front of the eye for abnormal blood vessels.

Your blood pressure and relevant health history should also be reviewed. Blood tests may be used to check blood sugar and cholesterol or to investigate another suspected cause. Extensive clotting tests are not needed for everyone.

Treatment and management

Treatment is based on how much the occlusion has affected your vision, whether the macula is swollen, and whether abnormal blood vessels have developed. A mild occlusion without macular swelling may only need close monitoring.

The main treatment for macular swelling is an injection of an anti-VEGF medicine into the eye. VEGF is a natural protein that makes damaged blood vessels leak and encourages abnormal vessels to grow. Blocking it can reduce swelling and improve or stabilise sight.

The eye is numbed before an injection. You may feel pressure, but the procedure is usually brief. Many people need a series of injections, with further treatment guided by eye examinations and OCT scans. The number and timing are not the same for everyone.

A steroid injection or a small steroid like prednisone or hydrocortisone implant may sometimes be considered. Steroids can reduce retinal swelling, but they can raise eye pressure and increase the chance of cataracts. Your eye specialist will weigh these effects when discussing the options.

Laser treatment has specific uses. It may be offered for persistent swelling in selected branch occlusions. A wider pattern of laser treatment can be used when abnormal blood vessels develop, helping to prevent bleeding or severe pressure-related complications. Laser does not remove the blocked vein.

Managing related health risks is also important. This can include checking blood pressure, diabetes, cholesterol, smoking, and glaucoma. Aspirin or an anticoagulant like warfarin or apixaban , sometimes called a blood thinner, does not reliably restore vision and is not routinely started solely for a retinal vein occlusion. It may still be needed for a separate medical reason.

Complications

The most common cause of reduced vision is macular oedema , meaning fluid-related swelling in the centre of the retina. It can improve with treatment but may return after an initial response.

If much of the retina loses its blood supply, the eye may produce abnormal new blood vessels. These vessels are fragile and can bleed into the clear gel inside the eye, causing a sudden increase in floaters or cloudy vision.

Abnormal vessels can also block the eye's normal fluid drainage. This may lead to neovascular glaucoma , a painful form of very high eye pressure that can permanently damage sight.

Other possible outcomes include lasting retinal damage, thinning of the macula, and permanent blind or blurred areas. Complications are generally more likely after a central or severely blood-starved occlusion.

Prevention

Retinal vein occlusion cannot always be prevented. Some people develop it despite having no clear or controllable risk factor.

You may be able to lower the chance of another blood vessel problem by managing factors that damage circulation. This includes keeping up with checks and treatment for blood pressure, diabetes, cholesterol, and glaucoma. Not smoking is also important for blood vessel health.

Regular eye examinations can find glaucoma and other changes before they cause noticeable symptoms. If you have already had a retinal vein occlusion, continue routine medical and eye follow-up even if your vision has become stable.

Do not start aspirin or another blood-thinning medicine to prevent an eye occlusion unless it has been recommended for an established medical reason.

Living with it and what to expect

The course can unfold over months or years. Retinal bleeding may gradually clear, but macular swelling can continue or return. Some people need repeated injections for a prolonged period, while others reach a stable point with less treatment.

Vision is more likely to recover when the original loss was mild, circulation remains reasonably good, and macular swelling responds to treatment. Branch occlusions often have a better outlook than central occlusions. Severe loss of blood supply can leave lasting visual impairment even when treatment prevents further complications.

Follow-up is especially important during the first months because abnormal blood vessels may appear after the original event. Later appointments may become less frequent if the retina and eye pressure remain stable. A return of swelling or new blood vessel growth can mean that monitoring or treatment needs to increase again.

If one eye has reduced vision, the other eye often supports most daily activities. Depth perception, reading speed, and confidence in dim light may still change. Brighter lighting, magnification, larger text, and low-vision services can help when sight does not fully recover.

Having an occlusion in one eye does not mean the other eye will definitely be affected. There is still a future risk, so managing vascular and eye-pressure risks remains worthwhile.

When to get medical help

Seek a same-day eye assessment for a new, sudden loss or blurring of vision, even if it is

painless. Several different eye conditions can cause this, and some need immediate treatment.

Get urgent help if you develop:

Call emergency services if a vision change occurs with facial drooping, arm or leg weakness, difficulty speaking, loss of balance, or a sudden severe headache. These can be signs of a stroke or another neurological emergency.

Routine follow-up is for monitoring stable vision, retinal swelling, eye pressure, and treatment response. Do not wait for a routine appointment if a sudden new symptom develops.

- A painful red eye, headache, or nausea with reduced vision
- A sudden shower of floaters, flashes, or a curtain-like shadow
- A major new dark or missing area in your sight
- Rapid worsening between scheduled eye appointments

Common questions

Can vision return after a retinal vein occlusion?

Some vision may return as bleeding and swelling settle, especially after a branch occlusion. Anti-VEGF treatment can improve vision affected by macular swelling. Recovery may be limited if the retina has lost a large part of its blood supply or developed permanent damage.

Is retinal vein occlusion an eye stroke?

It is sometimes called an "eye stroke," but this informal term can be confusing. A retinal vein occlusion blocks blood leaving the retina, while a retinal artery occlusion blocks blood entering it. It is not the same as a stroke in the brain, although they share some vascular risk factors.

Will I need eye injections forever?

Not necessarily. Some people need only a limited course, while others need injections over months or years because swelling returns. OCT scans and vision tests help determine whether further treatment may be useful.

Can retinal vein occlusion spread to my other eye?

The blockage does not spread from one eye to the other. However, conditions such as high blood pressure, diabetes, or glaucoma can affect both eyes and increase the chance of a separate future occlusion.

Can I drive with retinal vein occlusion?

This depends on the vision in both eyes and local driving standards. Do not drive while your vision is suddenly reduced or until you know how safely you can see. Your eye clinic can

measure your vision and visual field, and the relevant licensing authority can explain the legal requirements.

Does retinal vein occlusion mean I have a blood clot elsewhere?

Not usually. It can be a sign of blood vessel risk factors, so checks for blood pressure, diabetes, and cholesterol are often appropriate. Further clotting investigations are generally reserved for people whose age, history, or examination suggests an unusual cause.

Sources

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