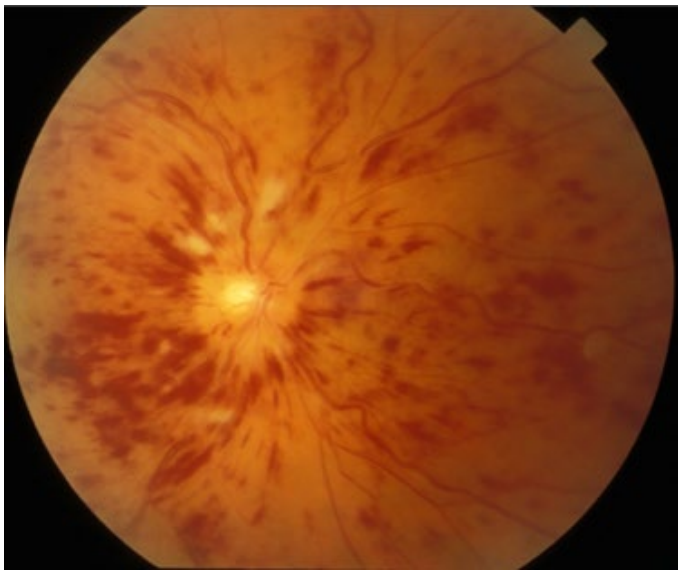
Royal Berkshire
NHS Foundation Trust

Retinal Vein Occlusion

This information explains what RVO is and how it is treated, including the risks and benefits. If you have any queries, please speak to your doctor or nurse.

What is Retinal Vein Occlusion?

Retinal Vein Occlusion (RVO) is one of the most common causes of sudden and painless, loss of vision. Although it can occur at almost any age, it typically affects people over the age of 60, and men slightly more often than women.



The veins of the body carry the blood back to the heart and the veins of the eye carry the blood from the tissues back to the heart. These veins can become blocked suddenly and an 'occlusion' is the equivalent to having a stroke in the eye.

When one of the veins draining blood from the eye becomes blocked, blood and other fluids leak into the retina, causing bruising and swelling, starving retinal cells of oxygen and leading to sight loss.

What causes an RVO?

There are a number of common conditions that increase the risk of developing a retinal vein occlusion. These include:

- High blood pressure
- Diabetes
- High cholesterol

- Some blood disorders
- Glaucoma
- Smoking

Types of Retinal Vein Occlusion

There are two types of RVO:

- **Branch Retinal Vein Occlusion (BRVO)**
  - This is due to blockage of one of the four retinal veins. Each of these veins drains blood from one quarter of the retina.
- **Central Retinal Vein Occlusion (CRVO)**
  - CRVO is due to blockage of the main retinal vein, which is formed by the main four branches.

Are any further tests required?

The doctor will be able to advise of any specific blood tests that are required if necessary, to determine if there is a treatable cause. Typically, blood tests will be carried out.

Will your vision return?

- Vein occlusion causes macular oedema, which is swelling in the centre of the retina, resulting in reduced vision.
- In a central retinal vein occlusion, your vision may improve in the minority of cases, but it is very unlikely that it will return to normal
- In a branch retinal vein occlusion some vision my recover but this varies from person to person.
- The long term outcome will depend upon how good your vision is before you start any treatment.

Are there any later complications from a RVO?

In certain circumstances, the retina does not get enough oxygen (ischaemia) and produces a chemical (vaso-proliferative) factor. This causes new abnormal blood vessels to grow on the retina or iris (coloured part of the eye). That would result in bleeding in the back or the front of the eye respectively. When blood vessels grow on the iris, it is called ‘rubeotic glaucoma’. It results in high pressure within the eye, which can be very painful. The doctor will make an assessment of this risk and also possibly undertake a dye test (fluorescein angiogram) if they think it is necessary.

If the risks of this complication are high, then laser photocoagulation treatment to the retina will be carried out; not to improve the vision, but to either prevent or treat the new vessels on the iris and so hopefully reduce the risk or severity of rubeotic glaucoma.

This can occur even quite late and **if you notice any pain developing in the eye, then please ask your GP to make a further appointment for you at the hospital.**

How do we treat RVOs?

Some of the treatments for retinal vein occlusion include:

- Intravitreal injection (injection of a drug inside the eye) of anti-vascular endothelial growth factor (VEGF) drugs
- Intravitreal injection of a steroid drug
- Pan-retinal photocoagulation therapy (laser to the retina)

Retinal Vein Occlusion: the drugs used and the patient pathway

Treatment will vary depending on your individual condition and will differ between patients. These are a list of the drugs used the Ophthalmology Medical Retina Service in the Royal Berkshire Hospital.

A: Anti-Vascular Endothelial Growth Factor (anti-VEGF)

Including:

- Eylea
- Lucentis

These drugs are injected as a course of many months. Your doctor will explain to you the regime and duration of treatment. Initially, you will get a course of monthly injections and the doctor will re-assess and evaluate your response to treatment. The doctor will continue with treatment if necessary and if it is in your best interest.

B: Steroids

Including:

- Ozurdex

This is a slow release injection lasting 3-6 months. It will be recommended if Lucentis or Eylea is not be suitable, due to health risks or if they do not show sufficient success despite multiple injection treatment. Steroid injections can be repeated if the initial response is positive. When indicated, your doctor will chose the appropriate drug.

Laser therapy, Pan-Retinal Photocoagulation (PRP)

- If you have a high risk of rubeotic glaucoma (abnormal blood vessels resulting in high pressure), then laser PRP treatment is recommended. The aim of treatment is to prevent the eye becoming painful through a build-up in fluid in the eye raising the pressure in the eyeball.
- Laser treatment stops new vessels growing, preventing subsequent bleeding inside the eye or growing harmful blood vessels on the iris.
- The laser is used to create several laser burns on the retina, which may affect your peripheral field (outer edges) of vision.
- It is done as an outpatient treatment and under local anaesthetic, using numbing eye drops.

Who will do the injection?

It will be performed by either an ophthalmologist (specialist eye doctor) or a trained registered allied health professional, such as a nurse, orthoptist or optometrist.

The day of the injection – helpful tips

- No makeup to be worn, especially around the eyes.
- Continue to take any regular medication, including eye drops.
- Report any heart attack, mini stroke or stroke in the last three months.
- If you had any recent eye infection, then it is important to mention this to the clinician.

The day of the injection – before the injection

- A clinician will talk to you about the procedure and ask you to sign a consent form.
- You will be taken through a patient safety identity checks.
- The site of injection will be marked on your forehead or you will be given a sticker with your details on and the eye and medication required will be marked clearly on this.

The day of the injection – in the Injection Room

- The clinician giving the injection and a nurse or health care assistant will go through some further initial checks with you.
- You will be asked to lie flat on a bed (let us know if you are unable to lie flat, so we can make different arrangements).
- You will be given two initial drops, one to numb the eye (antiseptic) and the other to reduce the chance of infection (Iodine).
- The skin around the eye will be cleaned with Iodine.
- A clear plastic device (called ‘The Invitrea’) is inserted. This sits on the top of the eye and keeps the eyelids out of the way.
- You may feel a small pressure as the injection is inserted; this may vary between patients and injections.
- The Invitrea is removed and the Iodine washed out with saline solution.
- The skin around the eye is then cleaned to remove any Iodine.
- You will be asked to count fingers. This is important to ensure there hasn’t been a rapid increase in pressure in the eye.
- The nurse or health care assistant in the Injection Room will ask you if you would like your hand held, if this will help to reduce any stress or anxiety.

Advice following the injection

- The white part of your eye is likely to be red. This is normal and should settle in a week or two.
- The injected eye may be tender for a day or two but should not get more painful. Any pain or discomfort can be relieved by taking any mild painkillers such as Paracetamol or Ibuprofen.
- Your eye will feel gritty and watery – we will give you some comfort drops (lubricants) to take home.
- You may see some floaters / blobs / spots in your vision immediately after your injection or later. It is usually 24 hours for the larger blobs to disappear and a few days for the specks to diminish.
- Driving and normal daily activities can be resumed the next day. Please ask your doctor for advice.

Advice following the injection – things to avoid

- Rubbing or touching the treated eye
- Swimming for a week
- Mascara / eye makeup for a week

Advice following the injection – signs of an infection

Occasionally, the following symptoms may be the early start of an infection:

- Your eye sight deteriorates or becomes more misty.
- The injected eye becomes increasingly red all over, painful or you develop a deep ache starting in the socket.
- Floaters, increasing in number and density.

If any of these symptoms occur, **go straight to the nearest Eye Casualty or Emergency Department (A&E).**

What are the risks of RVO treatment?

Common, up to 1 in 20, usually temporary:

- Red or sore eye
- Corneal abrasion
- Floaters
- Headache

Uncommon, up to 1 in 100:

- Inflammation inside the eye
- High pressure needing temporary treatment

Rare, up to 1 in 1000:

- Infection inside eye (1:2000 per injection)
- Bleeding inside the eye
- Glaucoma

Very rare, up to 1 in 10,000:

- Retinal damage (detachment, tear)
- Cataract
- Need for further operation or procedure
- Permanent serious loss of vision

Uncertain risk:

- Stroke / heart attack

Who is not suitable for an injection?

You should not be given anti-VEGF injections if any of the following apply to you:

- You have an infection in either eye
- You are allergic to anti-VEGF or any of its ingredients
- You have had a stroke or heart attack within the last 3 months
- You have uncontrolled high blood pressure or angina
- You are pregnant
- You are breastfeeding

How to protect your eyes:

- Keep diabetes and blood pressure under control and use any medication prescribed regularly
- Stopping smoking
- Eating a healthy diet
- Drinking less alcohol
- Keeping active
- Maintaining a healthy weight

LVA clinics and ECLO support

Our Sight Loss Advisors, Sarah and Sonya, are on hand to assist anyone with sight loss, or their relatives and carers, to access the support they may need with their Low Vision.

If you would like to speak to Sarah or Sonya, please ask a member of staff and they will organise this.

Contact numbers

For any appointment or non-urgent queries please call:

0118 322 7169 – Select option 2 and then select Option 2 again.

If you have any urgent symptoms then please attend your nearest eye casualty:

- Eye Casualty (Reading): Mon-Fri 9am to 5pm; Sat & Sun & bank holidays 9am-12.30pm; Closed Christmas Day and New Year's Day.
- Eye Casualty (Windsor): Mon-Fri 9am to 5pm; Sat 9am-12.30pm; Closed Sun & bank holidays.

Patient responsibility

- You will be required to be on long-term management once you start treatment with injections.
- Appointments will either be made on the day or sent out to you.
- If an appointment is not received, it is your responsibility to chase the appointment by ringing the department on the number above. Or if you wish to cancel or reschedule an appointment, you must also notify the department.

To find out more about our Trust visit www.royalberkshire.nhs.uk

Please ask if you need this information in another language or format.

Mr Molham Entabi MD, Consultant Ophthalmic Surgeon, RBFT Ophthalmology, August 2022

Next review due: August 2024