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Kingston Hospital NHS
NHS Foundation Trust

Retinal vein occlusion

Patient information leaflet

October 2017

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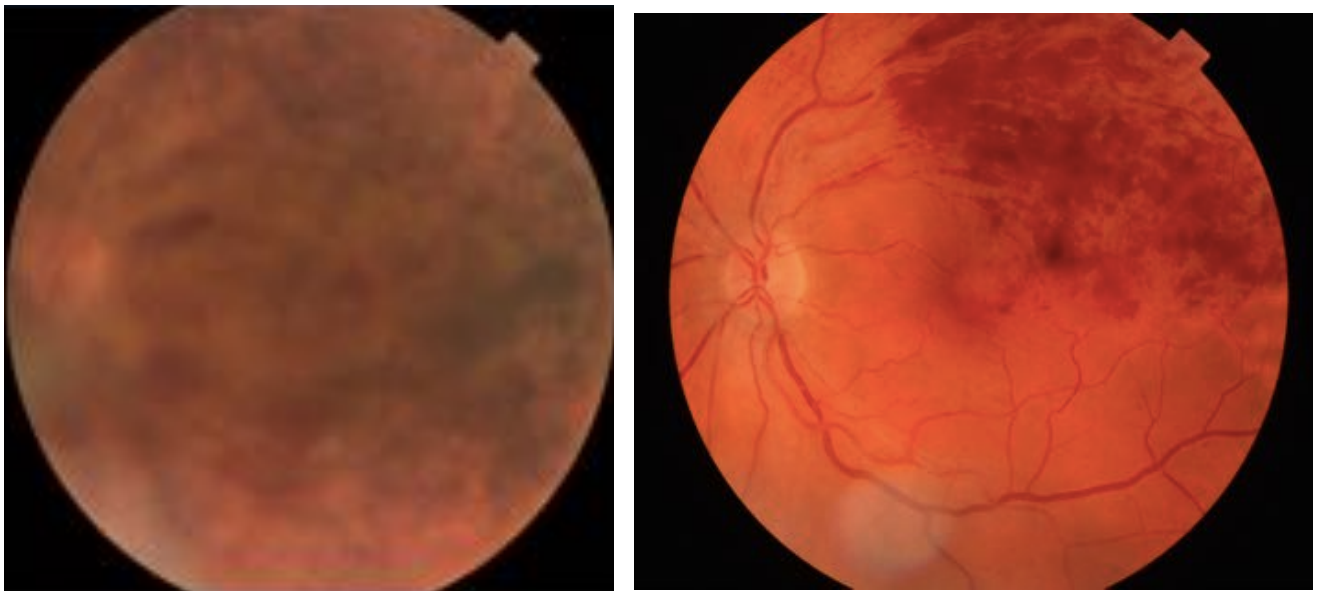
What is a retinal vein occlusion?

This is a condition where one of the blood vessels on retina (light sensing tissue at the back of the eye) gets blocked, leading to an obstruction of blood flow.

- **Central retinal vein occlusion (CRVO)** – the main vein is affected.
- **Branch retinal vein occlusion (BRVO)** – one of the four branches of the vein is affected.

When a vein occlusion occurs, blood cannot be effectively drained out from the corresponding area of the retina. This leads to leakage of blood and fluid from the blood vessels into the retina, which can cause retinal or nerve swelling, and also to reduced blood flow and oxygen supply to the retinal tissue. This may less to partial or complete loss of vision in the eye.



Photographs showing CRVO (photo on left) and a BRVO affecting the upper outer branch of the vein (photo on right).

What causes a retinal vein occlusion?

Risk factors for developing a retinal vein occlusion include:

- Age – this condition is rare under the age of 60
- High blood pressure
- High cholesterol
- Diabetes
- Smoking
- Blood clotting disorders
- Glaucoma – an eye condition often associated with raised eye pressure

If you have been diagnosed with a retinal vein occlusion, it is important to ensure your blood pressure and cholesterol is well controlled, as this will reduce the risk of getting another vein occlusion.

What are the symptoms of a retinal vein occlusion?

Patients tend to have blurry vision. In some patients this can be an incidental finding (i.e. the patient would be unaware of any eye problems and that condition is discovered by the optician or an eye doctor on routine examination).

How is a retinal vein occlusion diagnosed?

A retinal vein occlusion is diagnosed by:

1. **Slit lamp examination**

   This is the examination performed by your eye doctor in the clinic. Dilating eye drops will be instilled.

2. **Optical coherence tomography (OCT)**

   An OCT scan is performed at each visit. It is non-invasive, and uses light energy to produce detailed images of the back of the eye.

3. **Fluorescein angiography (FFA)**

   Some patients may require this is a dye test, which helps to give a detailed view of the blood supply to the back of the eye. A yellow dye called fluorescein is injected through a vein in the arm and a series of photographs are taken. For more information, please see our FFA leaflet.

What are the complications of a retinal vein occlusion?

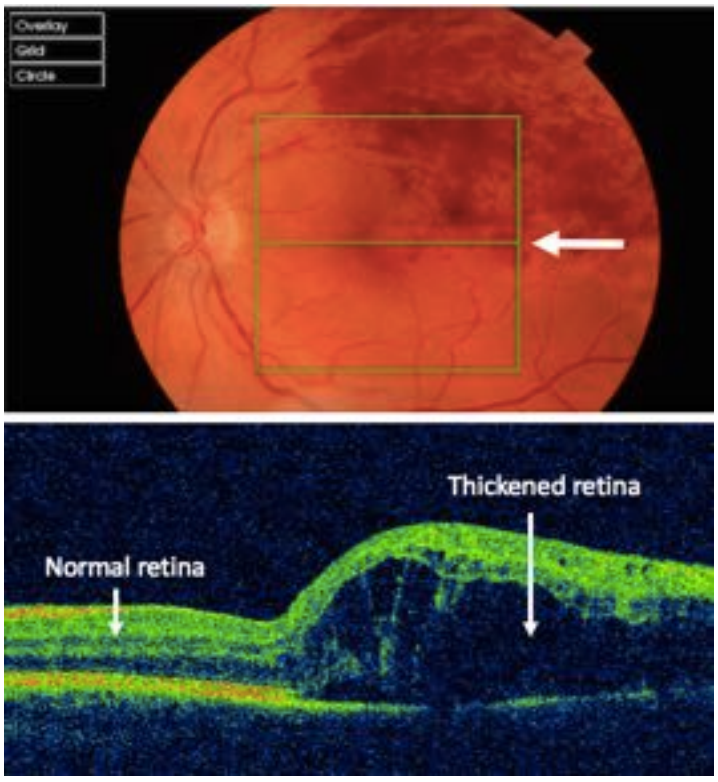
The two main problems are:

1. **Macular oedema**

   The macula is the central part of the retina and is responsible for your central, fine vision. In a vein occlusion, the leakage from the blocked blood vessel can cause fluid accumulation (oedema) and swelling of the macula, which leads to reduced vision.

2. Neovascularisation

This is a condition where abnormal 'new' blood vessels grow on the surface of the retina or on the iris (coloured part at the front of the eye). These abnormal vessels grow to compensate for the lack of oxygen supply to the retina due to the blocked vein. Unfortunately, these new blood vessels do not grow in the correct place, and are abnormally fragile. This means they can easily bleed or cause raised pressure in the eye. This can lead to further loss of vision.



Photograph of a patient with a BRVO. The OCT scan (below the photo) shows the area of macular oedema, where the retina is abnormally thickened. The arrow in the photo shows the area of the retina being scanned.

What are the treatment options for retinal vein occlusion?

1. Good control of blood pressure, diabetes and cholesterol level

This can help to reduce the impact of the vein occlusion on the retina and the risk of developing another retinal vein occlusion.

2. Observation

If the changes are mild and your vision is good, you may be observed for a period of time to see if the changes continue to improve on their own.

3. Treatment for macular oedema

- **Observation**

If the retinal swelling is mild, it can be observed.

- **Laser treatment (macular laser)**

Laser light is used to produce small burns on the retina in the areas where there is fluid build-up from leaking blood vessels. It takes a few months to achieve its full effect and that is why you will only return to clinic 4 to 6 months after laser treatment. Some patients require more than one session of laser over a period of time.

- **Intravitreal injections**

This is where a medication is injected into the vitreous gel at the back of the eye. This may be an anti-vascular endothelial growth factor (anti-VEGF) medication or a steroid. These medications work by reducing the leakage from the blood vessels surrounding the macula. This reduces the swelling at the macula and therefore the risk of losing the central vision. Not all patients with macular oedema are suitable for injection therapy, but if we feel you will benefit from this treatment it will be discussed with you.

More information regarding this treatment can be found in our leaflet “Intravitreal injections”.

4. Treatment for neovascularisation

- **Laser treatment**
  - The abnormal blood vessels are treated with **P**an**R**etinal **P**hotocoagulation (PRP) laser. This means that the laser treatment is applied to almost the whole ("pan") retina.
  - The aim of laser treatment is to reduce the area of retina which is starved of blood and oxygen, which reduces the drive of abnormal new blood vessel to grow. It is important to remember that laser treatment does not improve vision and the aim is to prevent visual loss.
  - You may require more than one laser treatment to ensure adequate coverage of the retina, or if the abnormal blood vessels start to grow again.

How is laser treatment performed?

1. The procedure is an outpatient procedure, meaning you can go home the same day.
2. When you arrive, you will be given dilating drops to dilate the pupils. This will temporarily blur your vision for up to 4 hours. Therefore, it is a good idea to bring a friend or relative with you to the appointment and not to drive immediately after treatment while your pupil is still dilated and vision blurred.
3. The procedure is performed on a machine very similar to a slit lamp (microscope routinely used to examine the eye, where you rest your

4. head on a chin-rest to be examined), except there is a laser added on.
5. You will be given topical anaesthetic eye drops to numb the eye. The eye doctor will then use a contact lens coated with a lubricant jelly onto the eye. This is used to focus on the laser onto the retina. This contact lens is removed at the end of the procedure. You may hear a beeping sound and experience a flashing light each time the laser is applied.
6. Your vision will be temporarily blurry for a while immediately after treatment. You may find it helpful to bring a pair of sunglasses, as you may be more sensitive to light after the dilating drops.

What are the side effects of laser treatment?

Whilst there may be side effects of laser treatment, the benefits of the treatment outweigh the risks.

Some of the possible side effects include:

- Need for more than one laser treatment
- Altered night vision
- Blind spots in your central vision. If this is significant (often only occurs with extensive laser treatment), this may affect your ability to meet the legal visual requirement for driving. The treatment is performed in a way to minimise this risk as we understand driving is important to many of our patients.

- Reduced vision. This is rare, and may occur due to pre-existing poor circulation to the macula, or due to an accidental laser burn to the fovea (area responsible for central vision).

How often will I need to come for clinic appointments?

Most patients are followed up over a period of 18 to 24 months. You may need to attend more frequently if you have more severe vein occlusion or if you are receiving injection treatment.

Will my vision improve?

This will vary depending on the severity of the vein blockage. It also depends on the level of vision when the diagnosis of the vein occlusion is made. In general, patients with central retinal vein occlusion are unlikely to recover or achieve their pre-existing vision levels.

Contact details

Royal Eye Unit

Mon-Fri 8.30am to 5pm

0208 934 6404

Moorfields at St Georges' Hospital (Duke Elder Ward)

Mon-Fri 5pm to 8.30am, weekends and Bank Holidays

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