Wrightington, Wigan and Leigh Teaching Hospitals
NHS Foundation Trust

Laser Treatment for Diabetic Retinopathy and Maculopathy v8

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Laser Treatment for Diabetic Retinopathy and Maculopathy

Patient Information

Ophthalmology Services

- **Author ID:** SB
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What is Diabetic Retinopathy?

Diabetic Retinopathy (DR) occurs when blood vessels in the retina are damaged and can happen in anyone who has diabetes. The retina lines the back of the eye. It sends a signal to the brain helping you to see. Damage to the retina can cause visual impairment that is likely to get worse without treatment.

How does Diabetes cause Retinopathy?

In patients with diabetes, consistently high blood sugar levels cause changes to small blood vessels in the eye, leading to eye damage.

Diabetic Retinopathy can affect all patients with diabetes and can become particularly dangerous. If left untreated, Diabetic Retinopathy can increase the risk of blindness.

There are 3 types of Diabetic Retinopathy

Non-proliferative retinopathy

- An early stage of retinopathy with no visual symptoms associated.
- The small blood vessels of the eye swell a little.
- It is likely to be detected during annual retinal screening and should be monitored regularly.

Proliferative retinopathy

- Blood vessels in large areas of the retina are damaged and cause the growth of new blood vessels in the eye.

- These new blood vessels are not as strong as the normal blood vessels and are very fragile. They bleed easily and can develop into a haemorrhage in the jelly of the eye (vitreous), which causes a sudden shower of floaters or cobwebs, blurred vision or loss of vision.

- If there is a bleed in the jelly (Vitreous) of the eye laser treatment is not possible & may need further complex procedures at a tertiary centre

- If left untreated, this condition may cause scarring in your retina and long-term visual loss & which is irreversible.

Macular oedema*

- Maculopathy is damage to the macula, the central part of the eye which provides you with clear central vision.

- Swelling of the macular is caused by leakage of fluid from the damaged blood vessels in your eye.

- This can cause loss or distortion of central vision.

Diabetic retinopathy is usually treated with laser.

What is a Laser?

Laser is a highly concentrated beam of light, aimed at a precise area on retina, the back of the eye.

Laser treatment

- Laser treatment is usually done on a slit lamp in sitting position.

- You sit at a slit lamp – the same sort of microscope machine as used in clinic for eye examination.

- You will have dilating drops & anaesthetic drops to numb the eye, then a contact lens is applied to the eye to keep it open & focus laser beam on retina.

- The laser treatment involves a number of bright flashes.

- During the procedure it will be important that you stay still & follow doctors instructions.

There are two types of laser treatment techniques according to the type of retinopathy:

Focal Photocoagulation Laser:

- This laser treatment focuses on specific areas of leakage to seal them, preventing further fluid leakage.

- Maculopathy requires gentle (low energy) laser treatment, to seal the leaking areas at the macula. Serious sight loss is prevented in 60 to 70% of cases.

Pan-Retinal Photocoagulation (PRP):

- For Proliferative Diabetic Retinopathy (to reduce the risk of further loss of vision)

- This laser treatment is more extensive and targets larger areas to slow the growth of abnormal blood vessels. Early treatment will prevent severe sight loss in over 90% of cases. In most cases, the treatment will be able to save your reading vision.

After extensive laser treatment, some patients may experience reduced peripheral vision, which could affect their ability to drive. It's important to inform the DVLA if this occurs.

Benefits of laser treatment

The aim of laser treatment is to maintain vision, not improve it.

Alternatives

Laser treatment is the only proven treatment to stop the progression of the disease. In some cases of maculopathy, when the laser is not effective, then there is an alternative treatment in the form of intravitreal steroid injections or anti-VEGF injections into the eye (treatments that block the production of VEGF - a chemical which promotes the growth of new vessels).
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What will happen if I don’t have the laser treatment?

It is likely that without this treatment, you may lose part or all of your sight. The benefits of laser treatment greatly outweigh the risks.

Out-Patient Clinic

Your laser treatment will be carried out as a day procedure; this means you can go home on the same day as the procedure.

How long does it take?

Your laser treatment could last between 15 minutes and 40 minutes depending on how intensive your treatment is. Overall, your visit can last up to two hours.

Consent

The procedure will be explained to you, and you will be asked to sign a consent form. Make sure you fully understand all the information given to you about the possible and proposed treatments and any potential risks. Please ask any questions if you are not clear about anything.

The procedure

- Before the laser procedure, drops are instilled in the eye to dilate the pupil, and local anaesthetic drops are instilled into the eye to numb it,

- You are made to sit comfortably on slit lamp microscope, same machine as the one which is used in clinic for eye examination.

A contact lens is placed **on** the eye which helps to keep the eye open & allows the doctor to view the back of the eye in greater detail. The Contact lens also helps to focus the laser beam on exact part of Retina where the laser treatment is needed.

- It is important that you keep your eyes still during the procedure.

Will the laser hurt?

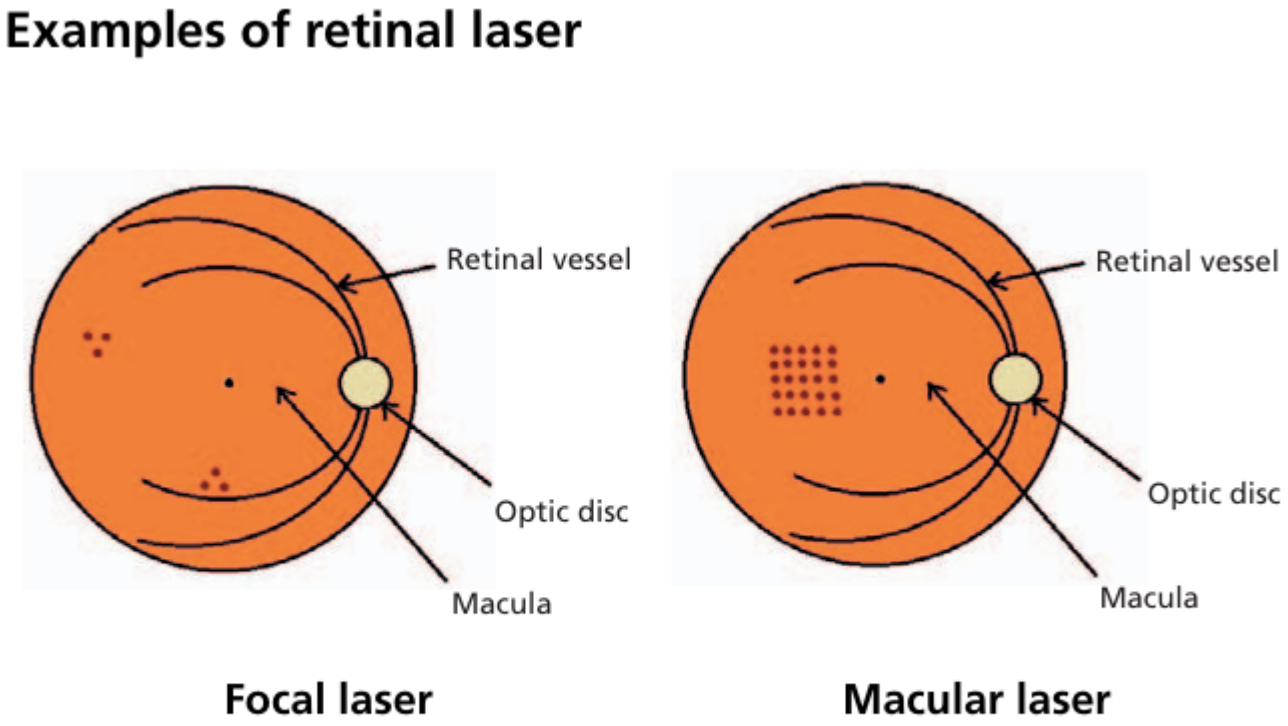
Usually, the treatment is not painful. Sometimes a dull ache or a sharp pricking sensation can be felt. This happens in the area of retina where nerves run under the retina, and the doctor cannot see the nerves.

A soft clicking noise is heard with flashing light during the procedure, which is normal. If you have had a laser session in the past and have felt discomfort, it is a good idea to take painkillers like Paracetamol an hour before the treatment starts.

Focal Laser treatment for Diabetic Maculopathy:

We will apply gentle laser burns close to the central part of the retina – (the part that you

use for seeing clearly), so as to seal the leaking blood vessels.



Risks of laser treatment for maculopathy

Complications from maculopathy treatment are rare but may include temporary side effects.

- Some people may still see the laser grid pattern after treatment. Usually this continues for up to two months and, very occasionally, for up to six months after treatment.

- 1 in 10 people might see a small but permanent blind spot close to the centre of their sight.

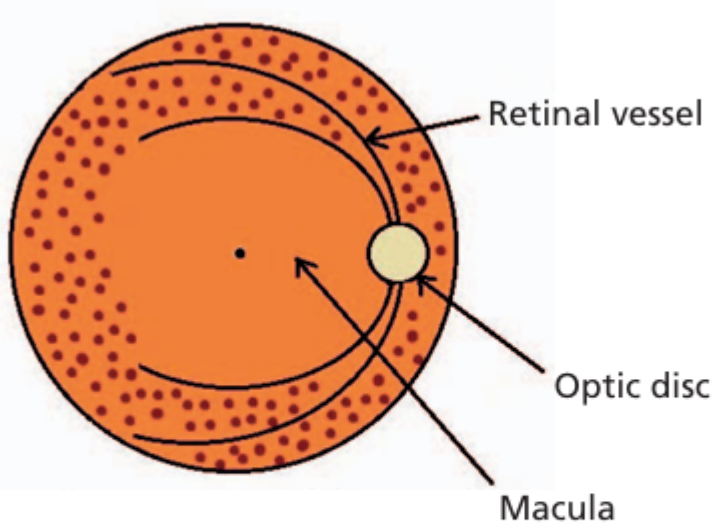
- The chance of you completely losing your central vision after laser treatment is around 1 in 300 (0.3%).

- Accidental laser burns cannot be completely avoided. You may find it difficult to keep still or may accidentally look at the laser as it fires. If we feel that the risk of this happening is too high, we will stop your treatment.

- Occasionally, a laser burn to your retina may result in new blood vessels growing that may bleed and cause scarring to the central vision. This could result in permanent loss of your central vision.

Treatment for proliferative retinopathy

We will apply a large number of laser burns to the outer part of your retina, the part of the retina that allows you to see to the side and in the dark. It will require multiple sessions. The treatment is called **pan retinal** photocoagulation.



Pan retinal laser (PRP)

- The treatment aims to shrink the growth of abnormal blood vessels on the retina.
- PRP cannot restore (bring back) vision loss, but it can stop further loss. It does this by slowing down the growth of the abnormal new blood vessels.
- Multiple laser burns are applied in one session. There needs to be a minimum of 3 to 4 sessions to complete the treatment to each eye.
- The procedure takes around 30 minutes.
- **The procedure can be uncomfortable, but it should not be painful.**

Risks of laser treatment for proliferation retinopathy

At the end of a course of treatment for proliferative retinopathy, the following may apply:

- Over half of people treated notice some difficulty with their night vision.

- 1 in 5 people notice some loss of peripheral vision (outer field of vision) in one or both eyes, and 3 in 100 people must stop driving because their peripheral vision has been reduced (tunnel vision).

- If you need an intensive course of laser treatment to control the changes in your eyes, you may notice a temporary worsening of your sight due to the macula (the small, highly sensitive central area of the retina) becoming waterlogged. This should sort itself out but needs treatment in a small number of cases.

- Occasionally, some people have a bleed into the jelly that fills the eye, and floaters may appear.

Post treatment care

Your vision may be blurry for a few hours, but your sight will return to its previous level over the next few hours. The operated eye can be sensitive to light, so you may wish to bring dark glasses to wear when you go home after the treatment.

You may notice floaters in your vision; these usually settle within a few weeks.

You will not be able to drive yourself home, so you will need to arrange transport home after the procedure.

If you drive and have had laser treatment in both eyes (or if you're sighted in only one eye and have had laser treatment in this eye), you must inform the Driver and Vehicle Licensing Agency (DVLA). They may you to have further tests to make sure your peripheral and central vision is good enough for safe driving.

If you experience flashing lights or loss of vision, please contact the Eye Unit between 9am and 5pm, Monday to Friday, by telephoning 01942 822244; or contact your GP or Accident and Emergency Department outside of these hours.

You will be able to go home after your procedure, no post-laser drops are required, but if you are using any drops regularly, then you should carry on with them as usual.

At home, if you experience some discomfort, take painkillers like Paracetamol.

Do not take more than 8 in 24 hours.

You will be able to resume normal activities the next day, including driving.

Contact lenses

If you wear contact lenses, you can start wearing your lenses from the day after your procedure.

Follow up appointment

A follow up appointment will be arranged for you to attend in about two to three months after laser treatment.

Contact information

If you have any questions that have not been covered in this leaflet, do not hesitate to contact us by telephoning the Eye Unit 01942 822244.



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