

Patient information

Laser treatment for glaucoma – micropulse diode laser trabeculoplasty (MDLT)

Introduction

This leaflet has been written to help you understand more about a type of laser treatment for glaucoma that has the medical name micropulse diode laser trabeculoplasty.

It explains what the treatment involves, the benefits and risks of it and what you should do afterwards. This information is designed to help you decide whether you would like this treatment and to make you aware what to expect when you come to hospital.

What is glaucoma?

Glaucoma is an eye condition that can affect sight, usually due to build-up of pressure within the eye. This eye pressure is known as intraocular pressure (IOP). If it is not treated or if treatment is delayed, it can cause blindness.

A fluid (called aqueous humour) is produced inside the eye. This fluid is needed to:

- provide nutrients to the front of the eye, especially the cornea and lens
- remove waste products from the eye

The fluid drains mainly through a structure called the trabecular meshwork. This meshwork lies in the angle where the cornea meets the iris. The normal pressure in the eye is between 10 and 21 millimetres of mercury (mmHg). If for any reason the fluid is blocked and cannot get out, the pressure can rise and glaucoma may occur.

What treatment options and alternatives are there?

There are various treatment options including tablets, eye drops, laser treatment and drainage surgery which includes trabeculectomy, iStent glaucoma tube and Baerveldt glaucoma tube implantation. Your consultant will discuss all the possible options with you and you can decide which option you prefer.

You do not have to have treatment – it is your decision. However, if glaucoma is not treated, it may cause blindness.

Please note that almost all glaucoma treatments and procedures including laser treatments are used to control glaucoma and not to improve your vision. **Once vision is lost from glaucoma, you cannot get it back. All treatment for glaucoma is aimed at slowing down the rate of progression of glaucoma, to reduce the risk of complete blindness during your lifetime.**

What is MDLT?

A laser is used to treat the trabecular meshwork to improve drainage of eye fluid through the meshwork. The aim of this treatment is to reduce pressure in your eye.

The advanced laser system is used to target only the melanin-rich (pigmented) cells in the drainage channel of the eye. This means that only these cells are affected and the surrounding tissue is left intact and unharmed (please see figure 1). This gentle laser treatment activates the body's own immune system to clear the affected cells.

It is not a permanent treatment and may need to be repeated in the future to continue to control eye pressure effectively.

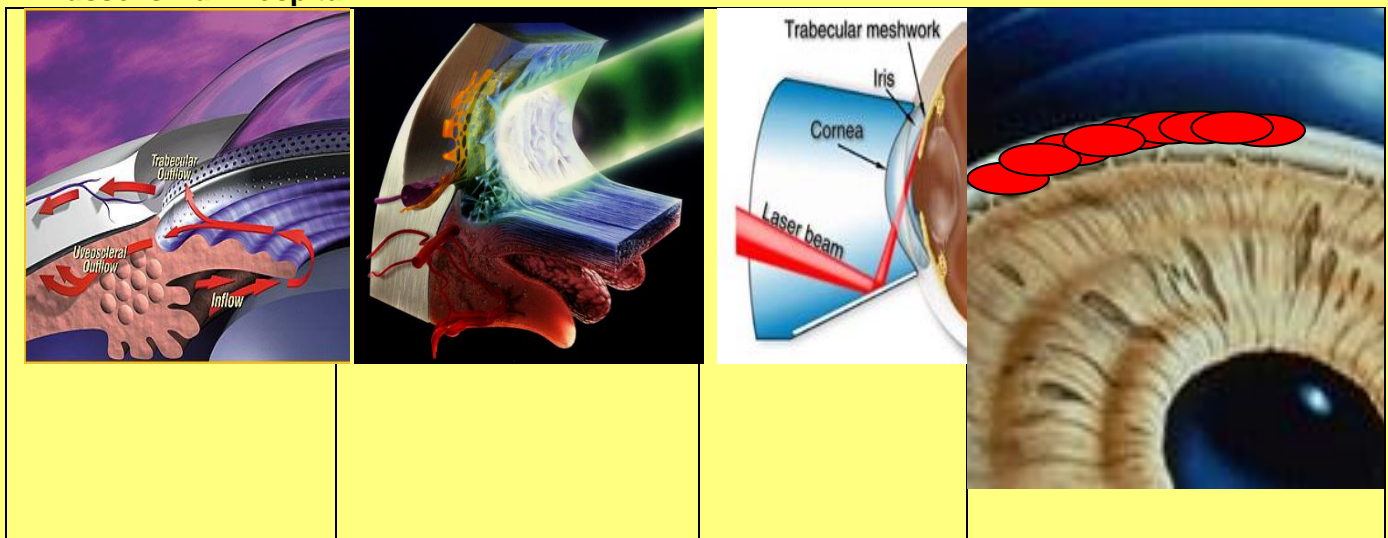


Figure 1 shows the MDLT treatment

Why is this treatment recommended?

It is often recommended as an option for patients who:

- have raised eye pressure and who are at risk of glaucoma
- have a type of glaucoma called open-angle glaucoma where there is resistance to fluid draining out at the trabecular meshwork
- have glaucoma that continues to get worse despite using eye drops
- cannot use eye drops
- do not want or who cannot have other types of glaucoma treatment
- have glaucoma where other treatments have not been fully effective

What are the benefits?

MDLT can lower raised pressure in the eye (IOP) without the side effects or difficulty of taking eye drops. The treatment is particularly suitable for people who cannot correctly use, or are intolerant to glaucoma medications. It can also be used alongside medication to give a better IOP-lowering effect.

MDLT has the advantage of not causing any damage to the tissue treated. It is a flexible treatment option and can be repeated if necessary, if you wish.

How successful is it at lowering intraocular pressure (IOP)?

Studies show that there is a success rate of about 75 per cent for MDLT, which is about three out of every four patients. Most patients responded well to the treatment, but others did not respond at all.

Usually, we cannot predict how well the laser will work as it depends on how severe your glaucoma is and what type you have, as well as the individual characteristics of your eye.

It may take from a few weeks to a few months to see how your eyes have responded to the MDLT treatment. If your eye pressure does not decrease enough after the first treatment, you might need to have more laser treatment approximately three months later, or you might need to use some additional eye drops.

The effects of the laser treatment may wear off in time – about half of all treatments stop working after five years. However, the treatment can be repeated as required.

What are the risks?

As with all forms of treatment, MDLT carries some risks and complications. It is important that we tell you about these risks so that you have the information you need to make a decision about it.

MDLT is seen as a safe and effective treatment; however, there are some rare side effects that may occur:

- Your vision may be blurred for a few hours after the treatment. However, the chance of your vision being permanently affected from MDLT is extremely small. If you are concerned that your vision is not returning to normal, please contact the Urgent Referral Clinic.
- As your vision may be blurred, you are also advised not to drive yourself to the hospital, as you may be unable to drive home.

- It is possible that the pressure in your eye may increase immediately after the treatment. We will give you special eye drops to prevent this from happening.

Other complications may include inflammation, unstable eye pressure, a headache, iritis (inflammation of the iris in your eye), swelling of the cornea, conjunctivitis or eye pain.

What happens before the treatment?

If you are using certain anti-glaucoma eye drops, they may interfere with the effectiveness and success of the MDLT treatment. Therefore, you may be asked to stop them for at least four weeks before the treatment, and may not use them after the laser treatment.

The drops you may be asked to stop are: latanoprost 0.005% (Xalatan), bimatoprost 0.01% or 0.03% (Lumigan), tafluprost (Saflutan) or travaprost 0.004% (Travatan). Some of these might be used in combination with other drops so we will give you instructions about these as well.

What happens during the treatment?

Treatment takes place in the Eye Clinic Outpatient Department. A nurse will check your vision. You will be seen by an eye doctor who will put some drops into your eye to make your pupil small, and to prevent and reduce the possible pressure spiking effect of the laser. These drops might take up to half an hour to work and may cause temporary brow ache and a headache.

The doctor will also explain the treatment to you and discuss any concerns or questions you may have with you. If you are happy to proceed with the treatment, you will need to sign a consent form.

After this, you will need to sit in front of the laser machine (see figure 2). This looks similar to the slit lamp used to examine your eyes in clinic. The eye doctor will put anaesthetic drops into your eye to numb the front of it. These drops may sting slightly for a few seconds before the front of your eye goes numb.

The eye doctor will then put a special lens, a bit like a contact lens, against the front surface of your eye. This is not painful but it may feel a little strange and rarely, in some cases, it may cause some redness or irritation in your eye.

It is very important for you to be seated comfortably with your chin on the chin rest of the laser machine. You will need to have your forehead pressed against the forehead band of the machine. **You must stay very still during the laser treatment. Any movement may defocus the laser and it may not work as well as it could.**

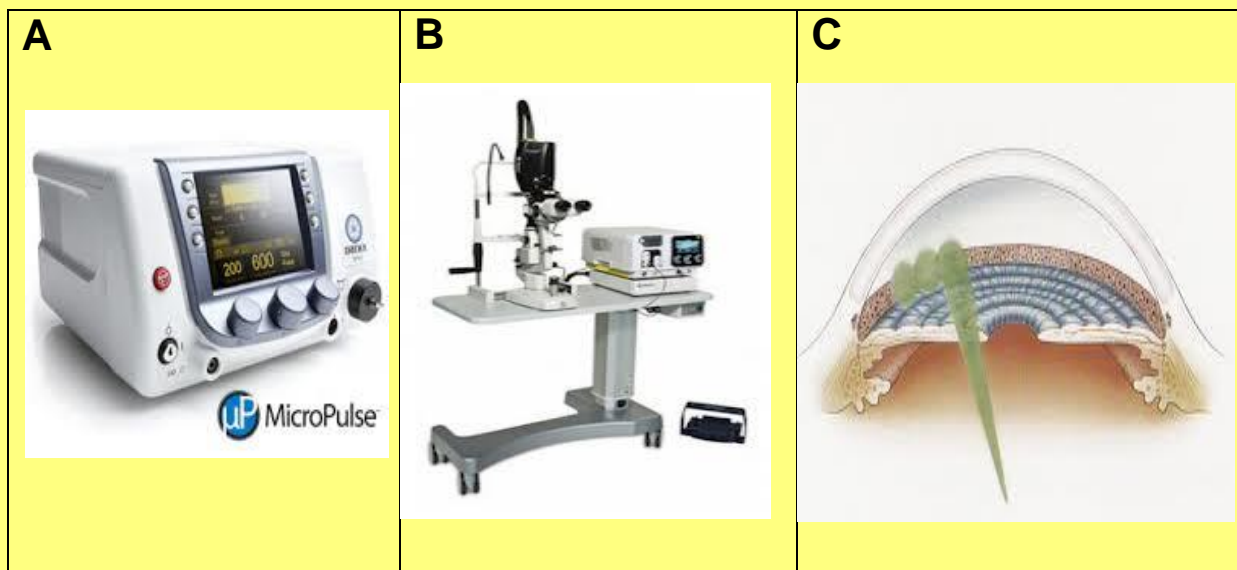


Figure 2 shows:

A. Micropulse diode laser console

B. Slit lamp attachment/setup

C. The area of laser application to the trabecular meshwork (drainage channel of the eye)

During the laser treatment, you may see some flashes of light and hear clicking noises. Most people tolerate the laser treatment well but some may feel slight discomfort.

How long does it take?

The treatment itself takes between 15 and 20 minutes; however, the whole visit may take a few hours.

What happens after the treatment?

The doctor will put some more pressure-lowering drops into your eye at the end of the laser treatment and will recheck your eye pressure up to one hour later.

Follow up

We will make an appointment for you to come back to the Eye Clinic, usually within **four weeks** of your treatment. This follow-up appointment is to check your eye pressure and that your eye is settling after the treatment.

What should I look out for at home?

If you have any of the following after treatment:

- reduced vision or loss of vision
- severe pain that does not go away
- Any abnormal discharge from your eye, especially if it is increasing

please contact the Urgent Referral Clinic team at Russells Hall Hospital Eye Clinic on:

01384 456111 ext. 3633

Can I find out more?

You can find more information on glaucoma, on risk of blindness from glaucoma and various treatment options from the following websites:

<http://www.glaucoma-association.com/>

<http://www.glaucoma-association.com/about-glaucoma/what-is-glaucoma>

http://www.nei.nih.gov/health/glaucoma/glaucoma_facts.asp

<http://www.rnib.org.uk/eyehealth/eyeconditions/eyeconditionsdn/Pages/glaucoma.aspx>

<http://en.wikipedia.org/wiki/Glaucoma>

<http://www.nice.org.uk/guidance/cg85/ifp/chapter/About-this-information>

<https://www.rcophth.ac.uk/patients/glaucoma/>

Note

The information in this booklet is provided for information only. It is **not** a substitute for professional medical advice or care by a qualified doctor or other healthcare professional. The information is general for the treatment. Individual experiences may vary and all the points may not apply to all patients at all times. Please discuss your individual circumstances with your eye doctor. **Always** check with your doctor if you have any concerns about your condition or treatment.

If there is anything you do not understand, or you are concerned about any part of the treatment, or are worried after your operation, contact:

The Urgent Referral Clinic team at Russells Hall Hospital Eye Clinic on:

01384 456111 ext. 3633

Reference

Fea AM, Bosone A, Rolle T, Brogliatti B and Grignolo FM (2008). Micropulse diode laser trabeculoplasty (MDLT): A phase II clinical study with 12 months follow-up. *Clin Ophthalmol.* 2(2):247-252.

Author:

Mr Akash Raj, MD, MRCS, DRCOphth, FRCS, FRCOphth
Consultant ophthalmologist (Glaucoma Lead)

This leaflet can be downloaded or printed from:

<http://dudleygroup.nhs.uk/services-and-wards/ophthalmology/>

This leaflet can be made available in large print, audio version and in other languages, please call 0800 073 0510.

للحصول على هذه النشرة بحجم أكبر، وعلى شكل إصدار صوتي و بلغات
08000730510 أخرى، الرجاء الاتصال بالرقم

此宣传单可提供大字版本、音频版本和其它语言版本，
请拨打电话：0800 073 0510。

Ulotka dostępna jest również w dużym druku, wersji
audio lub w innym języku. W tym celu zadzwoń pod
numer 0800 073 0510.

ਇਹ ਪਰਚਾ ਵੱਡੇ ਅੱਖਰਾਂ, ਬੋਲ ਕੇ ਰੀਕਾਰਡ ਕੀਤਾ ਹੋਇਆ ਅਤੇ
ਦੂਸਰੀਆਂ ਭਾਸ਼ਾਵਾਂ ਵਿਚ ਵੀ ਪ੍ਰਾਪਤ ਹੋ ਸਕਦਾ ਹੈ,
0800 073 0510 ਤੇ ਫੋਨ ਕਰੋ ਜੀ।

Aceasta broșura poate fi pusă la dispoziție tipărită cu
caractere mari, versiune audio sau în alte limbi,
pentru acest lucru vă rugăm sunați la
0800 073 0510.

یہ کتابچہ آپ کو بڑے حروف کی لکھائی، سمعی صورت اور دیگر
زبانوں میں مہیا کیا جا سکتا ہے۔ برائے مہربانی فون نمبر
08000730510 پر رابطہ کریں۔