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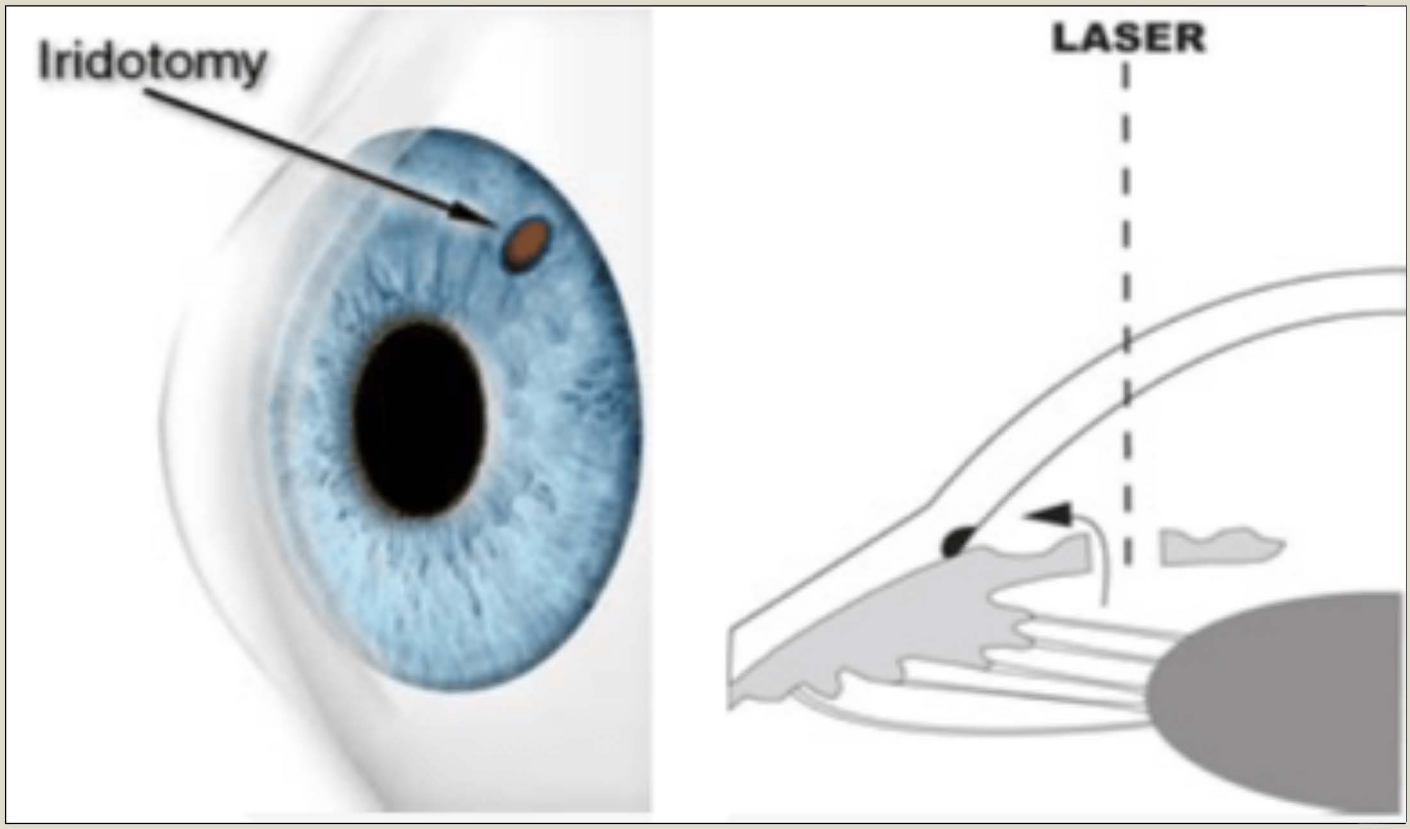
YAG Laser Peripheral Iridotomy



YAG Laser Peripheral Iridotomy

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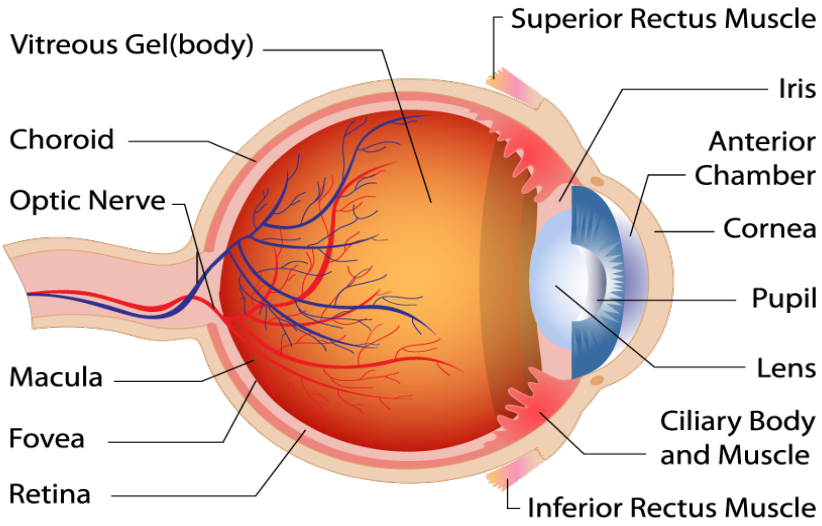
If your first language is not English or Arabic we can arrange for an interpreter to be available. Please let us know in advance if you require this service.

This leaflet is for patients with angle-closure glaucoma or at risk of angle-closure glaucoma, who have been recommended laser peripheral iridotomy as a treatment. This leaflet has been produced to give you general information. It has been designed to help you understand the procedure, to explain what is involved and what the possible risks are, and to help answer any questions you may have. Most of your questions should be answered by this leaflet. It is not intended to replace the discussion between you and the healthcare team, but may act as a starting point for discussion. If after reading it you have any concerns or require further explanation, please discuss this with a member of our healthcare team.

Anatomy of the Eye



What are narrow angle and angle closure?

The pressure in each eye is kept at the right level by fluid coming into the eye. It flows in behind the iris, then forward through the pupil and leaves the eye in the 'angle' - the gap between the edge of the iris and the clear window at the front of the eye (cornea)-. In some eyes the angle is narrower than it should be which can lead to "Angle closure".
"Angle-closure" refers to a narrowing of the drainage channel within the eye, resulting in high pressure inside the eye (intraocular pressure). This high intraocular pressure can be painful and can cause damage to the optic nerve, a type of permanent eye damage and vision loss known as glaucoma.
More information about Glaucoma is available in a booklet called 'Glaucoma' available from the Royal National Institute for the Blind (UK) [http://www.rnib.org.uk/eye-health-eye-conditions-z-eye-conditions/glaucoma], and also from the 'International Glaucoma Association' [https://www.glaucoma-association.com/about-glaucoma/].

What is a YAG laser iridotomy?

A "laser" is a type of focused light made by a special machine. Laser peripheral iridotomy is a procedure used in the treatment of patients with angle-closure glaucoma, or as a preventative measure in people who have narrow angle and therefore are at risk of angle-closure glaucoma.
Laser peripheral iridotomy uses laser energy to create a small hole in the

iris (the coloured part at the front of the eye) the hole is called Iridotomy. This is generally done in the far edge (periphery) of the iris to help open the drainage angle and treat or prevent angle-closure glaucoma. This hole is not visible to the naked eye. It is common for both eyes to need this treatment.
Aqueous humour is a completely different fluid to your tears – they will not be affected by the operation.

Benefits of treatment

The laser treatment aims to prevent raised intraocular pressure and reduce the risk of vision loss from glaucoma. If the procedure is performed at an early stage of the disease, there is a 66–75% chance of "curing" the condition. If used at a later stage, it may help slow or stop progression of the disease. In advanced cases, medication and/or surgery may be necessary in addition to laser treatment.
It is important to remember that this procedure is performed to save the sight you still have. It will not restore any sight you may have already lost; neither will it improve your sight.
The laser treatment is to prevent a sudden (acute) rise in pressure within your eye. Without having this treatment, you are at risk of developing sudden glaucoma and irreversible blindness.

Risks of treatment/ Side effects and complications

Generally, laser peripheral iridotomy is a very low-risk procedure. Risks include:

1. Temporary rise in intraocular pressure, which is the most common adverse event. This will be detected by measurements taken before and after the procedure. The likelihood of pressure rising is related to the severity of the disease. Approximately one in 10 people in the early stages of the disease experience some pressure rise. In advanced cases, one in three may be affected. The rise in pressure may last from hours to weeks. If it occurs, it is treated with medication in most of the cases. You will be asked to remain in the department until your eye pressure has reduced to a satisfactory level. This should take a few hours at most.
2. Inflammation can also occur following the laser procedure. This can be treated with aftercare anti-inflammatory drops used for a week (see patient instructions section below).
3. A small amount of Haemorrhage from the laser hole (inside the eye) is fairly common, and can cause misty vision, which usually settles within 24 hours. In most cases, the blood generally goes away by itself very soon. Patients taking warfarin to reduce blood clotting should

have had a recent blood test (within one week) confirming an INR of less than 3.0. **Please tell us if you are taking warfarin/ blood thinning agent and bring your tests book with you.**

4. Around a quarter of all patients undergoing laser iridotomy notice a small change in their vision. In the majority of cases, the vision returns to normal within a month. Some patients notice a permanent change in their vision. Research has shown that "ghosting" around objects (11%), shadows (3%) and lines (1%) were the most frequently-noticed visual phenomena. Some patients also report experiencing glare. This can sometimes be managed with a contact lens designed to block light passing through the hole but the problem may be permanent. However, most patients find they are soon able to ignore this.
5. Whilst one treatment is usually enough, we may recommend further laser treatment at a later date if the laser hole is not large enough or if it close up. If this is the case, we will have to repeat the treatment at a later date.
6. It can sometimes be difficult to perform this procedure on patients with dark coloured eyes and it may be necessary to perform a different type of laser on the eye first to make this procedure easier. It may also be necessary to have this procedure performed more than once to ensure a wide enough hole is created.
7. Cystoid macular oedema can occur and can be more frequent in diabetic patients. This is a swelling in the retina at the back of the eye which can be treated successfully with drops in most cases. Other very rare cases may require different treatments and can result in reduced visual outcome.
8. A cataract (cloudiness of the lens) may develop quickly in the eye that received laser treatment. If this occurs, the cataract can be managed in the same way as other cataracts.
9. There is also a chance of damage to the bag that holds the lens/cataract (the lens capsule). This may result in early surgical removal of your lens/cataract.
10. Trauma to the cornea (clear window at the front of the eye) can occur from the contact lens used during the procedure, or from the laser energy. However, this is rare and usually causes little trouble in the long term.
11. The pupil (black hole in the middle of the iris) can develop an irregular shape following the procedure.
12. There is a small risk of developing a retinal detachment, which would require surgery and may threaten the eyesight.

In general, only less than 1% of people find their vision deteriorates following the procedure. The risk of vision loss or the need for urgent

surgery following the procedure is extremely rare (around 1 in 5,000). If you develop persistent misty vision, or pain in the eye, or **the following symptoms; this could mean that you need to be treated quickly and you should attend the Hospital A&E department:**

- **Excessive pain**
- **Loss of vision**
- **Flashing lights**
- **Your eye becoming increasingly red.**

Although the above complications do occur, we take every precaution to reduce the risks and aim to give the minimum treatment necessary.
You may wish to ask the doctor if you do not understand these medical terms.

Are there alternatives to laser treatment?

Surgical lens extraction (a procedure which is technically identical to cataract surgery) is another treatment for angle-closure. Lens extraction surgery has a higher risk of permanent vision loss compared to laser peripheral iridotomy, although the risk is still low (less than 1 in 1000). For this reason, lens extraction is usually only recommended for patients who are already developing visual problems from cataract, or for patients who are unlikely to benefit from laser treatment.
Patients who choose not to have laser peripheral iridotomy or lens extraction treatment risk developing angle-closure or deterioration of established angle-closure, which can result in high intraocular pressure and loss of vision from glaucoma.

Consent

It is important that you understand the procedure, what the risks and benefits are to you and what the treatment involves. Please feel free to ask your doctor any questions that you may have before signing the consent form. You will be asked to sign a consent form for the procedure. **Although you will sign a consent form for this procedure, you may change your mind and decide not to proceed with the operation. Please discuss this with your surgeon.**

How do I prepare for the laser treatment?

Please do not drive yourself to the hospital. You will need to arrange for someone else to take you home after your appointment.
You must continue to use your usual glaucoma medication (if any) as normal on the morning of the laser treatment for both eyes unless specifically told not to.
You'll need to bring your TV glasses [not the reading glasses] with you so that we can check your vision.
You will need to visit the outpatient department for about half a day. We will carry out the treatment in one of our laser treatment rooms. You do not need to do any special preparations such as fasting or changing into operating theatre clothes.
There are no specific instructions that you need to follow prior to this laser treatment. The treatment is carried out in the Eye Outpatient Department.
Please read the information leaflet. Share the information it contains with your partner and family (if you wish), so that they can be of help and support. There may be information they need to know, especially if they are taking care of you following this treatment.

Infection control
You will receive antibiotic eye drops to attempt reduce the possibility of infection occurring following the procedure. If there are any signs of eye/eyelid infection present on the day of your planned procedure, your treatment may need to re-booked for another time to allow control of such infection. Please inform your doctor or nurse if you have a sticky or discharging eye.

What will happen on the day of the treatment?

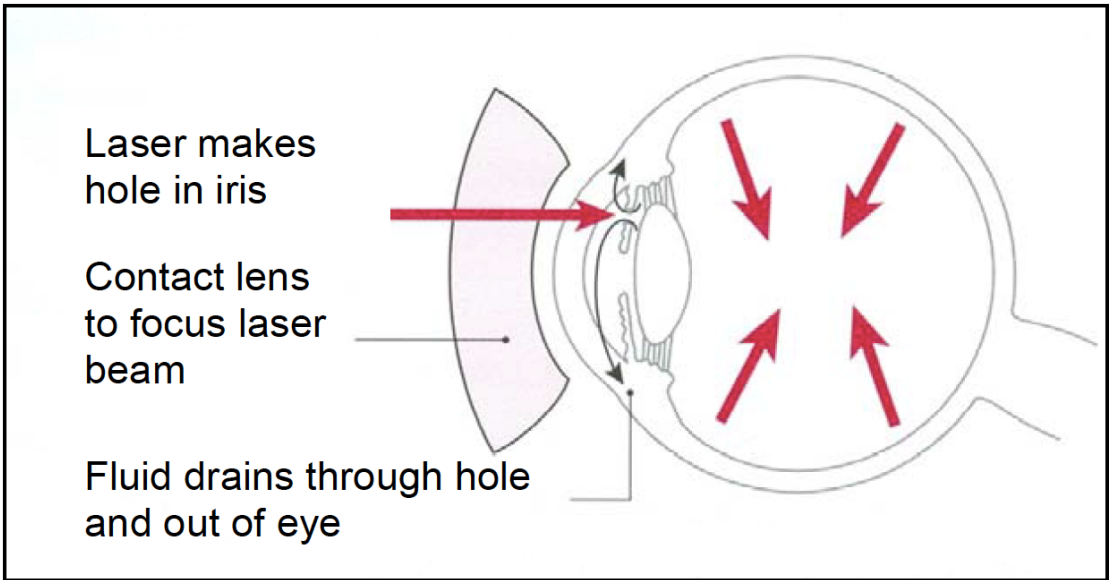
Allow half a day for your procedure to include your intraocular pressure measurements before and afterwards. Your vision and intraocular pressure will be measured and you will be asked to sign a consent form outlining the risk and benefits of the procedure (as detailed in this information leaflet). You will be given two rounds of drops (Brimonidine and pilocarpine) before the laser is carried out. **Please note, you will not be given apraclonidine if you have had a heart attack or if you have angina, so please tell us if you have heart problems.** The pilocarpine drops often causes a transient headache, and may affect the vision, for

example by altering the focus of the eye, and making things appear darker and more blurred than usual. These effects are normal and temporary.

The Procedure

The procedure takes place in a room separate from the clinic. The laser treatment is given through a standard eye examination microscope (slit lamp) connected to the laser machine. You will have some anaesthetic drops put in the eye just before the procedure. These often cause a slight tingling or stinging for a few seconds. A contact lens is used to improve the doctor's view and prevent the eye from closing. It is important not to move; the vast majority of patients manage to keep still without any problems.

A bright white light is shone into the eye to allow the doctor to see where the treatment is being applied. This can cause the vision to be dimmed for up to 30 minutes afterwards. The treatment is painless due to the anaesthetic drop used to numb your eye before the laser, but you might get a slight discomfort when the laser is being applied. In most cases, a pulsed ("YAG") laser is used, which makes a soft clicking noise and gives a very short flicking sensation when activated. For patients with a thick brown iris, a continuous wave ("argon") laser might be used as an additional treatment prior to the YAG laser. While most people do not experience any sensation apart from the flicking, occasionally, the treatment can be a little uncomfortable for a small number of patients and may experience a feeling of pressure at the back of their head for a second. The treatment takes about 5-10 minutes per eye.



Intraocular pressure is measured approximately one hour after the laser

treatment. If the pressure is high, you will be given tablets and/or drops to use for a few days.

You will be asked to wait 45-60 minutes in order for the doctor to check that the eye pressure is fine after the procedure and that the hole made in the iris is large enough.
It is normal to have gritty, sticky eyelids and mild discomfort for a couple of hours after laser treatment.
The drops can also cause a mild to moderate headache across your brow.
Because they make your pupil small, you might find that a dim or dark room is quite dark. Do not panic. The drug will have worn off by the morning, and your pupil should be back to their normal size again.
You may also find that your vision is a little blurred. This is normal, and your vision should return to how it was before the laser by the end of the week.
The eye drops can also take some time to wear off, and you should not be alarmed if your pupils are still small for several hours after treatment.
You should not drive for 24 hours following the treatment.
We will see you in the clinic again soon to check the pressure in the eye has stabilized and ensure that the hole made are working correctly.
You may need to use eye drops to help control the eye pressure for the rest of your life; this will be explained at the follow up visit.
You will be seen in the outpatient department to make sure your eye has responded well to treatment. You will have another check-up to see if the treatment was successful.

When can I go back to work and when can I drive?

The surgeon will advise you at your first out-patient appointment.

How to apply your eye-drops or ointment

1. Always wash and dry your hands before putting in the drops to prevent infection.
2. Sit or lie with your head tilted backwards and support it on the back of a chair, or a pillow for comfort and safety. Look up at the ceiling.
3. If the eye is sticky, used cooled boiled water to gently clean the lids, taking care not to poke the eye.
4. When putting the eye drops into your eye do not allow the bottle tip to touch your eye.
5. Gently pull down the lower lid with one finger to create a pocket for ease of access.
6. Holding the drop bottle on the bridge of your nose or your forehead, squeeze one drop into the eye.
7. Squeeze a drop or a 1 cm ribbon of ointment into the pocket of the lower lid.
8. Close your eyes for a timed five minutes.
9. Remove any excess eye drops/ ointment gently with a clean tissue and wash your hands again.

Storage of eye drops and ointments

1. Never share your eye drops with anyone else
2. Store drops and ointments in a cool place out of reach of children (only store drops in the fridge if requested to do so)
3. Dispose of all opened eye drops and ointments after one month

Further questions

We hope this information is sufficient to help you decide whether to go ahead with the surgery. Please write down any questions not covered in this booklet and ask the doctor when you come to the hospital for your appointment. All our staff will always be ready and happy to give you the information you need.

This brochure is not intended as a substitute for professional medical care. Only your eye specialist can diagnose and treat eye problems.

If you have any further questions or concerns please contact your doctor.

Your comments

We are always interested to hear your views about our leaflets. If you have any comments, please contact us.

References

This leaflet was edited by specialist ophthalmologists from the GCEO Group® who are licensed in the EU and the Middle East. This leaflet was edited based and in accordance to the guidelines of the:

- The American Academy of Ophthalmology (USA) - Preferred Practice Pattern Guidelines:

https://www.aao.org/about-preferred-practice-patterns

- The Royal College of Ophthalmologists (UK):

https://www.rcophth.ac.uk/standards-publications-research/clinical-guidelines/

- National Institute for Health and Care Excellence (UK):

https://www.nice.org.uk/about/what-we-do/our-programmes/nice-guidance/nice-guidelines

- The International Council of Ophthalmology:

http://www.icoph.org/enhancing_eyecare/international_clinical_guidelines.html

More resources:

The American Academy of Ophthalmology (USA) - Eye Health A-Z:

https://www.aao.org/eye-health/a-z