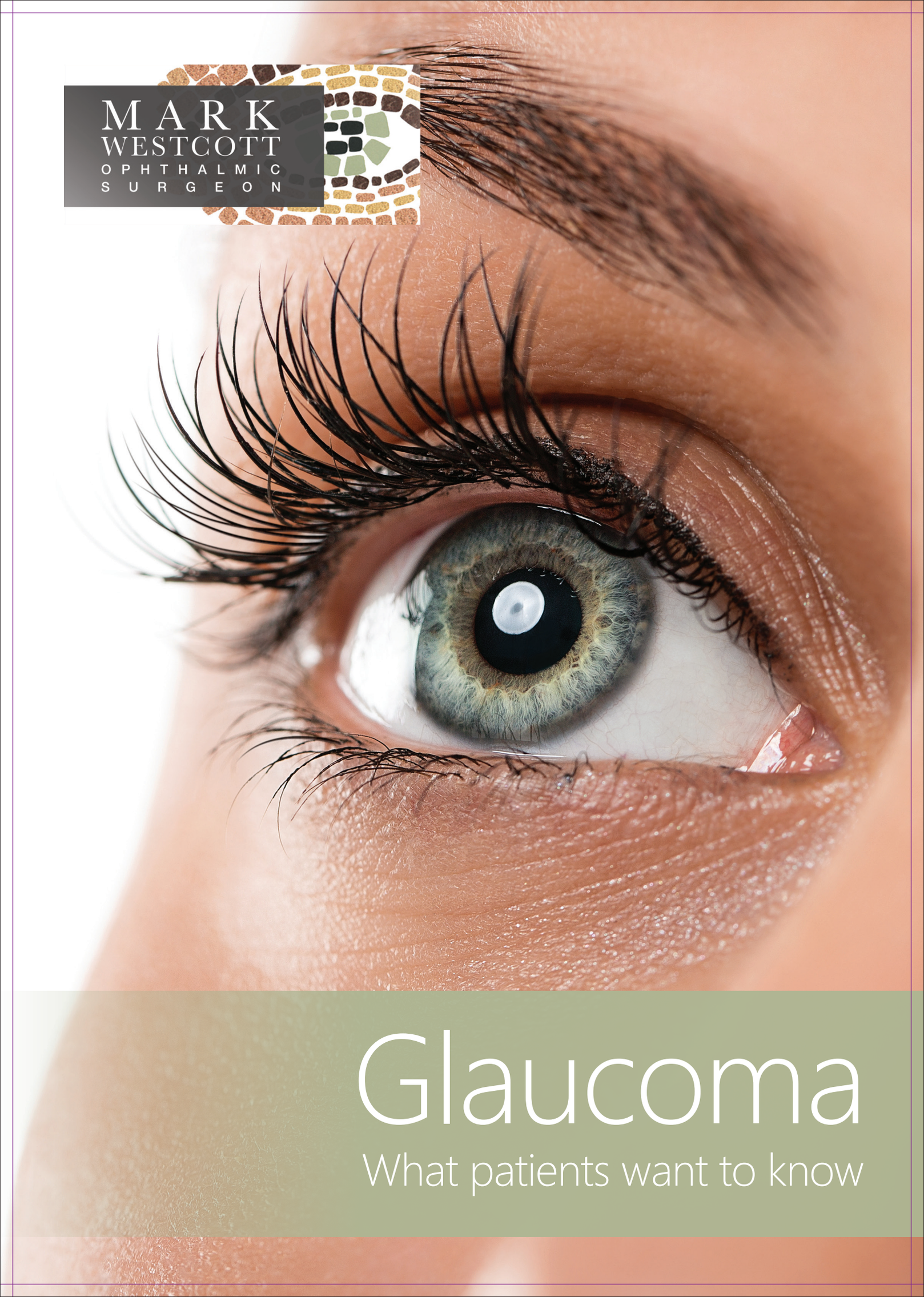


MARK
WESTCOTT
OPHTHALMIC
SURGEON

Glaucoma

What patients want to know

Introduction

There are many websites which will give you a detailed medical understanding of glaucoma and its treatment.

However, we don’t want to simply duplicate their (extensive) information. What we aim to do is give you an understanding of how glaucoma and its treatment will affect you - the patient - and your family. So we try not to have too many medical diagrams, but will aim to answer questions like how glaucoma might affect your ability to drive, for example, or what to expect during a glaucoma operation.

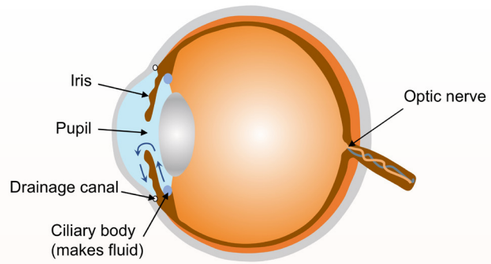
What is glaucoma and who gets it?

"Glaucoma" is a general term for a number of conditions that affect the optic nerve, often (but not always) associated with increased pressure in the eye.

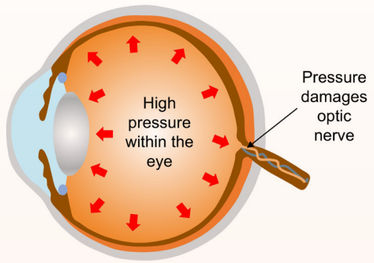
If you've just been diagnosed with glaucoma, then please don't panic – it is a very treatable condition and the vast majority of people retain good eyesight. It's very important that the condition is diagnosed and then properly managed – glaucoma can't be 'cured' but the right treatment and/or surgery, regularly reviewed, will allow most people to live a completely normal life.

What is glaucoma?

The front part of the eye is filled with a fluid (called aqueous humour), which helps to maintain the structure and health of the eye. This fluid is secreted by a part of the eye called the ciliary body, which is located behind the pupil. The fluid passes through the pupil and drains largely through a microscopic drainage structure called the trabecular meshwork.



NORMAL EYE



EYE WITH GLAUCOMA

High pressure within the eye can damage the delicate nerve fibres which carry the visual signal back to the brain. This damage occurs either as the fibres course along the surface of the retina, or as they enter the optic nerve. This damage causes very characteristic changes in the optic nerve and the visual field.

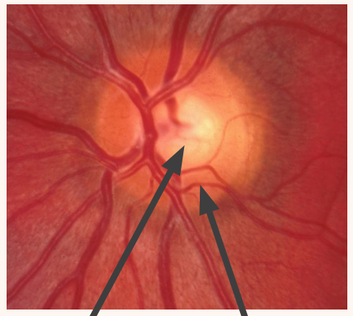
High intraocular pressure is a strong predisposing factor for developing glaucoma, but it is not the only factor. For example, it is possible to get glaucoma with a normal, or even low intraocular pressure ("normal pressure glaucoma or "NTG") - See below

Untreated, the raised pressure in the eye will slowly damage the optic nerve in the back of the eye. This damage causes very characteristic changes to the appearance of the optic nerve called "cupping" which the optometrist and ophthalmologist can recognise.

The following figure shows an example of a healthy nerve compared to one from a patient with glaucoma. You can see that in the patient with glaucoma, the nerve tissue (called the rim) is thinned, and that the cup is enlarged.

The optic nerve carries the signals from the eye to the brain, so any damage to the nerve affects the vision. Typically, the field of vision is affected first, often starting from the outside (your peripheral vision).

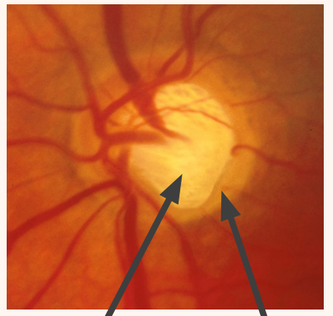
NORMAL OPTIC NERVE



SMALL CUP

NERVE RIM IS PINK AND THICK

OPTIC NERVE FROM A PATIENT WITH GLAUCOMA



ENLARGED CUP

NERVE RIM IS THIN AND PALE

Surprisingly, many people won't notice this until a significant amount of vision has been lost (see pictures). The other eye will compensate to a certain extent, and people seem to adapt to seeing less around the edges of their vision than they used to – tragically, some people only notice when their eyesight is extremely badly affected.

NORMAL VISION MODERATE GLAUCOMA SEVERE GLAUCOMA

Vision lost to glaucoma can't be restored – the damage is irreversible. Thankfully, in the developed world with modern eye tests and screening, glaucoma is usually picked up before significant damage is done. It is then possible to treat the condition with medication and/or surgery in order to stop it progressing. However, it's estimated that even in the developed world, 50% of all glaucoma cases remain undetected and undiagnosed (this rises to 90%+ in the developing world). Untreated glaucoma can lead to blindness: it is the commonest cause of blindness in the UK and the second leading cause of blindness worldwide after cataracts. It's estimated that about one person in 200 under the age of 50 will have glaucoma. This rises to one in 10 over the age of 80.

Who is at risk of developing glaucoma?

Increasing age is a major risk factor as glaucoma becomes much more common as we age. The risk of glaucoma is 1-2 per 100 in people aged between 40 and 50. However it rises steadily thereafter by decade, and is estimated to be present in almost 1 in 10 of those aged over 80.

Ethnicity: Anyone of African or Afro-Caribbean descent is also at increased risk of glaucoma. The disease tends to come on earlier and is usually more severe.

A family history of glaucoma is an important risk factor. Individuals with a first degree relative (i.e. parents or siblings) with established glaucoma are at most risk. The risk is highest where a sibling has the condition.

Highly short-sighted patients: Patients who are highly myopic (worse than -6 dioptres) are at increased risk.

Other less well understood risk factors: Diabetic patients may be at slightly increased risk. Patients with high or low blood pressure are at increased risk. Finally, patients who have thinner than average corneas may also be at increased risk.

We do occasionally diagnose glaucoma in patients under 40 years of age, particularly those with other risk factors listed above. Because of this, it is recommended that all individuals over the age of 35 see their optometrist (optician) at least once a year.

Types of glaucoma

There are two main types of glaucoma: open-angle glaucoma and closed-angle glaucoma (also called angle closure glaucoma).

The “angle” here refers to the angle between the iris (the coloured part of the eye) and the cornea (the transparent front part of the eye) – it’s here that the drainage structure of the eye, known as the trabecular meshwork” is found. This is a very small part of the eye. If the angle is closed, no drainage can take place, while an open angle means that some drainage can occur.

NORMAL EYE WITH OPEN ANGLE:
FLUID FLOWS TO DRAINAGE CANALS

CLOSED ANGLE GLAUCOMA: IRIS
BLOCKS ACCESS TO DRAINAGE CANAL

Open-angle glaucoma

Open-angle glaucoma is much more common in the UK, accounting for over 95% of cases. This occurs when the flow through the microscopic drainage channels (trabecular meshwork) becomes impaired. It’s not known why this happens – age is a factor, and there is a genetic component. The blocked canals result in increased pressure in the eye, damaging the nerve and affecting vision.

Open angle glaucoma is almost always painless, and many people don’t know they have it – unfortunately that’s also part of the problem as it can remain undetected for some time. Fortunately it develops slowly, so regular screening will usually pick it up before serious damage occurs.

Treatment of open angle glaucoma aims to reduce the pressure in the eye by using drops, laser or surgery (for details see below). Other treatments can include ensuring that the blood pressure is well controlled (i.e. not too high or too low), in order to improve circulation.

A variant of open angle glaucoma – Normal Tension Glaucoma (NTG)

In this variant of glaucoma, the typical features of glaucoma are seen, with damage to the optic nerve (cupping) and loss of the visual field. However, the intraocular pressure is not elevated.

NTG is more common in women, and the elderly. It is believed poor circulation in the optic nerve is a causative factor. Many patients also have one or more of the following associated conditions: migraine, poor circulation, cold hands or feet (Raynaud’s), poor thirst mechanism, and low blood pressure. Overly aggressive treatment of high blood pressure (hypertension) can also be a factor.

By definition, the eye pressure is normal or low in NTG, and for this reason it can be missed in the community if the optometrist relies too heavily on the puff test as a sole means of detecting glaucoma.

NTG is treated in the same way as normal open angle glaucoma. Although the intraocular pressure is “normal”, the aim of treatment is to lower the intraocular pressure even further to the lower end of normal, for example down to 10 mm Hg or below.

Closed-angle glaucoma (also called angle closure glaucoma)

Closed-angle glaucoma is more common in countries outside the UK, particularly Asia, and only accounts for about 10% of the cases seen in the UK. It occurs when the iris (the coloured part of the eye) blocks off access to the drainage channels within the eye. If this occurs acutely, the eye pressure can rise rapidly to levels where is causes pain – IT IS A MEDICAL EMERGENCY. Without prompt treatment sight can be permanently lost.

Early symptoms of closed-angle glaucoma are misty vision and haloes around lights (especially at night). An acute attack will cause pain (sometimes with vomiting and/or nausea) and a red, inflamed eye. Anyone experiencing these symptoms should go to their nearest hospital as soon as possible.

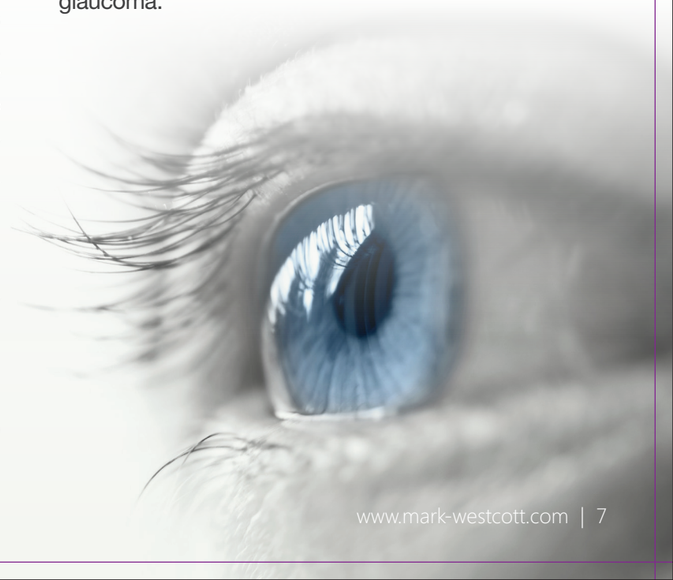
Other types of glaucoma

As we mentioned earlier, “glaucoma” covers a number of conditions that result in an increase in eye pressure. Other factors such as injury, growth of new blood vessels or vein blockage (seen in diabetes) can also increase the pressure in the eye and cause glaucoma. These will be treated in a similar way to the more common types of glaucoma given above.

So what’s ocular hypertension? Is that glaucoma?

Ocular hypertension is used to describe the condition where there is unusually high pressure in the eye BUT that eye doesn’t appear to have glaucoma. The pressure is outside normal limits but there are no signs of damage in the eye or abnormalities in the field tests. In many cases, ocular hypertension is a mild condition, and the majority of patients won’t develop glaucoma. This is particularly true in patients who have an overall low risk of glaucoma – i.e those with no family history of glaucoma. Many patients may have ocular hypertension throughout their life and never get glaucoma.

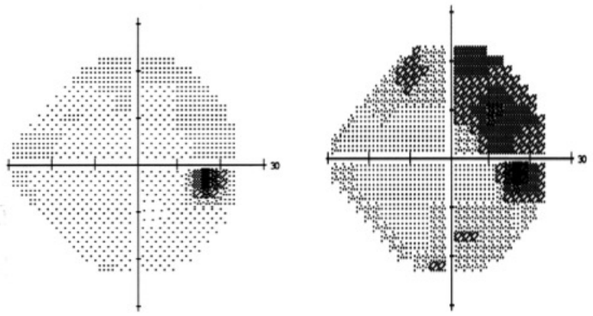
In contrast, some patients with ocular hypertension can have a higher risk of glaucoma, particularly those with a strong family history, a thin cornea, or those of Afro-Caribbean or West African ethnicity. These patients need more frequent monitoring and may be offered pressure-lowering treatment to prevent glaucoma.



Testing for glaucoma

Your optometrist (optician) will carry out a number of tests to check for glaucoma:

1. They will measure the eye pressure, usually using a “puff’ test – where a small puff of air is blown at the eye. This measures the pressure in the eye to see if it’s within normal limits.
2. They will make an assessment of whether the drainage angle is “open” or “closed” by looking at the space in the front chamber of the eye.
3. They will look into the back of the eye to check for visible signs of damage to the optic nerve. Some may use a camera or other imaging techniques to assess the health of the optic nerve.
4. They may also do a field of vision test - also known as perimetry. There are many commercial tests, including the Humphrey Visual Field Test, or the Henson. Broadly they use the same principle. The patient looks at the centre of a screen and lights of varying intensity are briefly flashed in different parts of the visual field. The patient presses a buzzer whenever they detect one of the lights. This in particular will show up any areas of poor peripheral vision.



Results of a field test - left is normal, showing the ‘blind spot’ where the optic nerve leaves the eye; the right shows severe dark areas in the field of vision where vision has been lost.

If they have reason to think that there may be some signs of glaucoma, they will refer you to an ophthalmologist (eye surgeon) specialising in glaucoma.

My optometrist has found that my eye pressure is high using the “puff test”. Does this mean I have glaucoma?

No. A high eye pressure measured with the puff test does not automatically mean that you have glaucoma. You may have a thicker than average cornea, which is normal, and this can affect the reading so that the puff test over-reads the pressure. Alternatively, you may have ocular hypertension, which doesn’t necessarily lead to glaucoma.

It’s not straightforward - it’s possible to get glaucoma even with normal pressure readings, or to have high readings but no glaucoma. This is why your optometrist will carry out more than one type of test to check for glaucoma.

My optometrist has identified high eye pressure and is concerned about glaucoma - **what should I do?**

Firstly, as we said before, don't panic! Glaucoma is very treatable and needn't cause undue concern as long as it's properly managed.

The first thing to do is to find an ophthalmologist (eye surgeon) who specialises in treating glaucoma. This is important, as there is a very wide range of medication and procedures/surgery for glaucoma and you will want to get treatment that's precisely tailored to your condition and your needs.

How do I find an ophthalmologist?

We would recommend that you ask your optometrist or GP to recommend an ophthalmologist either through the NHS or privately – they will know ophthalmologists specialising in glaucoma who they refer to regularly and trust with their patients. You could also see a specific ophthalmologist who has been recommended to you by family or friends. They should be appropriately qualified (i.e. Fellow of the Royal College of Ophthalmologists) and ideally should hold a substantive NHS consultant post with specialisation in glaucoma. Most ophthalmologists who manage glaucoma patients would have had fellowship training in glaucoma.

Is there anything else I should be careful about?

No, you can keep leading a perfectly normal life whilst you arrange to see an ophthalmologist.

Should I go via the NHS or privately? Will my health insurance pay?

This depends on a range of factors and personal preferences, so isn't really a question that we can answer. Both pathways are equally valid. However, there are some facts that you might find helpful:

- Typically, glaucoma patients will have an initial consultation with their ophthalmologist, together with one or more visual tests (which may be charged for separately if going privately). A further consultation will review the tests and prescribe a course of treatment – or this may be done on the same day. Once the treatment seems to be working, the patient will usually have 6-monthly or yearly reviews with the ophthalmologist. This assumes a straightforward case with no surgery, but it's typical for the majority of patients. Consequently the costs of going privately may not be as high as for many other conditions.
- It is possible to move from the private system to the NHS at any point if required (or vice versa).
- Waiting times are generally longer in the NHS, and you may not be able to see the consultant you choose.
- Health insurance companies will often try to 'divert' you to a doctor who has agreed to keep their fees very low. This practice by the insurance company effectively limits your choice of ophthalmologist on purely financial grounds, rather than quality or reputation. We would always encourage you to discuss your choice of ophthalmologist with your optometrist or GP.
- Health insurance companies vary widely in what they do and don't cover – they will often pay for the initial diagnosis and treatment but many are now refusing to pay for 'chronic' (i.e. ongoing) conditions. This applies to conditions such as glaucoma and diabetes, for example. It's important to check with your health insurer to see what they cover under your policy.

Telling your family

Once your diagnosis of glaucoma has been confirmed, it's important to tell your family (parents/siblings/children) as there is a hereditary component to glaucoma. They should be reassured that there's nothing to panic about – but they should ensure that they get their eyes tested every year by an optometrist as described above. That way any early signs of glaucoma can be picked up if they were to develop the condition. Given that 50% of glaucoma cases are undetected and it's the leading cause of blindness in the UK, you may be making a huge difference to their future sight.

NOTE: You are entitled to a free NHS sight test in the UK if you are over 60; if you have glaucoma; if you've been advised by an ophthalmologist that you're at risk of glaucoma; if you are over 40 with a first degree relative who has been diagnosed with glaucoma; or if you are diabetic.

Diagnosing and assessing glaucoma

What will happen when I see my ophthalmologist?

Your ophthalmologist should have received information about your case from your optometrist or GP. They will then decide what additional tests are required for your case. They may also repeat some of the tests described above.

These are all painless although be aware that some of the drops used may make your vision blurry - **do not drive to or from your appointment, and make sure you are not required to drive for some hours afterwards!**

A PACHYMETER

What tests will be done?

Some of the main tests used are:

Pachymetry and tonometry: The front surface of the eye (the cornea) is numbed with local anaesthetic drops. A small hand-held machine with a blunt end (pachymeter) is brought up to gently touch the surface of the eye. You will not feel it because of the local anaesthetic drops. The pachymeter measures the corneal thickness – this tells your ophthalmologist whether the cornea is thick, thin or average. This gives additional information about your risk of glaucoma and the accuracy of eye pressure readings.

The intraocular pressure in your eyes will be measured using a machine called a tonometer that works in a similar way.

Gonioscopy: Again, this is done when the front surface of the eye has been numbed with anaesthetic drops. The ophthalmologist will place a lens onto the front surface of your eye (cornea) to examine the drainage structure of the eye. This is called the angle - this crucial test will allow the specialist to identify whether you have an open angle, or whether you have signs of narrowing of the angle, predisposing you to angle closure glaucoma.

Examining the optic nerve: If gonioscopy confirms that the angle is open, dilating drops are put into the eye to dilate (enlarge) the pupil, making it easier to see into the back of the eye. These take about 20 minutes to work and will make your vision blurry and slightly sensitive to light. The ophthalmologist will examine the optic nerve at the back of the eye with lenses and a bright light.

NOTE: You cannot drive for a few hours after having dilating drops put in.

Retinal photography/Optical Coherence Tomography (OCT): There are various different ways of taking photographs of the back of the eye, depending on what the ophthalmologist needs to examine. All these machines will require you to look into a machine at a fixed point while a photo is taken or a scan carried out. Optical Coherence Tomography uses a very weak and safe laser light to image the back of the eye (retina and optic nerve) in very precise detail. This technology can measure the optic nerve head – this is helpful for diagnosis and also to assess any deterioration.

Visual field analysis: This test is also often done by your optometrist and is described above.

AN OPTICAL COHERENCE TOMOGRAPHY (OCT) MACHINE

Can I still drive if glaucoma/ocular hypertension has been diagnosed?

If you are a driver in the UK and have been diagnosed with glaucoma, the DVLA gives clear guidance which you must adhere to. This can be found at the following: www.gov.uk/glaucoma-and-driving or you can contact the DVLA.

Basically, you don't need to tell the DVLA if you are diagnosed with glaucoma in one eye if the other eye is healthy and has a normal field of vision.

You must tell the DVLA if your glaucoma affects both eyes, or if you have glaucoma in one eye, and a medical condition in the other eye. In this case you can report the condition to the DVLA and they will send you a form to fill in ("Form V1"), or you can download it from the website. Your optometrist, GP, or ophthalmologist can help you to complete the form. The DVLA will then ensure that your field of vision meets the legal requirements for driving. Generally the majority of patients with early glaucoma can continue to drive even if it affects both eyes, but only once they have obtained clearance from the DVLA.

Most other countries will have similar standards.

If glaucoma is diagnosed: Treatment with drops

If you are diagnosed with glaucoma, your ophthalmologist will discuss your case and appropriate treatment with you. There is a wide range of treatment options for glaucoma, which is why it's so important to see a glaucoma specialist. As we mentioned above, please don't be unduly worried following a diagnosis of glaucoma. The important thing is that the condition is diagnosed and then properly managed – glaucoma can't be 'cured' but the right treatment and/or surgery, regularly reviewed, will allow most people to live a completely normal life.

The first line of treatment for glaucoma is usually through eye drops. Used regularly as prescribed they should stop any further damage to your eyesight. They work in a number of ways depending on the effect they have.

Drops which improve the flow of fluid from the eye

Only 75% of the fluid in the eye is drained via the drainage canals in a normal eye – 25% of it is drained by natural seepage through the tissues of the eye through a process called the uveoscleral pathway. Some drops increase the drainage of the eye via this route and so lower the eye pressure. Others improve the flow via the drainage canals.

Drop names (drug name and a common brand name in brackets): Travoprost (Travatan); Tafluprost (Saflutan); Iatanoprost (Xalatan); Brimonidine (Alphagan); Bimatoprost (Lumigan).

Drops which reduce the production of fluid in the eye

These drops reduce the production of fluid in the eye and so lower the pressure.
Drop names: Timolol (Timoptol, Tiopex); Levobunol (Betagan); Betaxolol (Betoptic), Brimonidine (Alphagan); Brinzolamide (Azopt); Dorzolamide (Trusopt); Iopidine.

Side effects

Most drops are well tolerated. The range of side effects is large (due to the range of medication that can be prescribed, as you can see!). Your ophthalmologist will discuss possible side effects with you, and you can also check on the leaflets that come with the drops if you have any concerns.

Patients can also develop allergic reactions to their drops – this can happen immediately or after some months of use. The preservative used in some of the drops can be the cause of allergic problems – however, there are many preservative-free alternatives to the standard drops.

Taking drops

Probably the most important rule for preventing future loss of sight due to your glaucoma is:

TAKE YOUR DROPS REGULARLY AS PRESCRIBED!

It's not easy to take drops at the same time every day, we know. But with practice it can be done very easily and it's just a question of remembering to take them. It may help to keep your drops in a certain place (by the breakfast cereals or your toothbrush). People can find it useful to set reminders on their phones or even on their iWatches (that tapping and ringing on your wrist is hard to ignore).

Whatever you do, please remember that taking your drops is important. Patients who regularly forget to take their drops have a higher risk of losing sight over the years because of their glaucoma.

How do I put eye drops in?

NOTE: The following information is also contained in our leaflet "How do I put drops into my eyes?". Please ask if you'd like a copy – it's a bit more portable!

Many patients have difficulty putting drops in their eyes, but rest assured, there will be a method that works for you! The standard method is described below:

1. Wash your hands.
2. Read the instructions on the bottle.
3. Start by making sure you're standing, sitting or lying comfortably. Have some tissues to hand. You may find that putting your drops in front of a mirror is helpful, but many people find it's not necessary.
4. Tilt your head backwards.
5. Place your index (first) finger on the soft skin underneath your eye. Gently pull this down so that you form a pocket (see the picture).

6. Bring the bottle tip up above the pocket - but make sure it doesn't touch the surface of the eye.
7. Squeeze gently so that a drop falls into the pocket (or onto the surface of the eye if that's easier). Unless advised otherwise, don't worry if several drops fall in – the eye can only hold one drop and the rest will run out. Use the tissues to catch the excess on your cheeks.
8. Gently shut your eye – don't squeeze it tightly shut – and gently press on the inside corner of your eye near your nose with your index finger. That stops the drops from leaving the eye and makes them more effective. Do this for 2-3 minutes.
9. If you are putting in more than one drop or another different type of drop, wait another 5-15 minutes before putting in the next one. This stops the first from being washed away before it's had time to work.

Problems putting in eye drops

Drop won't go in the eye!

There is a different method that is a highly effective alternative – the "lying down" method:

1. Lie on your back with your head turned slightly towards the side that you want the drops to go in. Make sure you have some tissues to hand.
2. Close your eyes and put a drop in the corner of the eye nearest the nose. Then, at the same time, gently open your eyes and turn your head so that your cheek is against the surface you're lying on.
3. The drop should run into your opened eye.
4. Use the tissues to catch the excess on your cheeks, and gently shut your eye. Don't squeeze it tightly shut.
5. Turn your head back so that you're facing upwards. This is a more effective position for the drops to work.
6. If you are putting in more than one drop or another different type of drop, wait another 5-15 minutes before putting in the next one (you can sit up or stay lying down). This stops the first from being washed away before it's had time to work.

My hands are shaking….

Rest your hand on part of your face – the cheeks if using the method above, or some people like to approach from the side and rest their hands on their temples. Weighing your hands down with light weights (e.g. gym wrist weights) can help. Or try the "lying down" method described above. Some patients find the 'Autodrop' eye drop aid very helpful (available on Amazon). Putting in drops becomes much easier with practice!

I can't feel if the drop went in the eye!

Ask your ophthalmologist if it's possible to keep your drops in the fridge – cold drops are easier to feel when they go in. Once you get used to putting them in you'll be able to keep them somewhere more accessible.

Whatever the problem, please be reassured that you will find putting in your drops much easier with practice.

Clinic-based laser treatments for glaucoma

A LASER USED FOR SLT AND IRIDOTOMY

There are a number of other treatments for glaucoma that can be used in addition to drops. These involve the use of a laser to make microscopic structural changes to the eye. Although this sounds rather alarming, this is a very precise and virtually painless treatment.

None of the procedures outlined below can restore sight already lost to glaucoma. These procedures are aimed at reducing and stabilising the pressure in the eye to minimise further loss of vision.

SLT (Selective Laser Trabeculoplasty)

This procedure is quick (about 10 mins) and painless. A low-energy laser is aimed at the drainage channels in the eye. This makes small biological and chemical changes to the eye that help the channels to work better – i.e. they drain the fluid out of the eye more efficiently and so lower the pressure in the eye. These changes take place over the following 1-3 months so the effect is not immediate. SLT can be used in addition to, or as a replacement for drops – your ophthalmologist will advise you on the best course of treatment for your particular case.

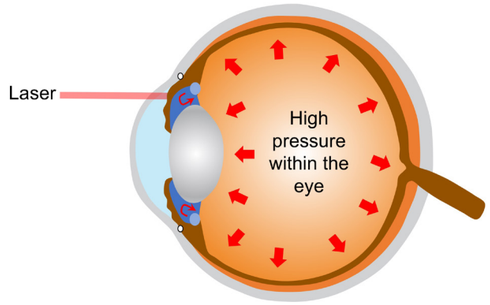
Benefits of SLT

SLT usually lowers the pressure in the eye by about 30% for a period of 1-5 years. The effect of the treatment tends to wear off with time. If initially successful, the procedure can be repeated, usually only once, although the subsequent treatment tends to be slightly less effective.

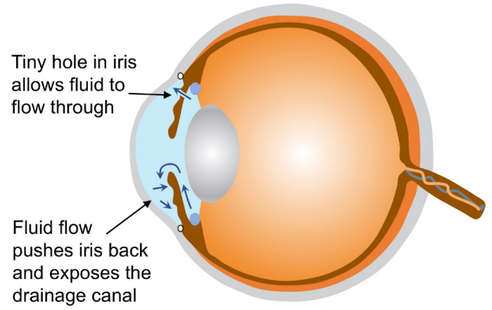
Risks of SLT

The risks of SLT are fairly small:

- Inflammation of the eye can occur immediately after the procedure and can be treated with anti-inflammatory drops. Rarely this inflammation can affect the cornea. You are usually prescribed a very mild anti-inflammatory drop for 2-3 days following the laser treatment.
- Occasionally (about 5% of cases) the pressure in the eye can rise for 24 hours after the procedure and glaucoma drops would be prescribed for a short while (a prolonged rise in eye pressure is a very rare side effect).



IRIDOTOMY: LASER USED TO CREATE TINY HOLE IN IRIS



NORMAL FLUID FLOW IS RESTORED

Laser iridotomy (also called laser peripheral iridotomy)

NOTE: this only applies if you have angle closure glaucoma or are at risk of this condition.

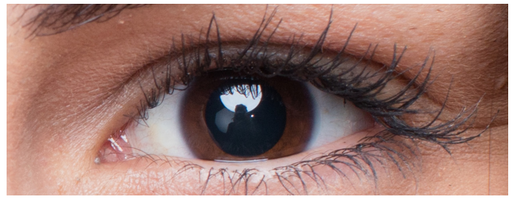
This is a straightforward procedure which is performed using a laser machine under local anaesthetic drops. It is only used on patients who have or are at risk of developing closed angle glaucoma, where the iris (the coloured part of the eye) blocks the drainage channel, known as the angle, preventing fluid from draining.

This can raise the pressure in the eye, either now or in the future. A small focused laser beam is used to create a tiny hole in the iris. This hole is microscopic. The fluid in the eye can then flow through the hole in the iris, pushing it back and improving access to the drainage channels, lowering the pressure.

Benefits of laser iridotomy

This procedure is an essential first line treatment that is used in angle closure glaucoma. In many cases, particularly in early stages of the disease, it can be curative, or can defer the need for further medication or treatment in over 80% of cases.

In some more severe cases, the laser does not succeed in opening up the drainage angle, and other subsequent treatments are required, such as cataract surgery, which is very effective at opening the angle, or glaucoma surgery.



Risks of laser iridotomy

The side effects of laser iridotomy are few and generally not serious:

- 10% of patients experience a rise in eye pressure immediately following the procedure – this will be monitored and treated with drops. It usually passes off in a few hours.
- Inflammation can also occur and is treated with anti-inflammatory drops.
- Vision immediately after the procedure can be a bit misty and sometimes a little bleeding can be seen inside the eye, but this usually settles down in a day or two.
- About 1% of people notice a permanent change in their vision afterwards – this typically takes the form of “ghosting” around objects or glare - this is particularly noticeable with oncoming lights, e.g. headlights or at the theatre. Although this uncommon side effect can be troublesome and is undesirable, the downsides of laser are outweighed by the great benefit of the laser in terms of treating a potentially blinding condition.

What will these laser treatments feel like?

NOTE: In this section the information comes from our patients and deals with their experience in our practice. This information will be useful for anyone undergoing glaucoma treatment, but details may vary in different practices and hospitals.

Before your procedure

- You don't need to fast or stop any of your medications – just continue as normal, even on the day of the procedure, and that includes your glaucoma drops.
- Do not drive to the clinic, and do not expect to be able to drive after the laser on that day.
- Contact lens wearers can arrive wearing their lenses, but are advised to return wearing their glasses, so bring a contact lens case.

Although the procedures are all quick, assume that you will remain in the clinic for at least an hour after your appointment time - this is usually to allow for an eye pressure check after the laser in order to ensure all is well before you can go home. You will not be able to drive, so you might want to bring someone with you or arrange for transport home. Most people would not want to return to work after the laser.

On the day

Please come to our consulting rooms as normal. A nurse will check your eye pressure. Mark will ask you to sign a consent form and also put some drops into your eye. These will lower your pressure for the duration of the treatment and numb your eye.

You will then be taken to a treatment room and will sit behind a machine which looks very similar to those that have been used before to examine your eyes. It will have a chin-rest and forehead rest to make it easy for you to keep in position during the treatment. You do not need to worry about moving because the laser is applied for such a brief amount of time that moving during the procedure does not affect the treatment.

Mark will put a contact lens on your eye to allow him to see the structures of the eye more clearly, but you won't be able to feel this as your eye will be numb. He will then shine a light into your eye and start using the laser. Patients generally do not report pain – for the laser iridotomy the laser is felt like an extremely brief but sharp sting in the eye. For the a SLT laser the sensation is more like heat. Patients do tend to feel this, but it's not felt to be painful.

After the procedure

Immediately after the procedure you will be given some drops, and usually the pressure will be checked one hour later. The recovery from a laser procedure (SLT or laser iridotomy) is very rapid. There are no special restrictions, and normal activities can be resumed immediately after the laser. Your eye may be blurred for a day or two. Most patients would return to work the next day after the laser. After iridotomay some patients might wish to take the next day off as the eye may be a bit sore and you will need to administer drops frequently.

What to be aware of over the following days

If you have significant eye pain, described as a "severe ache" or significant blurring of vision then you should report this immediately (see the section at the end of this booklet).

Mark in the operating theatre

Glaucoma surgery

There are a few surgical procedures which are commonly performed to help patients with glaucoma.

There are a number of reasons why a glaucoma specialist might recommend surgery. These could include worsening glaucoma despite the use of drops or failure to control the pressure despite the use of drops or laser (e.g. SLT). Other reasons include inability to use the drops, or unacceptable side effects.

Descriptions of the main operations are given below – a simple paragraph followed by a more detailed description for those who'd like to know more (which can of course be skipped by those who'd rather not know more!). The benefits and risks of each operation are then outlined – it's important to read these.

The operations are similar in terms of what it feels like to go through them as a patient in our practice – please see below for an outline of this, together with information on what to do before and after your operation.

NOTE: None of the operations outlined below can restore sight already lost to glaucoma. These operations are aimed at reducing and stabilising the pressure in the eye to minimise any further loss of sight.

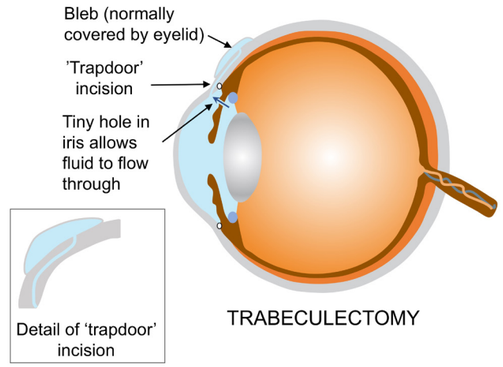
Trabeculectomy

The modern form of this operation has been carried out since 1968. In this, a hole is made into the front chamber of the eye in order to provide another opening in the eye for fluid to drain. Then a trapdoor flap is made in the white of the eye to allow the fluid out, secured with microscopic stitches.

Patients have their stitches adjusted in the weeks following the main operation, until the opening is letting the right amount of fluid through and a target pressure is reached. This operation can continue working effectively for many years, and may reduce or eliminate the need for drops.

Although the operation can be performed in contact lens wearers, it is inadvisable to wear contact lenses after the surgery, as contact lenses increase the risk of infection for this particular operation. Every case is different, so if the wearing of contact lenses after surgery is a priority, then the patient would be advised to have alternative surgeries, for example a tube operation (see the section on tube surgery for glaucoma).

Note: A more detailed description of the operation follows below – if you're squeamish about eyes or would rather not know, skip to the next section!



TRABECULECTOMY

This operation is carried out under a microscope. First, the membrane around the eye (conjunctiva) is opened. An anti metabolite medicine, e.g. Mitomycin C or 5 Fluorouracil, is applied to the area to reduce scarring and promote healing. Then a trapdoor flap is constructed in the white of the eye, adjacent to the cornea, under the top eyelid. A small hole is made into the front chamber of the eye, followed by a small hole in the iris.

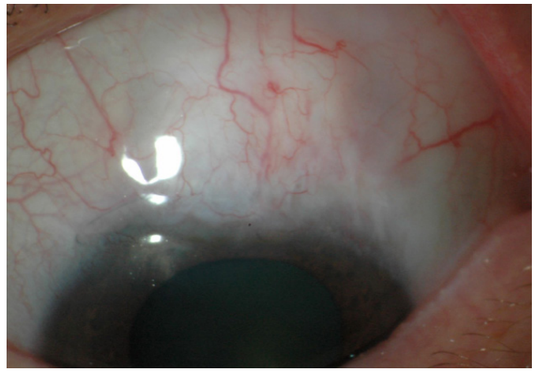
This may sound rather alarming! Rest assured that the trapdoor is secured by a series of microscopic stitches (the non-dissolving kind), so it's not possible for it to 'flap open'. It does, however, allow the fluid within the eye to seep out gently – this rate of seepage can be adjusted by adding or removing stitches in a carefully coordinated way. The trapdoor is also covered by the conjunctiva, the transparent outer covering of the eye.

So where does the fluid go to? This is the function of the bleb, shown as a small elevation or blister on the eye in the diagram. It acts like a reservoir underneath the conjunctiva, accumulating the tiny amounts of fluid which seep out from the trapdoor. These are then naturally absorbed by the eye.

Isn't this rather disfiguring? Not at all – once the eye has healed from the operation, it will look exactly as it did before. The reason for this is that the only visible part of the operation is the bleb, which looks like a small white elevation or blister on the eyeball – but this will be placed underneath your upper eyelid, so it's only visible if you pull your upper eyelid up and take a look underneath. The hole in the iris is very small and also covered by the eyelid, so it's usually only visible if you pull your upper eyelid up and take a look underneath

Trabeculectomy – success rate

Current figures indicate that approximately 75% of trabeculectomy procedures are still working well at about 7–8 years after surgery. Just under two thirds of these patients did not need to use medication, whilst the rest needed to use drops to help control the pressure.



An eye which has had trabeculectomy surgery showing the bleb at the top of the eye (normally hidden by the eyelid)

Risks of trabeculectomy

As with all surgery, there are risks which need to be taken into account:

Low pressure: This is the main risk following surgery. It usually presents with blurred vision. It can occur in the first few weeks after surgery and will often resolve by itself. Sometimes a gel is injected into the front chamber of the eye to raise the pressure, and a contact lens may be applied to help. If necessary (in about 5% of cases), the stitches in the eye need to be tightened via surgery (a much shorter procedure than the main surgery). Less commonly (in about 3-5% of surgeries) the pressure goes low at a later stage after surgery, even after many months. This usually requires surgery to remedy.

Bleeding in the eye: This is very rare (1 or 2 per thousand) but occasionally a haemorrhage can occur at the back of the eye, usually due to low pressure. This haemorrhage can be drained, but can potentially threaten vision.

Infection: There are two infection risks – infection following the operation and an ongoing risk of bleb infection. The post-operative infection risk is similar to that following any surgery (about 1-2 per 1000 patients). Patients who have undergone trabeculectomy need to be aware of an ongoing risk of bleb infection. This is rare and treatable as long as medical attention is sought promptly. Signs to look out for are a red, painful and sticky eye, associated with rapidly decreasing vision.

Reduced vision: This is common following the operation, but usually resolves itself after a few weeks. 5-8% of patients will notice some degree of longer-term reduced vision after the operation and they may require a change in glasses prescription.

Droopy eyelid: This is common after any type of eye surgery and usually resolves itself within a few weeks. Rarely the droop of the lid can persist. If so, it is possible to correct the lid droop with a minor operation.

Discomfort: Again, this usually settles within a few weeks, but some patients experience longer-term discomfort. This can usually be resolved through the use of over the counter eye lubricants. In rare cases the bleb might need to be made smaller with a surgical procedure.

Cataract: Trabeculectomy surgery seems to speed up the development of cataracts. About 1/3 of patients who have had this surgery get cataracts earlier than they would otherwise have appeared and will require normal cataract surgery within 5 years of their trabeculectomy.

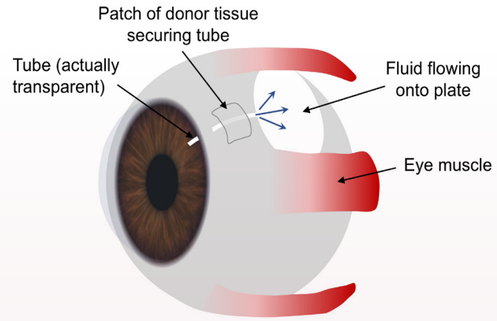
Glaucoma tube surgery (also known as aqueous shunt implantation) – the Baerveldt tube and the Ahmed valve.

Glaucoma tube surgery is an alternative type of surgery. There is some evidence that the pressure lowering effect may last longer than trabeculectomy. It is also more likely to work in patients who are at a higher risk of failure from trabeculectomy, normally because of scarring. It is also more likely to continue working if a patient subsequently needs a cataract operation, and is a better option in patients who have already undergone cataract surgery.

It's a better option for contact lens wearers and is less prone to infection. However, every patient is different, and there may be cases where a trabeculectomy is a better option and vice versa.

In this operation, a tiny transparent tube (less than 1mm in diameter) is put in the eye to drain fluid and reduce pressure.

NOTE: A more detailed description of the operation follows below – if you're squeamish about eyes or would rather not know, skip to the next section!



GLAUCOMA TUBE SURGERY

The diagram shows the tube in place. The tube channels fluid from the chamber at the front of the eye through to a flexible drainage plate (a bit like a rounded, slightly flexible button) which is inserted between the sclera (the white wall of the eye) and the conjunctiva (the transparent outer covering of the eye).

The drainage plate has small ridges on it, forming a tiny gap between itself and the conjunctiva. This forms a little reservoir for the tiny amounts of fluid which are drained from the eye by the tube. This fluid is absorbed naturally by the tissues and vessels surrounding the plate.

There are a number of different makes of tube on the market. The two most commonly used are the Baerveldt tube, and the Ahmed valve, which has a valve to control pressure. Usually a white patch of sterile donor tissue is placed over the tube to protect it as it runs over the surface of the eye. The type of tube chosen will depend on each patient's individual needs.

What will it look like? Once the eye has healed from the operation, it will look very much as it did before. The tube is too small to be seen without a microscope. Patients will often notice the small white patch of donor tissue on the top of the eye, which protects the tube. This is often covered by the upper lid. The plate and reservoir can only be seen when lifting up the eyelid and looking down as far as possible.

Tube surgery – success rate

Tube surgery for glaucoma has only relatively recently become mainstream, so there's less information about its success rate than there is about trabeculectomy. However, the data available seems to show that it is at least as successful, if not more so (i.e. 90%+ success rate at 1 year, in terms of reducing the pressure below 21 mm Hg. Results from our own patients also supports this.

In the long term, Mark's experience, and that of other surgeons, is that the tube can work for many years, and between 70-80% might be expected to be working at 5 years or more. The success rates may be even higher in some patients, because the data for success for tubes includes those patients who have a high risk of failure. Typically one would expect to achieve pressures in the mid-teens, although it is hard to get eye pressures much lower than this. Patients can usually reduce the number of drops they take, although most patients still need to stay on at least one drop.

Risks of tube surgery

As with all surgery, there are risks which need to be taken into account:

Low/high eye pressure: This is the main risk in the first few weeks following surgery and manifests itself as blurring of vision. It can often resolve itself. If not, sometimes a gel will be placed within the eye to raise pressure. The Baerveldt tube has a thread (suture) that can be adjusted after surgery to lower the pressure. About 50% of patients require this suture adjustment, but it is a much shorter procedure than the main surgery.

Tube positioning issues: Occasionally the position of the tube may irritate the cornea or conjunctiva, or it may become exposed. The tube may become blocked by the iris. A further procedure would be needed to remedy these problems.

Bleeding in the eye: This is very rare (1 in 500-1000 patients) but occasionally a haemorrhage can occur at the back of the eye, usually due to low pressure. The procedures described above to treat low pressure are used.

Infection: There are two infection risks – following the operation and an ongoing risk of tube infection. The post-operative infection risk is similar to that following any surgery (1-2 per 1000 patients). Patients who have undergone tube surgery need to be aware of an ongoing risk of tube infection. This is rare and treatable as long as medical attention is sought promptly. Signs to look out for are a red, painful and sticky eye.

Reduced vision: Reduced vision is relatively common following the operation, but usually resolves after 4-6 weeks. Most patients will require a change in glasses prescription after surgery. Longer term reduced vision after the operation is rare (1 in 100 patients).

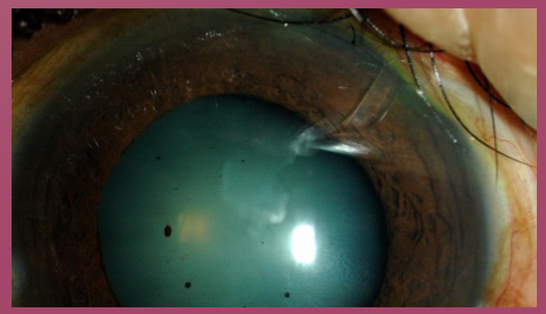
Double vision: Occasionally patients notice double vision after the operation. It usually manifests when looking to the side. In many patients it will settle. However, in some patients (1-2%) it can persist and be a problem, to the extent that it interferes with daily function (for example, driving). In these severe cases, there is normally something that can be done to improve the situation. Treatment would involve assessment by an ophthalmologist specialising in double vision problems and may require a squint operation.

Droopy eyelid: This is common after any type of eye surgery and usually resolves itself within a few weeks. Rarely the droop of the lid can persist. If so, it is possible to correct the lid droop with a minor operation.

Discomfort: Again, this usually settles within a few weeks, but some patients experience longer-term discomfort. This can usually be resolved through the use of over the counter eye lubricants.

Cataract: Some patients who have undergone tube surgery seem to develop cataracts earlier than they would otherwise have appeared – this can be resolved through normal cataract surgery.

Corneal clouding: Rarely the presence of the tube in the front chamber of the eye can damage the cornea, leading to corneal swelling and clouding. If severe, this can necessitate a corneal transplant.



An eye which has had glaucoma tube surgery, showing the tube in the eye at the 1 o'clock position (note: the pupil has been dilated for the picture)

Other surgical procedures: Micro Incisional Glaucoma Surgery (MIGS)

Several other newer surgeries are available. Their exact role is still being determined. They have the advantage that they are less invasive than trabeculectomy or tube surgery - the surgery is usually quicker and the recovery faster. Mark is performing many of these procedures and will be able to advise on how appropriate they are. The commonest ones are briefly outlined below, but this is a field which is evolving all the time and Mark will know which to consider in any particular case.

iStent

This tiny titanium stent is inserted into the drainage angle (trabecular mesh work) in order to improve drainage.

The procedure takes about 15-20 minutes and is often performed at the same time as a cataract operation. Consequently it is most useful for patients who are already due to have cataract surgery, and who have mild glaucoma and ocular hypertension. It will help lower the pressure following surgery and may allow a patient to stop a glaucoma drop. The risks of this procedure are very low, but they include a rare risk of infection (1-2 cases per 1000 patients).

AN ISTENT (IT IS THERE, LOOK CLOSELY!)

Xen-gel

This is a very small collagen tube which is injected through the trabecular meshwork via a small incision in the cornea. The tube passes underneath the conjunctiva, the transparent outer covering of the eye. This creates a bleb, thereby lowering the eye pressure, in a similar fashion to a trabeculectomy. The attraction of this procedure is that it is simpler, quicker and is a less invasive operation than a trabeculectomy. It does carry risks though, which are similar to trabeculectomy, and these risks include low pressure, failure and infection. In addition, this procedure is quite new, so we do not have long term follow up data yet.

Glaucoma laser procedures performed in the operating theatre: Cyclodiode laser

This procedure uses a laser to reduce the production of fluid within the eye. It is useful for patients with quite advanced glaucoma for whom other major surgical interventions may not be suitable. The eye secretes aqueous fluid, which is similar to saline, from a gland called the ciliary body. The cyclodiode laser destroys a part of this gland, thereby reducing the production of aqueous fluid and lowering the eye pressure. The procedure is performed in an operating theatre under local anaesthetic. The procedure is quick, and takes about 10-15 minutes. After the laser, a patch is applied overnight, and the patient is instructed to use topical steroid drops for a few weeks after the laser.

Risks of cyclodiode laser

The side effects of cyclodiode laser are few and generally not serious:

Low/high eye pressure: Some patients experience a rise or fall in eye pressure immediately following the procedure – this will be monitored and treated with drops.

Inflammation: This can also occur and is treated with anti-inflammatory drops.

A need to repeat the procedure: It's not uncommon for the procedure to be repeated to bring the pressure in the eye down further – about 50% of patients need repeat treatment.

Vision: Reduced vision immediately after the procedure can last for about 6 weeks but permanent changes are rare.

Low pressure changes: Very rarely (in about 2% of cases) cyclodiode treatment can give rise to persistently low pressure which can cause more major problems.

Your Operation

NOTE: In this section the information comes from our patients and deals with their experience in our practice. This information will be useful for anyone undergoing glaucoma surgery, but details may vary in different practices and hospitals.

What do I need to do before surgery?

- You can wear contact lenses up to the day of surgery. However, after surgery, you will be advised to refrain from using contact lenses for 2 – 3 months in the operated eye.
- Glaucoma surgery typically causes some change in the glasses prescription in the operated eye. This is variable and the prescription in the operated eye can take some weeks to settle. Mark will advise on this.
- Please use your glaucoma drops on the day of surgery. After surgery, we usually stop the glaucoma drops in the operated eye and it is important not to use your drops the next day for the day 1 post op visit unless instructed otherwise.
- Warfarin or other blood thinning medication - if you are taking these you must tell your surgeon and anaesthetist before surgery so they can advise.
- If surgery is to be performed under a general anaesthetic, then you need to fast for six hours beforehand.

The surgeries are commonly performed as a day case procedure, but usually Mark would want to see you the morning after surgery for trabeculectomy and tube surgery. If you travel from afar you may wish to stay overnight.

What happens on the day of surgery?

You will need to report to the hospital 2-3 hours before surgery. You will report to the nursing staff who will take a medical history, record any medications you take, and enquire about any allergies. Please ensure that you mention any blood thinning medications, such as Warfarin that you are taking. Your blood pressure will be measured. Mark will visit you, and answer any additional questions you may have. You will also be asked to sign a consent form, and Mark will mark the forehead above the eye to be operated on. A gown is placed over your clothes.

What kind of anaesthetic will I have?

The anaesthetist will place some local anaesthetic underneath the conjunctiva around the eye. The anaesthetic injection is generally felt as a small sting – a recent survey of patients at Moorfields Eye Hospital found that two-thirds of patients reported little or no discomfort. The local anaesthetic also paralyses the eye, so that you can't see anything out of it while you're being operated on. The eye will remain numb for about 6 to 12 hours, so there is no need to be concerned if the operation is delayed slightly. Very anxious patients can be given some sedation as an intravenous injection: this makes you feel relaxed and sleepy during the operation, although you will still be awake. Please ask if you would like this option. Some types of glaucoma surgery (usually tube surgery) are carried out under a general anaesthetic.

What will I experience during surgery?

NOTE: This is for patients having local anaesthetic only! You will be helped to lie flat on the operating table, made comfortable and your head will be supported.

- Mark will clean around your eye with Iodine disinfectant (you may feel your eye being cleaned with cold fluid) and some sterile cloths will be draped around your face, covering the eye not being operated on. Air will be gently blown towards your face through a pipe – this is to ensure you can breathe easily.
- As the eye is anaesthetised, you do not have to worry about keeping the eye still, or blinking, as the eye is paralysed in any case. You will see very little out of the eye being operated on due to the local anaesthetic.
- Mark will insert an instrument to keep the eye open and begin surgery with the use of an operating microscope.
- It helps if you can keep still during the operation and try not to speak. If you need anything you will be told to raise your hand.
- You will hear the doctors and nurses moving around and the sounds of the equipment working. Music is often played in the operating theatre to help relax the patients.

Will I be able to see the instruments coming towards my eye?

People worry about this – but you will not be able to see the instruments coming towards your eye. You will see very little out of the eye being operated upon due to the anaesthetic which has been administered. In addition, your other eye will be covered with a sterile transparent drape which is slightly frosted (see picture) – so you won't see instruments out of your other eye, either.

Does it matter if I blink or move my eyes during surgery?

Patients worry about this, but it does not matter as the eyeball being operated on is paralysed temporarily by the anaesthetic. It's kept moist by the salt water solution. You can blink your other eye as normal.

How will I feel immediately after surgery?

Patients who have had a general anaesthetic may feel sleepy for a while following the surgery. Those who opted for sedative will find that this wears off quite quickly. You will have a patch on your eye after the surgery, and patients are asked to remove this shortly after waking up on the following morning.

When can I go home?

You can go home one to two hours after surgery. Most patients, sensibly, like to have a cup of tea and a light snack or sandwich. You should allow some time for your post-operative drops to be prepared in pharmacy, and for the nurse to go through these drops with you.

Is it advisable to bring someone with me after surgery, and can I use public transport?

It's a good idea to have a friend or relative with you to help you home. You will have a patch over one eye, which you will be adjusting to, and you may have been given some sedation for surgery. Public transport can be used, but for the reasons given above most patients prefer to leave hospital via car, minicab or taxi. Long journeys are best avoided.

Do I need to be seen the next day?

After most glaucoma surgeries you will be seen the next day in the morning, and you need to be able to return to the hospital the next day. Patients who live a long way out of London should make plans that allow for this (either stay overnight in hospital, or in a hotel, or with a friend or relative). Please let us know if this is likely to cause problems and we can work out how best to accommodate your situation.

After surgery

When can I remove the eye pad and what will the vision be like on the first day after surgery?

You can remove the pad over your eye when you wake up the morning after your surgery. Your eye may be a little red and it's important not to be alarmed by this. The vision may be blurred in the first few days after glaucoma surgery.

What will I be able to do the following day?

You should be able to resume your normal day-to-day activities within a few days after surgery. You can return to driving if you feel comfortable and you have adequate vision in your fellow eye. It is reasonable to take a few days off work after glaucoma surgery, particularly for glaucoma tube surgery, especially as you may be on quite a number of drops and also you will have fairly frequent post-operative clinic visits. A graded return to work over the first week is sensible, and those with sedentary jobs can be expected to return to work quite quickly. If the eye pressure is low after glaucoma surgery, you will be advised to rest and limit activities.

What medicines do I need to take?

Mark will prescribe some antibiotic drops and some anti-inflammatory drops for your eye, which usually need to be put in four times a day initially. You continue these drops for approximately one month.

After glaucoma tube surgery it is quite usual to continue glaucoma drops in the initial period, which can be a few months, until the tube begins to work. Please make sure that you will be able to do this following surgery, or ensure that someone will be able to put them in for you.

What precautions should I take following surgery?

Many of the precautions are common sense! For 2 weeks after surgery you should avoid:

1. Dirty and dusty environments
2. Swimming
3. Heavy lifting (suitcases, etc.). Normal housework is acceptable!
4. Activities that could result in a knock or blow to the eye, e.g. contact sports. Non-contact activities are fine (e.g. brisk walk, golf). Runners should wait 4-5 days before their first run.
5. Please avoid getting dirty water into the eye, for instance, during hair washing.

You will be asked to put a clear shield over your eye before you go to bed, to be worn during the night. This should be done for 1 week after surgery.

Flying and other engagements

It is perfectly safe to fly immediately after surgery. However, Mark insists that patients curtail any travel plans and stay in the UK, able to travel to London, for at least two weeks after surgery. This allows him to see patients if they encounter any post-operative problems.

Please remember that you have had an operation on the eye. You will be using drops and it is expected that the eye will be red and a little sore for a few days after surgery. It is sensible NOT to schedule major life events for 1 - 2 weeks after surgery (e.g. "trip of a lifetime", distant business trips, weddings, major anniversaries, etc).

Post-operative visits

After trabeculectomy and glaucoma tube surgery, Mark will review you the next day after surgery and a few days later. Thereafter, you should be prepared for frequent post operative visits in the first 6 weeks after glaucoma surgery, and this particularly applies to trabeculectomy surgery.

When can I use makeup?

You can apply eye makeup 2 weeks after surgery.

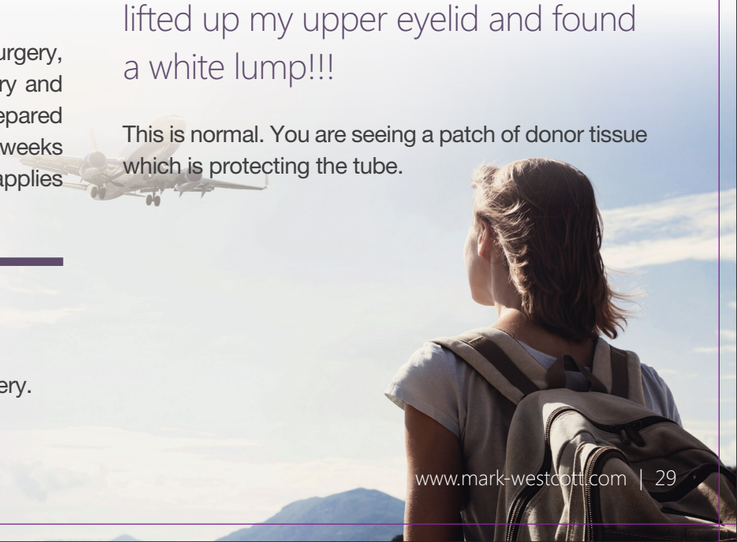
My eye feels "gritty" after surgery. Is this normal?

It is very common for the operated eye to feel slightly gritty for a while after surgery. This is due to surface dryness and can be alleviated with lubricating eye drops. It occurs because the surface of the eye has been disturbed during surgery, and some of the corneal nerves have been cut.

The symptom of grittiness can easily be treated with lubricating drops, which can be bought at a chemist/ pharmacist without a prescription. Mark recommends "Celluvisc 0.5%, Hycosan or Hylotears", to be applied 4-6 times a day as needed.

I've had tube surgery and I've just lifted up my upper eyelid and found a white lump!!!

This is normal. You are seeing a patch of donor tissue which is protecting the tube.



What to do in case you have a problem

For the first two weeks after surgery, the principal worry is infection getting in the eye. This is extremely rare but potentially very serious.

If you notice one or other of the following symptoms then you must be seen urgently:

1. Rapidly deteriorating vision
2. Severe pain and redness which is getting worse

If you have any of the above symptoms, you need to seek advice urgently.

For patients who have had private surgery by Mark Westcott only:

During office hours please contact the practice on Tel: 020 7402 0724, Mobile: 07963 452901.

Alternatively, you can ring Moorfields Eye Hospital on the following number: 020 7253 3411 (24 hours, including weekends) and ask for the Accident & Emergency Department. Explain to them that you are a recent surgery patient of Mr Westcott's and they will advise. Moorfields Eye Casualty is staffed 24 hours a day by experienced ophthalmologists who can see you in the first instance and who will be able to contact Mark.

Disclaimer

Whilst every step has been taken to compile accurate information and to keep it up to date, we cannot guarantee its correctness and completeness.

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NOTE: Mark Westcott's practice is based in the United Kingdom. Many of the references in this information are specific to the UK (e.g. costs, insurance company practices). These will differ outside the UK.

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