

## Information for Patients

# Glaucoma Drainage Tube Surgery

You have been told that you require an operation to control the pressure within your eye. This operation involves inserting a glaucoma drainage tube into the eye. This operation is recommended for patients whose glaucoma continues to progress despite using eye drops and/or having had laser treatment and/or where conventional glaucoma surgery has failed. Your doctor might also suggest a drainage tube operation in other situations, for example:

- Congenital glaucoma
- Glaucoma acquired after trauma or inflammation in the eye
- Due to new blood vessels in the eye
- In eyes where the natural lens of the eye has been removed
- Where the risks of conventional surgery failing are much higher

The goal of drainage tube surgery is to help lower and control your eye pressure. This eye pressure is known as intra-ocular pressure (IOP). If your intra-ocular pressure remains high, this could lead to irreversible loss of vision. This operation will not improve your vision or cure glaucoma but aims to prevent or slow down further visual loss from glaucoma damage.

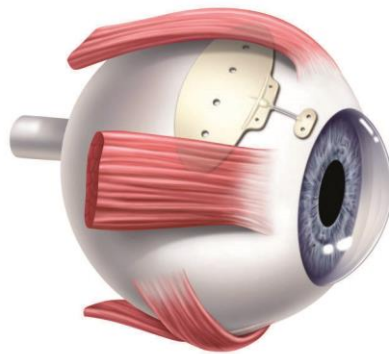
## What is a glaucoma drainage tube operation?

During the operation a drainage tube device is inserted into the eye to create an alternative drainage channel, to help aqueous fluid (natural fluid of the eye) drain from your eye. This operation creates a bypass for the blocked natural drainage channels (trabecular meshwork) of your eye. Your eye pressure is reduced because fluid can now drain with relative ease through the newly created drainage channel. There are a small number of silicone drainage tube devices that can be used; some with valves and some without.

Drainage tube device, an example (not to scale)



Anatomical drawing showing the drainage tube device in position on the eyeball



## How is a glaucoma drainage tube operation performed?

The plate of the device is placed on the outside of the eye on the sclera, (the white of the eye), beneath the conjunctiva, (a thin transparent layer). A small tube is then inserted from this plate internally into the front of the eye. This provides a passageway for the movement of fluid out of the eye to the plate where it can drain away in blood vessels back into the body.

The tube and plate are then covered by a patch graft to prevent it wearing through the outer conjunctival layer and to prevent infection getting into the eye. The patch graft is tissue taken from the healthy eye of a person who has died (the donor) and is transplanted onto your eye. Permission to use the tissue has been given by the deceased prior to death, or more usually by the family. The patch graft of donor tissue is either sclera (white of the eye) or cornea (the clear window of the eye) or more commonly tissue taken from the pericardium (lining of the heart) which is treated and sterile.

As a routine, the drainage of the tube is initially limited until some natural healing occurs around the plate. This prevents initial over-drainage of fluid and problems from this. The tube may be tied with a stitch which dissolves after a few weeks, additionally a thread is left partly blocking the tube that can be removed at a later date if further fluid drainage is needed. The surgery is usually carried out under a general anaesthetic but this will be discussed with you prior to your admission to hospital.

## How successful is glaucoma drainage tube surgery at lowering intra-ocular pressure?

Audits and studies on the success of drainage tube surgery show it is very effective in lowering pressure. In the tube versus trabeculectomy study only 4% had failed at 1 year and 15% at 3 years although some patients required additional eye drops to lower the pressure to the desired level. A blockage of the tube in the eye or too much scarring around the drainage plate can limit the success of the operation.

## Are there any risks associated with drainage tube surgery?

As with any surgery, there is the potential for complications or problems to arise. Complications can occur during surgery, shortly after surgery or many months after surgery.

### Complications that can occur:

- The most serious problem that can occur is bleeding inside the eye. This can lead to loss of vision and even blindness but occurs in less than 1 in 1,000 patients.
- An infection inside the eye can be very serious and can also cause loss of vision or blindness. This happens in less than 1 in 1,000 patients.
- After the operation the eye pressure could be too high or too low. Initially it is likely that your glaucoma medications will need to be taken until drainage from the tube occurs. Your doctor will advise you whether you need to continue with your glaucoma eye drops. Initially these are often stopped in the operated eye, but you should continue if you are using drops in the other eye. You may require additional treatment or adjustments in the out-patient clinic or sometimes further surgery is required. There is a small risk of the pressure going too low when the tube does drain and this can cause a reduction in vision.
- Inflammation inside the eye can occur and can be treated with eye drops.
- Swelling in the retina can affect your vision but this can usually be treated with eye drops.

- Some patients are aware of the drainage plate under their upper eyelid or that there is slight drooping of the eyelid, but this usually settles down with time.
- Rarely the plate and drainage around it can affect the movement of the eye and cause double vision.
- As your eye settles down and heals you might need a change of glasses, to get your best vision. About 10% of patients notice that their vision is reduced by one line on the eye chart a year after the operation. This is often due to cataract formation which can be corrected by surgery.

## The use of antimetabolites (anti-scarring drugs)

Antimetabolites are medications that prevent scar tissue forming. If your doctor is concerned that excess scarring could occur and limit the success of your operation, then the use of these medications can limit this process and enhance success. The most commonly used antimetabolite is Mitomycin C (MMC). This can be used at the time of surgery.

## The use of donor tissue

The medical history of the donor is very carefully checked to exclude the following conditions: Rabies, Creutzfeldt-Jakob disease (CJD) and diseases of the nervous system of unknown cause. A blood sample is taken from all donors for testing to exclude infectious diseases like Hepatitis B, Hepatitis C, HIV and the Aids virus. The donor tissue is also very carefully examined to reduce the risk of infection from bacteria and fungi. As a result of all of these checks the risk is very small. However, because of this minimal risk, once you have had a transplant of donor tissue such as a patch graft, then you will not be able to be a blood or organ donor for the rest of your life.

## Before your operation

You should continue any eye drops and tablets for your glaucoma as prescribed, until the time of your surgery, unless directed otherwise. If you take any blood thinning medicines, for example Warfarin please discuss this with your doctor or nurse in clinic as this might need adjusting prior to your operation at your pre-assessment appointment. For this appointment, please bring with you an up-to-date list of your current medications and a brief summary of your medical history, available from your GP if you are unsure. Any investigations, for example blood tests or ECG (heart trace), will also be undertaken as appropriate. If you are due to have a general anaesthetic, you will receive instructions from the hospital about starving prior to the operation.

## After your operation

Immediately after your operation your eye will be covered by a protective plastic shield. Eye drops are not usually required in your operated eye until the day after surgery. Any eye drops that you use in your other eye must be continued as normal.

The morning after your operation you can remove the protective eye shield and you will only need to wear this at bedtime, usually for the first 2 weeks but the doctor will confirm in the follow up clinic. You will need to clean your eye and the information about this will be given to you as you go home. The post-operative eye drops will be started. The eye drops you will need to use in your operated eye will be **additional to or different from** the drops that you used before your operation. Drops will need to be used for approximately 3 months after your operation. Each time you attend the out-patient clinic any changes to your eye drops will be discussed with you. If you are running out of the drops you must obtain a repeat prescription for them from your own general practitioner (GP).

## Post-operative visits

Your intra-ocular pressure can fluctuate widely in the first few weeks after surgery. During the first few weeks you will need to attend the out-patient clinic frequently for close monitoring, initially this may be on a weekly basis, rarely more frequently. It is very important that you attend all your clinic appointments and use your eye drops as prescribed.

## Activities after drainage tube surgery

Following surgery, you are able to read and watch television as normal as these activities will not harm your eye. It is, however, important to avoid strenuous activity during the first few weeks after surgery. The following table is a general guide but can be altered depending upon how each individual's eye recovers.

Activity	Avoid For
Hair Washing	No need to avoid but a back wash is advised to avoid getting shampoo into your eye. It might be easier to have someone else to wash your hair for you.
Showering and bathing	No need to avoid but don't allow soapy/dirty water to go into eye.
Sleeping	Try to sleep on your un-operated side. Tape the plastic eye shield provided over your eye every night for 2 weeks to avoid accidentally rubbing your eye whilst asleep.
Walking	No restrictions
Wearing glasses	No restrictions. Avoid buying new glasses for 2-3 months after surgery

	as your glasses prescription can change during this time as your eye heals.
Wearing Sunglasses	Wear for comfort if your eye feels sensitive to light and wear sunglasses in bright sunlight with UV protection.
Wearing contact lenses	Should not be worn in the immediate post-operative period, but may be worn in longer term, after discussion with your consultant team.
Driving	This is dependent on your vision in both eyes and you will be advised at clinic.
Flying	No restrictions.
Going away on holiday	Discuss with your doctor/nurse as it is very important to attend your follow-up appointments.
Wearing eye makeup	Avoid for 1 month then use new makeup. Never share eye makeup with someone.
Household chores e.g. cleaning, ironing, vacuuming	Avoid for 1-2 weeks but this depends upon your intra-ocular pressure.
Sexual Activity	Avoid for 1-2 weeks
Gym workout	Avoid for 3 months
Playing sports e.g. football, tennis, golf, squash, rugby	Avoid for 3 months.
Running/jogging	Avoid for 3 months
Swimming	Avoid until all your stitches have been removed, approximately 3 months then after that wear goggles whenever swimming.

It is most important that you do not bump, rub or press on your eye after surgery.

## Returning to work

The length of time you will need off work depends upon a number of factors such as: the nature of your job, your vision and the intra-ocular pressure in your operated eye. Most people need 1–2 weeks off after surgery. If your job involves heavy manual work or you work in a particularly dusty/dirty environment, you might require longer off. This can be discussed at any clinic visit. You might need to make your employer aware of your need to attend for frequent follow up appointments after surgery. A self-certifying sick note is required for the first 7 days of absence and is available from your employer or GP, **not** from the hospital. After the first 7 days a medical fit note is required and is available from your GP or hospital doctor.

## Contact information

The information in this leaflet is intended as a guide only, as each patient's experience will be different. If you require any further information or advice, please contact a member of staff on the telephone numbers below.

Do not wait until your next appointment, but contact us immediately, if you have any urgent symptoms such as:

- Increased redness of your eye
- Vision disturbance such as double vision or loss of vision
- Increasing pain

Glaucoma Specialist Nurses (0161) 701 4819 or via switchboard (0161) 276 1234 bleep 1976 available Monday – Friday hours may vary.

Consultant secretaries available Monday – Friday 9.00am – 4.00pm

Miss Fenerty's secretary (0161) 276 5582

Mr Au's secretary (0161) 276 8957

Mr Yau's secretary (0161) 701 5915

Mr Yu secretary (0161) 701 5915

Ms Tacea's secretary (0161) 276 8957

Any of the above numbers could be answer phones at certain times. Your call will be returned but this might not always be the same day.

If you require emergency treatment, you can contact the Emergency Eye Department which is open from 8.00am to 8.00pm every day. Outside of these hours please contact Ward 55 open 24 hours every day. These departments can be contacted via the hospital switchboard on (0161) 276 1234 asking to be put through to the Emergency Eye Department or the ward.

If you have an enquiry regarding your appointment, please contact the appointment booking team:

- Adult glaucoma appointments (0161) 276 5533 (option 1) available Monday – Friday 9.00am – 4.00pm.