

Trabeculectomy (Glaucoma Drainage) Surgery

Information for Patients

Royal Gwent Hospital Glaucoma Service

You may have been told that you would benefit from an operation to control the pressure within your eye. This operation is called a trabeculectomy (“tra-beck-you-leck-tomy”). Trabeculectomy surgery is recommended in patients whose glaucoma worsens despite using eye drops and/or having had glaucoma laser treatment.

In glaucoma, the eye pressure is too high, which damages the optic nerve varying visual information from your eyes to your brain. The goal of trabeculectomy surgery is to lower eye pressure. If your eye pressure remains high, further irreversible loss of vision can occur. This operation will not cure glaucoma or restore vision lost by glaucoma. Instead, it aims to prevent or slow further loss of vision.

What is a trabeculectomy?

A trabeculectomy is an operation to create an alternative drainage channel within the eye, helping the fluid of the eye to drain from the eye. This operation creates a bypass through the blocked natural drain of the eye (the trabecular meshwork). The eye pressure is lowered as fluid drains more easily.

How is trabeculectomy surgery performed?

During the operation, a small trapdoor is made in the wall of the eye (sclera). Under this, a new drainage channel is created which drains fluid from the front chamber of the eye (anterior chamber) to a “filtering bleb” which is a reservoir covered by the natural outer membranes of the eye (conjunctiva and tenons) and protected by the upper eyelid. Fluid in the bleb is gradually absorbed by the body.

To allow better control of the eye pressure after surgery, sutures are used to control the amount of flow through the drainage channel. Usually, 3 releasable sutures are used: these allow adjustment and closer control of eye pressure, by allowing loosening or removal of sutures if needed in clinic.

Most people have the surgery performed under local anaesthetic, meaning you are awake but your eye is numb so you will not feel anything. Occasionally, a general anaesthetic may be used. A trabeculectomy can take an hour or more, during which time you will need to lie relatively flat. After surgery an eye pad and shield are placed over the eye which will stay in place until removed the next day.

What are the benefits of trabeculectomy surgery?

Trabeculectomy is recognised as the “gold-standard” glaucoma surgical procedure, and is generally the one most likely to achieve significant pressure reduction and glaucoma control. However, it is not the best surgical procedure in every individual and circumstance.

Factors found to reduce the success of trabeculectomy include:

- Young age
- Certain eye drops, particularly with multiple drops and longer term use.
- Ethnic minority background
- Uveitis (eye inflammation)
- Previous eye surgery
- Rubeotic glaucoma (where abnormal blood vessels grow over the iris)
- Diabetes

The use of antimetabolites (anti-scarring drugs)

The most common reason for trabeculectomy failure is the body’s natural reaction after surgery to cause scarring and healing of the newly created drainage channel. Risk factors mentioned earlier influence this process.

Antimetabolites are medicines that prevent scarring. The most commonly used are Mitomycin C (MMC) and 5 fluorouracil (5FU). MMC is normally applied to the operated eye during surgery. Occasionally, 5FU may be given after surgery in clinic

by the doctor, as an injection around the drainage bleb. This will be discussed with you if you require this treatment.

Risks of trabeculectomy surgery

As with any surgery, there is the risk that a complication may arise. This may occur during the surgery, shortly after the surgery, or many months later. This risk should always be weighed against the risk of alternatives (including no surgery or an alternative procedure).

Complications that can occur:

- Bleeding inside the eye (choroidal haemorrhage): this is the most serious complication that can occur during or shortly after surgery. It can cause loss of vision or blindness, but occurs in less than 1 in 1000 cases.
- Infection: this can be very serious and also cause loss of vision or blindness. It occurs in less than 1 in 1000 cases.
- Eye pressure that is too high or too low: higher-than-ideal pressure is common at early postoperative visits and can usually be controlled by loosening or removing releasable sutures. Sometimes, further surgery can be required if the pressure is too low or too high.
- Inflammation inside the eye (uveitis): this is treated with eye drops.
- Visual changes: As the eye settles and heals, a change of glasses (usually no sooner than 2 months after surgery) can help achieve your best vision. About 10% of people will have a drop in vision of 1 line on the letter chart, as cataract development can be sped up after trabeculectomy surgery.
- Change in eyelid position: trabeculectomy can cause the upper eyelid to droop or rise due to factors including eye drop use, and the drainage bleb. In most cases this settles but some may need surgical correction.

Are there any alternatives?

Your doctor will consider your individual condition and circumstances when discussing and making recommendations about available options to best manage your glaucoma. Some alternatives that may be considered and discussed include:

- Surgery with implantation of a glaucoma tube drainage device (the Paul Tube): this can offer comparable pressure lowering result to a trabeculectomy, and is a good alternative in certain individuals (including contact lens wearers).
- Surgery with the Preserflo Microshunt. This is a shunt device that creates a bleb similar to that of a trabeculectomy, but is a shorter operation. It is also a good alternative in certain individuals (including those unable to attend for weekly postoperative reviews).
- Cataract surgery +/- minimally-invasive glaucoma surgery (MIGS): this can be suitable if you have both glaucoma and a cataract but don't require urgent surgery for glaucoma: cataract surgery can lower eye pressure to a small degree, and can be combined with a MIGS procedure with added pressure-lowering effect, such as the Hydrus stent.
- Potential non-surgical alternatives include cyclodiode or micropulse laser (laser procedures applied from the outside of the eye under local anaesthetic).
- Rarely, long-term treatment with tablet medication (acetazolamide) may be suggested to control eye pressure and avoid surgery. However, this is usually avoided as many people experience side-effects from this medication and it can affect kidney function.

Before your operation

You should continue any eye drops and tablets prescribed for your glaucoma until the time of surgery, unless advised otherwise. If you use blood thinning medicines

such as warfarin, it is important to tell the doctor or nurse in clinic, as these may need adjusting before your surgery.

You will be asked to attend a pre-operative appointment. Please bring an up to date list of current medications, and a summary of your medical history from your GP if you are unsure of this.

After your operation

Immediately after surgery, the eye will be covered by a pad and clear shield. Usually you do not need to start eye drops in the operated eye until the day after surgery. Glaucoma tablets and any glaucoma drops used in the operated eye should be **stopped**. Any drops you are using to the other eye **must** continue as before.

The morning after surgery your protective eye shield and pad will be removed, your eye will be cleaned, and you will be examined. You will start new eye drops (antibiotic, steroid, and a pupil dilating drop). These are **different** from the drops used in the operated eye before surgery. If you are running out of drops you must obtain a repeat prescription from your own GP.

Postoperative visits

The success of trabeculectomy depends on the rate and extent of healing. It is normal for eye pressure to vary in the first weeks after surgery. Frequent follow-up visits, initially weekly, are necessary to monitor you and maximise the chance of success after a trabeculectomy.

There are many adjustments that can be necessary to maximise the success of your surgery. This could involve change to eye drops, adjustment or removal of releasable stiches, or injection of anti-scarring medication. **For these reasons it is very important that you attend all your clinic appointments and use your eye drops as prescribed.**

Activities after trabeculectomy surgery

Following surgery you can continue to read, carry out screen work and watch television as normal: these activities will not harm the eye. It is important to avoid strenuous activity during the first few weeks after surgery. The following table is a general guide to “do’s and don’ts”. If in doubt please ask the doctor or nurse in clinic.

Activity	Advice
Showering and bathing	Continue, but don't allow soapy or dirty water to do into your eye.
Hair washing	Don't avoid, but back wash advised to avoid shampoo getting in your eye. It may be easiest to have help.
Sleeping	Try to sleep on your un-operated side. Tape the plastic eye shield provided over your eye every night for the first 2 weeks to avoid accidentally rubbing your eye during sleep.
Walking	No restrictions.
Wearing glasses	No restrictions. Avoid buying new glasses for 2-3 months after surgery as your prescription can change as your eye heals.
Wearing sunglasses	Wear for comfort if your eye feels sensitive.
Wearing contact lenses	Cannot be worn due to the bleb.
Driving	This is dependent on vision in both eyes and you will be advised in 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 make-up	Avoid 1 month then use new make-up. Never share eye make-up with someone else.
Household chores	Avoid for 1-2 weeks, but this depends on your eye pressure.
Sexual activity	Avoid for 1-2 weeks.
Gym workout	Avoid for 3 months.
Playing sports	Avoid for 3 months.
Running/ jogging	Avoid for 3 months.
Swimming	Avoid until all your stitches are removed, start approximately 3 months after then, wearing goggles.

Returning to work

The length of time you will need off work depends on many factors. These include the nature of your job, your vision and eye pressure, and your ability to regularly apply eye drops at work. Most people require 1-2 weeks off work. If you work in a dirty/ dusty environment or your work involves heavy manual labour you may require longer off. This can be discussed with your doctor.

A self-certifying sick note is required for the first seven days of absence and is available from your employer or GP, not the hospital. After the first seven days a sick note is required and is available from your GP or hospital doctor.

Contact Information

Do not wait until your next appointment but contact us immediately, if you have:

- Worsening eye redness
- Loss of vision
- Increasing pain.

If you require further information or advice, please contact Mr Kirk's secretary:
01633 656279

For urgent medical queries you can contact the Emergency Eye Department: 01633 238856.

For appointment enquiries, you can contact the Booking Office: 01495 767055.