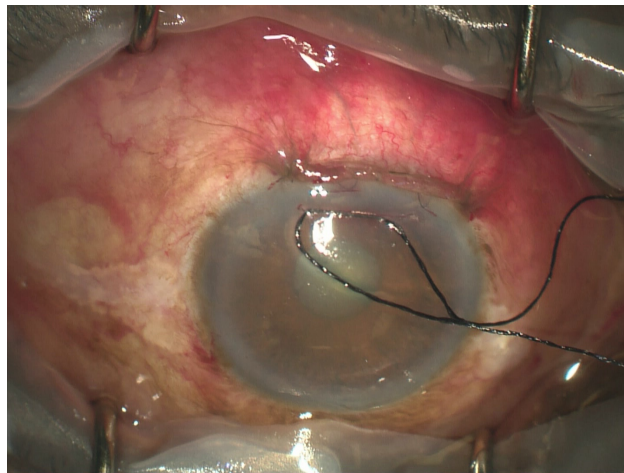


TRABECULECTOMY

Information for patients



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What is a trabeculectomy?

A trabeculectomy is a surgical operation that lowers the pressure inside the eye. It is very effective at lowering the pressure for patients with glaucoma where drops and/or laser are not effective.

Under the upper eyelid, a small half thickness trap-door (or flap) is made in the wall of the eye (the sclera). A small hole is made through the remaining bottom half thickness of the sclera into the eye. The trap-door covering this hole is then stitched to ensure the fluid does not drain too quickly.

The fluid slowly travels out from under the trapdoor, and forms a small reservoir (or bleb) just under the outer 'skin' of the eye (the conjunctiva). This fluid filled area is usually hidden and protected by the upper eyelid.

Note that the fluid inside the eye is not related to fluid outside the eye. Watering of the eyes relates to tears, not internal eye fluid.

A trabeculectomy operation reduces the pressure in the eye and usually prevents further damage and further loss of vision in glaucoma. Unfortunately it can not restore vision already lost from glaucoma.

Medication Prior to Surgery

Patients should continue all of their regular eye drops and tablets until the morning of the operation. Blood thinning medications such as Aspirin, Warfarin or Clopidogrel should also be continued. Patients who are taking Warfarin are advised to have their level (eg. INR) checked at least 2 weeks prior to surgery to ensure it is at the right level.

If patients chose to have surgery under general anaesthesia, a preoperative assessment of their general health will be carried out just before surgery. Underlying medical conditions including cardiac disease,

uncontrolled high blood pressure or diabetes will need to be addressed prior to scheduling of surgery.

The surgery itself

During the surgery the patient will either be asleep (general anaesthetic) or only the eye will be asleep (local anaesthetic). While the patient may be aware of the surgeon working around them, there should not be any pain, and if there is, further anaesthetic can be given.

A sterile drape is placed over the patients face and eye to keep the operation site sterile and minimise the chance of infection. The surgery normally takes about 45 minutes but depends on the individual patient.

Mitomycin C

The bodies natural response to the creation of a new drainage area for fluid is to try and heal, this can lead to scarring. One technique to minimise this is to briefly apply a strong anti-scarring medication during the operation. Mitomycin C is the most commonly used medication: this is usually placed for about 3 minutes during the operation and then washed away with sterile water so that no residual drug remains.

After surgery

Postoperative care: the day of surgery and the next day

Patients are usually discharged home from hospital the same day, and it is a good idea to have a friend or relative to accompany them home after surgery. The eye is normally padded after surgery and the eye pad is removed the following day. All patients need to be examined one day after surgery.

It is normal for the vision to be blurred and the eye to be uncomfortable after surgery. The period of blurring is variable. The vision may be

particularly blurred for 1-2 weeks following surgery, and then start to improve. It can take 2-3 months for the eye to feel completely normal and the vision to stabilise completely.

The patient will also be asked to wear a shield at night for the first 2 weeks or so; this is to prevent any accidental harm to the operative site whilst sleeping.

Soreness in the eye after surgery is partly due to the surgery itself, and partly due to the stitches. The stitches do not dissolve and are usually removed in the clinic 2 to 3 weeks after surgery – this is a quick painless procedure done by the doctor in the clinic. The eye usually starts to feel more comfortable after the sutures have been removed.

Eye appearance after surgery

Initially the eye will be red and swollen to a variable degree, the eyelid may also droop partially. This usually resolves over a period of weeks to months.

The drainage bleb is not usually visible to the naked eye after the trabeculectomy operation. The bleb may, however, be seen if the patient looks in the mirror and raises the upper eyelid.

After surgery, most patients feel no sensation from the presence of the drainage bleb. Rarely, patients are aware of the drainage bleb, and steps can be taken to improve this.

Eye drops after surgery

Eye drops will be prescribed to use regularly after surgery. These will start the first day after surgery, after the first post-operative examination. It is not usually necessary to use eye drops the first night after the surgery. Diamox (acetazolamide) tablets or any glaucoma drops to the operated eye should also be stopped the night after surgery unless advised otherwise.

It is very important that any eye drops for the unoperated eye are continued unless advised otherwise.

The postoperative eye drops include an antibiotic (chloramphenicol) and anti-inflammatory steroid (dexamethasone). The steroid eye drop will initially be used intensively (every 2 hours or about 8 times daily) and the antibiotic four times daily. When drops are prescribed to take intensively after surgery, it is usually intended that they are taken during the day only.

The postoperative eye drops will normally need to be taken for 2 to 3 months in total, this is an important part of preventing the body from scarring at the operation site, and to keep the trabeculectomy working. Patients are advised at each post-operative visit whether a change in the dosage of drops is required. The drops should not be stopped or the dosage changed without consulting the doctor.

Postoperative visits

Patients are usually seen once weekly for the first 4 weeks, and may be seen more frequently if the eye pressure is either too high or too low.

During this time stitches may be removed to adjust the pressure, and additional injections of anti-scarring medications may be given around the eye to counteract the body's natural healing process. The injections are performed after the administration of anaesthetic eyedrops, during the clinic appointment itself.

Activity after Surgery

It is important to avoid strenuous activity during the early post-operative period including swimming, tennis, jogging and contact sports.

Normal reading and watching television will not harm the eye. Bending over can cause significant pain when the eye is still inflamed after surgery, and any head down positions, such as yoga, should be avoided.

As patients will be monitored closely following surgery, it is recommended that they consult their surgeon before commencing strenuous activity. If the eye pressure is very low after surgery it may be recommended to stop all exertion, remaining calm and sedentary until normal eye pressure has been restored.

When can I go back to work?

The duration of time off work will depend on things such as the type of work performed, the level of vision in the other eye, and the pressure in the operated eye.

An average, someone working in an office environment would require 2 weeks off if the postoperative course is smooth. Someone whose occupation involves heavy manual work or work in a dusty environment may require a month or more.

Flying after surgery

Flying is safe after trabeculectomy, however it is important that patients are available for the intensive follow up required after surgery, especially in the first month.

When is the eye back to normal?

In most cases, it takes 2 to 3 months for the eye to feel completely normal, although it can be longer in more complicated cases. After this period it may be necessary to obtain a new refraction (new glasses), and

the surgery can change the shape of the eye and therefore slightly change the strength of the glasses.

Success rates and complications

Success rates

Long-term studies suggest that most people will achieve an appropriately low eye pressure after trabeculectomy surgery. In clinical trials, trabeculectomy has proven consistently more successful at lowering intraocular pressure than either medication or laser. The success rate of trabeculectomy at controlling the pressure varies according to a number of risk factors including the type of glaucoma, previous surgery, race, age and other conditions.

In one study of trabeculectomy success, after 20 years almost 90% still had an adequately controlled eye pressure¹. Just under two thirds of these required no glaucoma drops to control the pressure, whereas one third still required drops.

Complications

Severe complications are rare and may happen either if the eye pressure drops very low or very quickly during the early postoperative period, or if the eye becomes infected.

Low eye pressure after surgery is the biggest risk in the early postoperative period. It is often painless, but can be associated with a dull ache or throbbing of the eye. Patients who notice severe blurring of vision, distortion or a shadow in their peripheral vision should be seen as soon as possible for further assessment.

If your pressure is too low after surgery, further intervention may be required to bring the pressure up again. This could include injection of a gel into the eye, or return to the operating theatre to tighten some of

the stitches. Sometimes just adjusting medications is sufficient to address the low pressure.

A sudden drop in pressure can also result in bleeding at the back of the eye (choroidal haemorrhage). This is a very severe complication, and can lead to permanent vision loss, but fortunately is very rare.

Similarly, the risk of an infection after trabeculectomy is very low, but the consequences can be serious. The risk of serious infection affecting the back of the eye or from trabeculectomy is rare - approximately 1 in 250)².

In addition to the pressure being too low after surgery, it can also be too high. About 5% of trabeculectomy patients require a return to the operating theatre in the first month after surgery for adjustment, either because the pressure is too high or too low.

Longer Term Risks

The longer-term risks of trabeculectomy are infection, discomfort, cataract and change in glasses prescription. Low pressure occasionally develops in the longer term, but generally the risk of low pressure is highest in the early postoperative period rather than later.

Infection: While the risk of infection soon after surgery is rare, there is a very small on-going lifetime risk that the drainage bleb might become infected. Any patient who has previously had a trabeculectomy and develops a red, sticky or painful eye, must have their eye examined immediately by an eye specialist, as this may be the first sign of infection. While infection is rare, it may be very serious and can result in permanent visual loss. The earlier any infection is treated, the better the outcome for the eye.

Discomfort: The drainage bleb may become large and cause irritation. Often this is because of interference with the tear film on the eye

surface, and can create a feeling of discomfort or drying of the eye. This occurs in about 10% of patients and is usually treatable with lubricating eye drops. Occasionally, the discomfort is more severe and requires surgery to make the drainage bleb smaller.

Cataract: In patients who have not had cataract surgery, there is a risk that trabeculectomy may worsen an existing cataract. However, raised eye pressure and glaucoma medications have also been shown to cause cataract in population studies. A large study showed that 3 years after trabeculectomy surgery 12% of patients needed cataract surgery, whereas for patients using drops on 3% needed cataract surgery³.

Changes in glasses prescription: Most patients will require a small change in their glasses prescription after trabeculectomy. This can relate either to a change in astigmatism, or to the change in pressure itself. It is best to wait at least 3 months after the surgery until the eye pressure has stabilised. Rarely, a patient who does not require glasses before surgery develops a need for glasses after surgery.

Glossary of terms

Aqueous humor

The fluid inside the front section of the eye. This fluid is made by a part of the eye called the ciliary body. It normally flows out through the main drain called the trabecular meshwork. The fluid inside the eye is a completely different fluid to that outside the eye – tearing and watering of the eyes is not related to the fluid inside the eye.

Conjunctiva

The thin transparent layer of skin covering the surface of the white of the eye.

Cornea

The transparent tissue at the front of the eye through which light first passes when it arrives at the eye.

Intraocular pressure

The pressure inside the eye. In glaucoma, the main treatment is to lower the intraocular pressure. This is measured in units of mmHg (millimetres of mercury).

Optic nerve

The main nerve connecting the eye to the brain. Glaucoma is a disease where there is progressive damage to the optic nerve. The optic nerve carries all of the visual impulses from the eye.

Sclera

The wall of the eyeball. This is seen from the front as the white of the eye.

Acknowledgements

This information sheet is based on that provided to patients by Mr Keith Barton, consultant ophthalmologist at Moorfields Eye Hospital in London.

Disclaimer

While every effort has been made to ensure this information is accurate and up to date, its correctness and completeness cannot be guaranteed. The information provided in this information sheet is designed as an adjunct to, and not a substitute for professional healthcare advice, by a qualified doctor or other healthcare professional, which will be tailored to a patient's individual circumstances. Mitchell Lawlor cannot take responsibility if you rely solely on the information in this information sheet.

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