

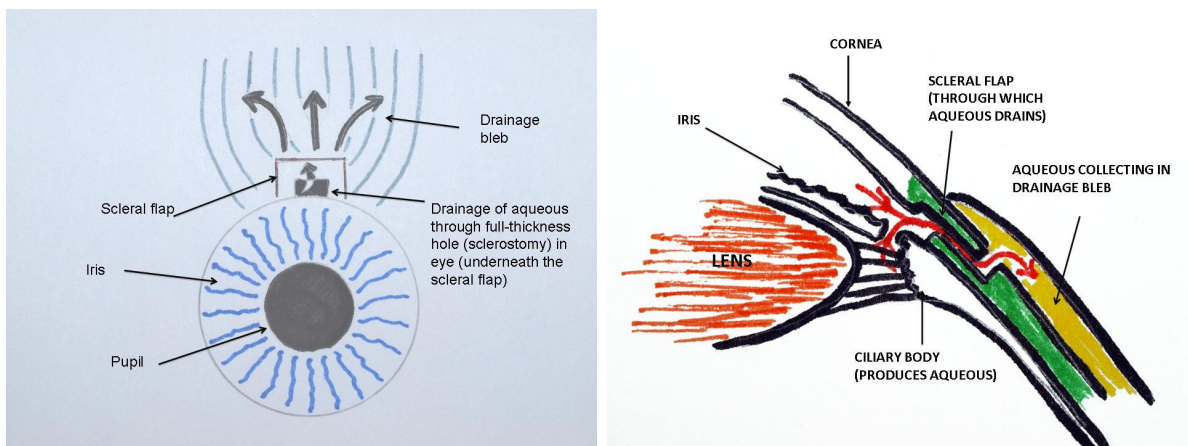
Trabeculectomy

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Introduction

Trabeculectomy is a surgical operation that lowers the pressure inside the eye (intraocular pressure) in patients with glaucoma. This is achieved by making a small hole in the eye underneath a thin trap-door of sclera (wall of the eye). Aqueous humour (the watery fluid inside the eye) drains through the trap-door to collect in a small blister or 'bleb' covered by conjunctiva just under the eyelid (see below). The trap-door is stitched in a way which, ideally, prevents aqueous humour from draining too quickly or too slowly.



Draining the aqueous humour reduces the pressure on the optic nerve that causes loss of vision in glaucoma.

The purpose of lowering the intraocular pressure is to prevent further loss of vision. Control of the eye pressure with a trabeculectomy operation will not restore vision already lost from glaucoma.

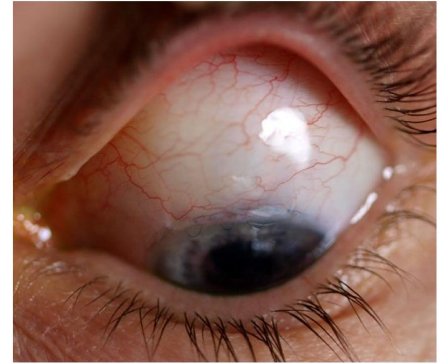
What is the appearance of the eye after a trabeculectomy?

Initially after surgery, the eye will usually be red, and the upper lid may be swollen and a little droopy. This will return to normal slowly over a period of weeks to months.

Trabeculectomy bleb

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

It is uncommon for patients to feel any sensation from the presence of the drainage bleb.



What does the surgery involve?

The operation typically takes 30 – 45 minutes and may be performed under either local or general anaesthesia, depending on the complexity of the case and other factors.

Adjunctive Mitomycin C is nearly always also used to prevent excessive healing after surgery, thereby increasing the likelihood of a successful outcome.

Mitomycin C is a cytotoxic liquid agent (anti-cancer drug) that is applied to the surface of the eye for a brief period of time (typically up to 3 minutes) in order to reduce scarring. At the end of the application, it is washed away from the eye with a large volume of fluid so that no residual drug remains at the end of the operation.

What happens after the operation?

The day of surgery and the next day

You will usually be discharged home from hospital later the same day after surgery, or the following day. It is usually necessary for the operated eye to be examined again one day after surgery.

The eye will have a patch on after the operation, which is removed the following day.

What should I expect to feel during the post-operative period?

It is normal for the vision to be blurred and the eye to be a little uncomfortable after surgery. Blurring of vision will be variable in severity and lasts for approximately 4 weeks. It takes about 2 months for the eye to feel completely normal and the vision to stabilise.

Eye drops

It is important to continue any eye drops to the unoperated eye unless advised otherwise.

Post-operative eye drops should be started the day after surgery after removal of the eye patch and cleaning of the eye. It is very important that these are used as prescribed.

There are typically 3 different post-operative drops:

1. An antibiotic eg. chloramphenicol, four times daily for one month
2. An anti-inflammatory steroid eg. prednisolone, every 2 hours (8x/day) reducing in frequency over 2-3 months.
3. A drop to make the pupil larger eg. atropine, twice daily for 3 weeks.

Post-operative visits to clinic

After trabeculectomy, the patient is usually examined in clinic once weekly for approximately the first month, with visits reducing in frequency after that. Sometimes visits may be more frequent if the eye pressure is too high, too low, or fluctuating markedly. During this time sutures may be removed to adjust the pressure and/or injections of a drug called 5-Fluorouracil are given around the eye to counteract scarring.

Activity after trabeculectomy

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

It is permissible to watch television and read as this will not harm the eye.

If the intraocular pressure is very low after surgery, the doctor may ask you to refrain from all exertion and remain sedentary until the pressure is restored.

When can I go back to work?

The duration of time off work will depend on a number of factors such as the nature of the patient's employment, the state of the vision in the other eye, and the intraocular pressure in the operated eye.

Typically, someone working in an office environment would require 2 weeks off, if the post-operative course is smooth.

Someone whose occupation involves heavy manual work, or work in a dusty environment will require longer (eg builders, farmers).

When is the eye back to normal?

It takes 2 to 3 months for the eye to feel completely normal in most cases, and sometimes longer in a more complicated case. At that point, the patient will usually be advised to have a vision test, as their glasses prescription may be different than before surgery.

Success rates and complications

Success rates

Long-term studies suggest that most people will achieve a low eye pressure without the need for additional glaucoma medication 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 low risk patients, the success rate is over 90%.

A small percentage of patients will require further surgery for uncontrolled pressure.

Uncommonly, a patient will develop a pressure that is chronically too low, requiring further surgery to elevate the pressure.

Complications

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

Low pressure

Very low eye pressure is the biggest risk in the early post-operative period. Very low pressure, or a precipitous drop in pressure, can result in a choroidal haemorrhage, which is a very severe complication.

In order to ensure that this does not happen, the surgeon may suggest further intervention if the pressure becomes very low. Such intervention may consist of a return to the operating theatre to have the trap-door sutures tightened. Sometimes the surgeon will inject a *viscoelastic* gel and wait to observe the result before deciding on further adjustment of the trap-door sutures, as often the eye pressure will stabilise by itself. Sometimes a simple adjustment of medication is sufficient, in which case, neither of the above will be required.

Infection

The risk of serious infection inside the eye is rare (approximately 1 in 1000).

Longer-term risks

The longer-term hazards 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 post-operative period rather than later.

Infection

While the risk of infection after surgery is rare, there is a very small ongoing risk that the drainage bleb might become infected.

If a patient who has had a trabeculectomy subsequently develops a red eye or episode of conjunctivitis, it is important to have the eye examined by an ophthalmologist. While infection is rare, it may be very serious.

Discomfort

The drainage bleb may become large or lumpy. Occasionally this may extend below the eyelid or cause the eyelid to be raised or droopy. While changes in the eyelid level can occur, they are very uncommon.

A lumpy or large drainage bleb more commonly causes interference with the tear film on the eye surface and a feeling of discomfort or drying of the eye. This occurs in about 5% of patients. Treatment, if required, is with lubricating eye drops. Occasionally the discomfort is more severe, requiring surgery to make the drainage bleb smaller.

Cataract

In patients who have not had cataract surgery, there is a small risk that trabeculectomy may worsen an existing cataract.

Raised eye pressure and glaucoma medications both cause cataract to some degree anyway. In one large study, the likelihood of needing cataract surgery within 3 years of a trabeculectomy operation was 12%. This compares with just under 3% in those treated with glaucoma medication, but who did not have a trabeculectomy.

Astigmatism and other changes in glasses prescription

Most patients require a small change in their glasses prescription after trabeculectomy. This is not usually performed until around 2-3 months after surgery as the prescription may continue to change up until that time.

Rarely, a patient who does not require glasses before surgery develops a need for glasses after surgery.

Glossary

Aqueous humour

Fluid inside the front portion of the eye. This fluid is pumped into the eye by tissue called the ciliary body, and normally escapes via drainage channels called the 'trabecular meshwork'. This fluid is nothing to do with the tears and excessive tearing does not mean that the aqueous humour is draining well.

Conjunctiva

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

Cornea

Transparent tissue at the front of the eye in front of the iris and lens.

Intraocular pressure

Pressure of the aqueous humour within the eye. This is measured in units known as mmHg (millimetres of mercury).

Optic nerve

The large nerve connecting the eye to the brain. The optic nerve carries all of the visual impulses from the eye. These are then translated by the brain into the images that we see. Without the optic nerves, we would be unable to see.

PALS

The Patient Advice and Liaison Service (PALS) ensures that the NHS listens to patients, relatives, carers and friends, answers questions and resolves concerns as quickly as possible. If you have a query or concern call 01271 314090 or email ndht.pals@nhs.net. You can also visit the PALS and Information Centre in person at North Devon District Hospital, Barnstaple.

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