

# Trabeculectomy Surgery

## Patient Information Leaflet

**You have been given this leaflet because your eye doctor has recommended that you have an operation called Trabeculectomy to control your Glaucoma. This leaflet provides information about your condition and the operation. If you have any questions about the information in this leaflet, ask your eye doctor or nurse.**

### **What is Glaucoma?**

Glaucoma is a condition which causes damage to the nerve behind the eye (the optic nerve) that carries visual signals to the brain and if left untreated can lead to severe visual loss or even blindness. This damage is caused by the pressure inside the eye (intraocular pressure). This pressure inside the eye is caused by the buildup of fluid (the aqueous) inside the eye. Aqueous builds up due to blockade of draining channels or occasionally due to a narrow door from where the fluid leaves the inside of the eye. Glaucoma is a common condition affecting around 60-70million people worldwide and around half a million people in the England.

### **What is a Trabeculectomy?**

A Trabeculectomy is a surgical drainage operation for glaucoma to lower the pressure inside the eye. A channel is created under a trap door to allow the aqueous fluid to gradually drain into a space within the layers of the eye ball under the upper lid where it is safely absorbed away by the body. As with any surgical operation, there are both benefits and risks and these are discussed in this leaflet.

### **Why do I need this operation? (Indication and Benefits)**

There is currently no cure for glaucoma, treatment focuses on reducing the pressure inside the eye to slow down the damage to the optic nerve and preserve vision. Uncontrolled Glaucoma can lead to blindness. It is one of the leading causes of preventable blindness.

Medications (usually eye drops) can be used to control the pressure inside the eye however these can become ineffective over time. In some patients eye drops are completely unsuitable. National Institute of Clinical Excellence (NICE) guidelines on glaucoma recommend use of up to two eye drops to control the eye pressure and then to consider drainage surgery if the pressure is not adequately controlled. NICE also recommends trabeculectomy surgery in those with advanced glaucoma at presentation.

A Trabeculectomy allows the aqueous humor to drain from the eye reducing the pressure inside. A successful Trabeculectomy can stop or reduce dependence on further eye drops for glaucoma. The aim of the surgery is to lower the intraocular pressure to slow the damage to the optic nerve and preserve the remaining vision. **Any vision already lost due to glaucoma cannot be restored.**

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## What are the Risks?

As with any operation there are potential complications which can occur during or after the operation. In around 5-10% cases another operation is needed to correct high or low pressure soon after Trabeculectomy surgery.

### Bleeding in the eye

Bleeding inside the back of the eye (called suprachoroidal haemorrhage) is uncommon but if severe it can lead to complete loss of sight and/or eye. This is different from bleeding under the white of the eye (called subconjunctival haemorrhage) which is present in almost all cases and settles over a few weeks. Occasionally bleeding occurs inside the front of the eye (called hyphema) and this settles over days to a few weeks as well.

### Infection of the eye

An infection can affect part of the eye or the entire eye. Serious infections can also cause loss of vision or blindness. This can happen immediately or many years after surgery but is uncommon and in most cases, especially if caught early, can be effectively treated by antibiotics given as drops, tablets or as an injection inside the eye.

### High pressure inside the eye

Early or late increase of pressure inside the eye can occur. Multiple deep stitches are taken during the operation to prevent excessive low pressure after surgery. These are then gradually adjusted or removed in the clinic on the slit lamp to achieve the desired pressure. As healing occurs sometimes injections of anti-scarring agents are given in the clinic to prevent excessive scarring and keep the eye pressure at desired level. In some cases glaucoma medications and/or another operation is needed to control the pressure.

### Low pressure inside the eye

Occasionally a massive drop in pressure occurs after the operation. Persistent low eye pressure increases the risk of reduced vision and a bleed inside the eye. This often corrects itself as the healing process occurs and can be helped by a gel injection in the front of the eye in the clinic. Occasionally it requires another operation to correct.

### Irritation or discomfort

Patients feel irritation in the eye after the operation that usually settles down with time as the healing occurs and drops are used after the operation. If the eye is painful immediately after the operation then simple painkillers can help.

### Decreased vision or Loss of vision

It is common for the vision to be slightly blurred after the operation but this settles down with time and fine focusing is again achieved once the glasses are adjusted. Patients with very advanced glaucoma can rarely get loss of vision (called wipeout) after the procedure due to reasons not fully understood. As well as bleeding and infection, swelling or detachment of the retina can also lead to decrease or loss of vision if left untreated.

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### Changes in glasses prescription

It is common for the eye focus to be changed after the Trabeculectomy surgery. Patients wearing glasses may require a change to their prescription after Trabeculectomy. In some cases patients previously not wearing glasses may require glasses for fine focusing. It is advisable to wait 2-3 months after the operation before your eyesight is tested by the optician and the glasses prescription adjusted, as needed.

### Cataract

There is an increased risk of developing or worsening of age related cataract after a Trabeculectomy surgery. However this can be treated by an operation to remove the lens and replace it with an artificial lens. Occasionally the Trabeculectomy surgery becomes less effective after the cataract operation. One large study found that 12% of patients undergoing a Trabeculectomy required a cataract operation within 3 years, compared to 3% in the group receiving glaucoma medication.

## **How successful is this procedure?**

Trabeculectomy is the most commonly performed surgical procedure for glaucoma worldwide. Clinical trials have shown Trabeculectomy to be consistently more successful at lowering the pressure inside the eye than either medication or laser. Trabeculectomy surgery has been around for over 50 years however in recent years it has undergone several modifications to make it safer. The success rate for this operation is affected by a number of different risk factors including age, race, previous medications, previous surgery and the type of glaucoma.

An audit looking at results at Queen Mary's Hospital eye department over 5 years showed that 73% of patients needed no further glaucoma medications (Audit of Trabeculectomy. 2010; A. Hassan, et al). Some patients need additional eye drops to control the pressure adequately and occasionally if this operation fails then another operation can be done to control the pressure. Risk of failure is higher in Afro Caribbeans.

## **Before the operation**

Confirmation of the date and time will be provided to you in a letter. If you are unable to attend the appointment please inform the eye department at the earliest possible opportunity.

You must continue to use your medications for your glaucoma as prescribed up to the operation. Ensure that you have an up to date list of all medications and allergies and bring this with you on the day of the operation. The operation is usually done as a day case and you will need to organize for someone to bring you and take you home after the surgery.

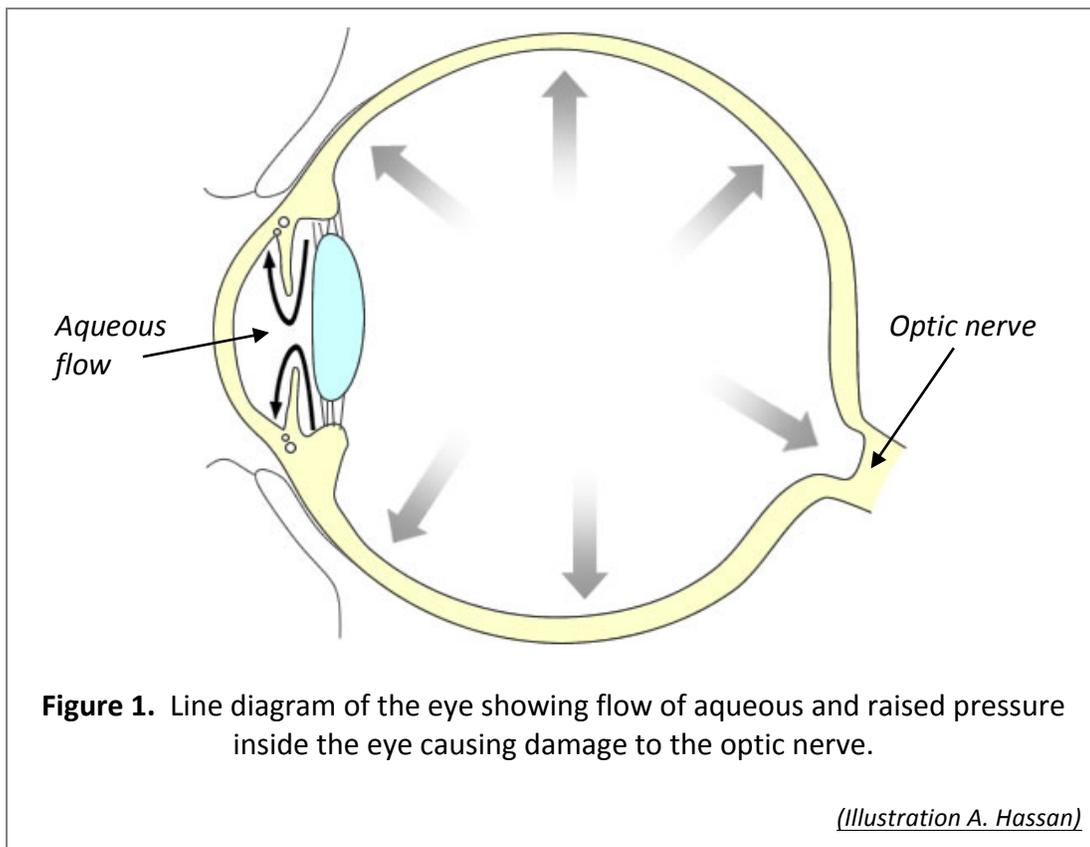
If you are due to have the operation under general anaesthetic or sedation additional information will be provided regarding fasting prior to the operation. Sometimes it becomes necessary to stay overnight after the general anaesthetic or sedation to fully recover from the anaesthetic therefore it is preferable to bring your usual medications, personal effects and a change in clothing.

You may also require additional investigations (e.g. blood tests, chest x-ray) this will be discussed with you by the nurse at the pre operative assessment.

## The operation

The operation takes 40-60 minutes and can be done under local or general anesthetic. Local anaesthetic is given by an injection around the eyeball to numb the eye (called 'sub-tenon's anaesthesia'). Your surgeon will discuss the options best suited to you.

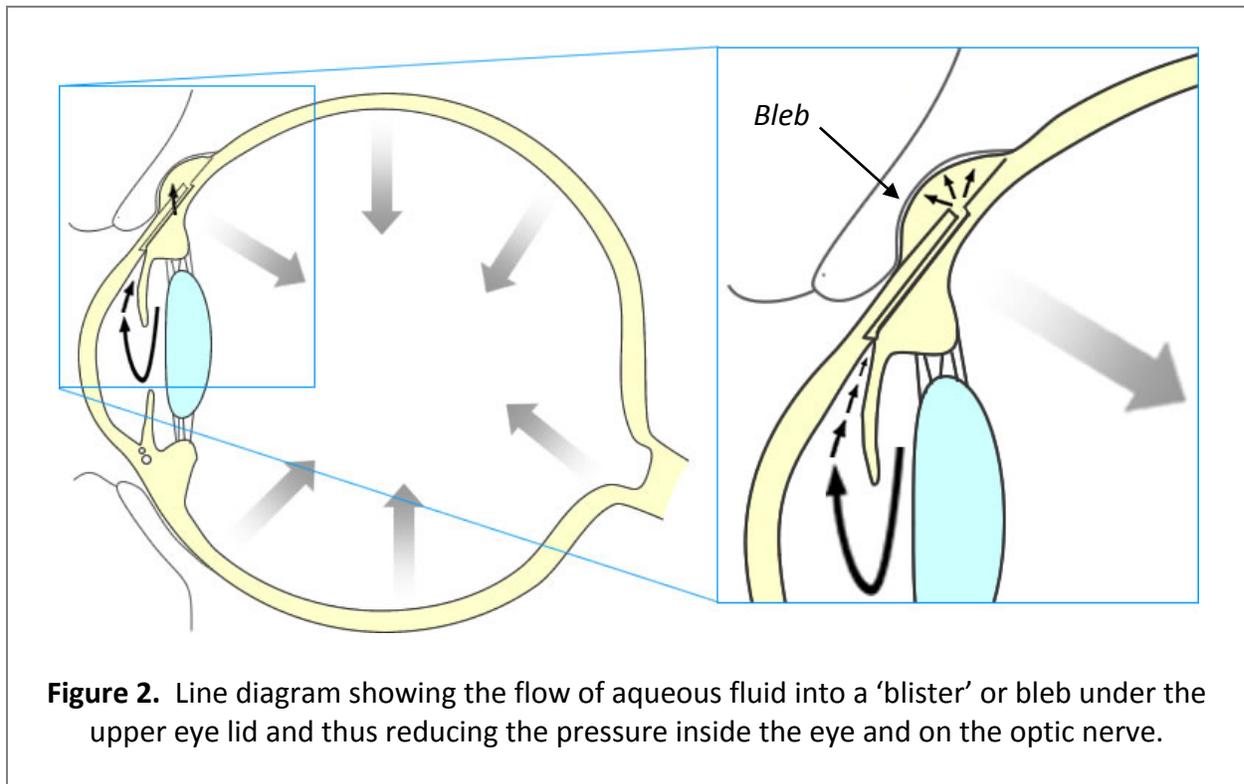
The surgeon creates a small outlet channel on the white part of the eye (the sclera) the aqueous can then drain into a small space between the sclera and surface covering layer (the conjunctiva).



This space fills with the drained aqueous and swells to form a small blister called as a 'bleb'. The bleb is usually hidden by the upper eyelid. Aqueous in the bleb is absorbed away into the blood vessels of the conjunctiva.

### Anti-scarring drugs (anti-metabolites)

As the eye heals after the operation scar tissue can block the aqueous drainage channel, this would result in failure of the operation. If your surgeon thinks you are at high risk of excess scarring then anti-metabolite medication (called MMC or Mitomycin C) that prevents scar tissue formation is applied to the eye during the operation.



**Figure 2.** Line diagram showing the flow of aqueous fluid into a 'blister' or bleb under the upper eye lid and thus reducing the pressure inside the eye and on the optic nerve.

## After the operation (Post operative care)

After the operation your eye will be covered with a patch to protect it. You will spend up to a few hours recovering (depending on the type of anaesthetic given) and you will normally be discharged home the same day. You will be seen in the eye clinic in the outpatients department the next day after the operation when the patch will be removed and your eye examined.

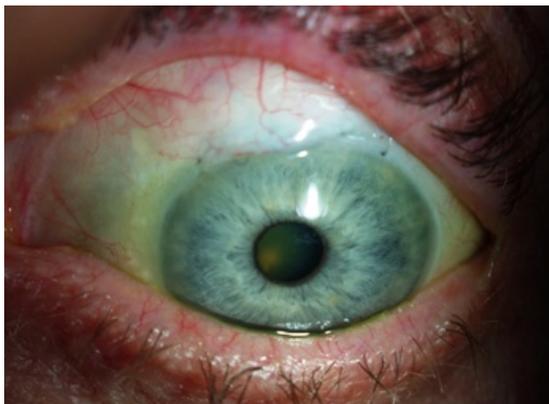
After the patch has been removed you will be given two new eye drops **to use only in the operated eye**. One is an antibiotic called chloramphenicol (to prevent infection). This is to be used 4 times per day for one month. The other drop is a steroid called dexamethasone (to prevent scarring and reduce the inflammation). This is to be used every 2 hourly during the day for the first 2 weeks then 4 times a day for a month and then reduced gradually over the next 3 months after the operation. Your surgeon will tell you how frequently to use these during the clinic visits. If you run out of these drops in between the hospital visits then you need to get more from your GP.

**Eye drops to lower the eye pressure in the operated eye are not normally required immediately after the operation. If you are using eye drops for glaucoma in the other (un-operated) eye it is important to continue using them as before. If you were using tablets called diamox before the operation to control the eye pressure then these are also stopped after the trabeculectomy as they can reduce the eye pressure too low.**

What we do after the operation is equally important to ensure the success and safety of this operation. The

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eye pressure may fluctuate quite markedly after the surgery and will need to be closely monitored over the coming weeks and months. Generally you will be seen the next day after the operation and then weekly for the first four weeks, then monthly for the next 3 months. As the eye settles the frequency of follow-up appointments will decrease.



**Figure 3.** Few weeks after Trabeculectomy surgery upper eye lid lifted to show the 'bleb' under the eyelid. Intraocular pressure of 10mmHg without glaucoma eye drops.

## How will I feel after the operation?

After the operation your eye may feel uncomfortable and your vision blurred, this is normal. It may take several weeks to months before your eye feels completely normal again. The bleb is usually positioned underneath the upper eyelid so will be hidden from view, you may sometimes feel it after the operation or you may notice a slight change in the eyelid position however this usually resolves with time.



**Figure 4.** Another patient, 4 months after Trabeculectomy surgery. Intraocular pressure of 12mmHg without glaucoma eye drops.

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## How will this operation affect my day to day life?

It is important to avoid strenuous activity whilst in the early post-operative phase. The exact timing for resuming normal activities will vary based on how well your eye is recovering.

Below is a guide to daily activities which will be affected by your surgery: -

Activity	
<b>Showering / Hair washing</b>	Ensure no water enters the eye in the first few weeks
<b>Sleeping</b>	Try to sleep on the unoperated side or on the back. Wear the plastic eye shield to avoid inadvertent rubbing for the first 1-2 weeks
<b>Wearing glasses</b>	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.
<b>Contact lenses</b>	May not be able to wear due to the bleb but ask your doctor as depends on the type of contact lens.
<b>Driving</b>	You will be advised in clinic after eye examination as it depends on your vision and fields.
<b>Housework</b>	1 – 2 weeks but this depends upon your intra-ocular pressure
<b>Wearing eye make up</b>	1 month. Use new makeup and do not share with others to minimize infection risk
<b>Going away on holiday</b>	Avoid during 2 month post operative period in order to keep regular follow up appointments
<b>Gym</b>	2-3 months, ask for advice in clinic
<b>Playing sports</b>	2-3 months, ask for advice in clinic

The duration of time off work required depends on a number of factors such as the nature of your job, the state of the vision in the other eye, and the intraocular pressure in the operated eye. Most people need 1–3 weeks off before they can resume working.

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## Contact Information and Further Reading

If you have any further question or would like to discuss the information in this leaflet with someone please contact:-

Mr. Saurabh Goyal  
Consultant Ophthalmic Surgeon  
St. Thomas' Hospital,  
Blackheath Hospital & London Medical.

For Private Patients-  
Telephone: 01689 885072  
Fax: 01689 885074  
E-mail: [info@eyesurgeonlondon.co.uk](mailto:info@eyesurgeonlondon.co.uk)

**For NHS patients-**  
Telephone: 020 7188 2289  
E-mail: [thomas.wright@gstt.nhs.uk](mailto:thomas.wright@gstt.nhs.uk)

For emergencies: St. Thomas' Hospital has a weekday (8.00am-4.00pm) Eye Emergency Unit and out of hours Accident and Emergency.

Eye Emergency reception can be contacted on 020 7188 7188 and ask for eye casualty

***Thank you for reading this information sheet and being better informed about your eye care!***

**This leaflet was written by Dr. Ali Hassan, specialty trainee and  
Mr. Saurabh Goyal, Consultant Ophthalmologist.**

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