Gloucestershire Hospitals
NHS Foundation Trust

Patient Information

Deep sclerectomy treatment

Introduction

This leaflet provides information for patients being offered deep sclerectomy surgery for the treatment of glaucoma.

What is glaucoma?

Glaucoma is a condition where the pressure inside the eye causes damage to the nerve that takes the vision from the eye to the brain.

Treatments

There are many types of glaucoma but all treatments involve trying to lower the pressure inside the eye to a safer level.

Depending on the situation there are a number of ways to achieve this pressure reduction. For most patients, using regular eye drops will control the pressure. A small number of patients will need surgery.

Deep sclerectomy may be performed on its own or can be combined with surgery to remove a cataract. Deep sclerectomy involves creating a filtering membrane for fluid to move out of the eye and lower the pressure.

Before going on to read about this surgery you may wish to read the available information leaflets GHPI0595 ‘Chronic Glaucoma’ and leaflet GHPI0100 ‘What is a cataract’.

Before the surgery

You will need to make arrangements for someone to take you home after the surgery.

Occasionally glaucoma surgery needs to be carried out urgently. But for most patients there will be an interval between your outpatient clinic appointment and the admission date for the surgery.

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The wait for surgery is usually less than 8 to 12 weeks. This period of time will not cause any harm. While you are waiting for your surgery it is very important that you continue with the drops, and any medication (tablets) if prescribed by your eye doctor.

If you do not receive a date for your surgery within a reasonable period of time you should check with the Admissions Office at Cheltenham General Hospital. The contact details can be found at the end of this leaflet.

Pre Assessment Clinic

You will be sent an appointment for assessment before your surgery.

For this visit:

- Please bring your current distance glasses and a list of your current medication.
- Your blood pressure will be measured.
- If you take warfarin you will be asked to visit your GP one week before the surgery to have your INR checked.
- Tell the nurse if you take clopidogrel or aspirin to thin your blood.

Who will perform the surgery?

The surgeon who performs the surgery may not be the same doctor you saw in the clinic. The surgery will be carried out or supervised by a highly trained glaucoma specialist.

The day of your surgery

- Unless you have been told otherwise your surgery will be performed as a day case under local anaesthetic (while you are awake).
- Please arrive on time at Eyford Ward on the second floor of East Block, Cheltenham General Hospital.
- If your surgery is being carried out under local anaesthetic you may eat and drink as normal.
- Unless instructed otherwise take all of your usual medication and use all drops as normal on the day of the surgery.

- Wear comfortable, loose fitting clothing. You will not need to undress for the surgery.
- Do not wear make-up.
- Do not bring any valuables with you.
- The nurses will admit you to the ward and may put some drops in your eye.

The surgeon will visit you on the ward to answer any last minute questions you may have. You will also be asked to sign a form that says you fully understand all about the surgery and that you wish to proceed. Before you sign the consent form you should:

- Discuss any concerns with the doctor and/or the nurse.
- Have read and understood this leaflet.
- Have understood all that you have been told about the surgery.
- Be aware that as with any surgery there are potential risks and complications as well as the intended benefits.
- Be happy to go ahead with the surgery.
- Expect to be in hospital for a total of 3 to 4 hours.

How is the surgery done?

In the anaesthetic room

- Local anaesthetic is injected around the eye to prevent any pain or discomfort during the surgery – this will sting a little.
- Iodine eye drops are instilled as an antiseptic. If you suffer with an allergy to iodine this will be discussed with you and an alternative antiseptic can be used which is called chlorhexidine.
- A pad and/or a small balloon is then placed over the eye for 5 to 10 minutes.
- Once the local anaesthetic has taken effect you will not be able to move the eye or the eyelids and very often you will not be able to see much with the eye.
- You may see some bright or coloured lights – this is normal.
- You will be aware of the surgeon touching your face and/or forehead during the surgery – this is also normal.

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In the operating theatre

- You will be lying down.
- The eye will be cleaned again with iodine solution.
- A sterile plastic drape will be placed over your eye and then passed above your face like an open tent.
- A tube blowing fresh air or oxygen will be placed under the drape allowing you to breathe completely normally.
- The surgery will be performed under a microscope and involves making a special type of filtration membrane by removing part of the sclera (the white layer of the eye). This membrane is then covered by part of the sclera which acts like a trapdoor.
- This is closed with microscopically fine stitches such that the fluid in the eye may drain slowly and thereby reduce the pressure in the eye.
- Your surgeon may use a special medicine called Mitomycin C, applied to the eye for a few minutes with a very small sponge, this is to prevent the risk of excessive post-operative scarring and reduces the risk of failure.
- Your surgeon may also use a very small spacer device made of acrylic which is inserted underneath the trapdoor to improve the drainage of fluid.
- The trapdoor is finally covered by conjunctiva, the clear tissue on the surface of the white of the eye, which is carefully stitched in position. The leaking fluid collects underneath the conjunctiva and lifts it very slightly to form what is called a bleb.

At the end of the procedure the eye is given a small dose of antibiotic and a medicine to reduce inflammation (irritation or swelling). The eye is then covered with a clear plastic eye shield. The surgery can be combined with cataract surgery. If you are having the combined surgery please also read the information leaflet GHPI100 ‘What is a cataract’.

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After the surgery

When you return to the ward you will be offered a drink and something to eat.

After one hour, a nurse will examine your eye to check that everything is satisfactory before you go home.

Following the surgery you will have to use steroid drops every 2 hours for 2 months or longer. **You also have to stop putting your glaucoma drops in the operated eye.** You will be given full instructions including how to use the drops.

A clinic appointment will be made for you to be seen at the Eye Clinic one week after the surgery.

The weeks following surgery are very important and careful management is required during this time to maximise the chances of a successful outcome. You need to be aware, that you must apply the drops prescribed as instructed after the surgery and attend the outpatient clinic appointments as arranged.

Dos and don’ts after the surgery

Do

- Attend all outpatient appointments.
- Use the drops as instructed.
- Continue with normal light daily activities but take things easy.
- Avoid splashing soap, water or anything else into the eye.
- Wash your hair in the shower with the eye kept closed or by leaning back at a basin.
- Be aware that your vision may be blurred for a number of weeks after the surgery.
- Wear your old glasses if you find them helpful but be aware that they may no longer help with any blurring of vision in the eye that has received the surgery.
- In due course you may need a new spectacle prescription; you will be advised in the clinic when this can be done.
- Expect to be off work for 2 weeks

Do not

- Carry out strenuous activities.
- Rub or press on the eye; this is very important.
- Miss any outpatient appointments.
- Drive unless you feel it is safe to do so.

Contact us urgently if you develop:

- Increased pain.
- Increased redness.
- Excessive watering or sticky discharge.
- Rapid loss of vision.

Eye Emergencies
Telephone the Eye Casualty to speak to a Nurse Practitioner.

Eye Casualty
Tel: 0300 422 3578
Monday to Friday, 8:00am to 6:00pm
Saturday, 8:00am to 1:00pm

Outside of these hours your calls will be directed to the switchboard, please ask to speak to the on call eye doctor.

What are the risks of deep sclerectomy?

Deep sclerectomy is considered to have very few complications. The eye is very stable and only a few visits to the eye clinic are needed after surgery. It must be kept in mind that success in reducing pressure to the required level can never be guaranteed. A pressure of less than 19mmHg is achieved in about 60 to 70 of every 100 eyes treated without any glaucoma drops for up to 5 years after this surgery.

Possible complications

Perforation of the membrane during surgery
Sometimes, in about 5 in 100 cases, a hole is accidentally made in the filtration membrane. This is usually not serious although it may delay the recovery of vision as it takes longer for the eye to get back to its original dimensions.

Inflammation, excessive healing or scarring of the drainage site
This is not uncommon and can result in the drainage site closing and the pressure in the eye becoming too high; as it was before surgery.

To reduce this risk your surgeon may use special techniques including the use of an anti-scarring agent and/or an acrylic spacer device during the surgery.

If eye pressure is too high after surgery your surgeon may then perform a laser procedure. This is done in the outpatient's clinic and no special after care is needed. The laser makes a tiny puncture(s) in the membrane to increase flow out of the eye. If the laser does not work, either glaucoma eye drops may be restarted or bleb needling may be done (see leaflet GHPI1335 Bleb needling).

Rare complications

Excessive drainage
If fluid in the eye drains too quickly the pressure may become very low. This is known as hypotony and can result in deterioration of vision. The problem will often resolve with time. Occasionally treatment on the ward as an inpatient may be recommended. Sometimes,further surgery is needed. Irreversible loss of vision is not common but can happen.

Hyphaema
This is when a small amount of blood collects behind the clear front window of the eye (the cornea). This often clears within a week. On rare occasions the bleeding may be recurrent. Usually no action is needed other than allowing time for the blood to clear naturally.

Cataract
Age-related cataract may develop at an earlier age in eyes that have received glaucoma surgery. Very early onset of cataract as a result of glaucoma surgery is rare.

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Choroidal haemorrhage
Bleeding within the layer of blood vessels that nourish the retina in the back of the eye is a very rare problem that may arise during the surgery or in the early days following surgery. If bleeding is localised, the eye may recover, but in more severe cases permanent marked loss of vision or, even more rarely loss of the eye may happen.

Endophthalmitis (infection inside the eye)
Less than 1 in 1000 eyes develop this serious sight-threatening complication in the early period following surgery. In glaucoma surgery the infection may very rarely happen many months or years after the procedure, especially if anti-scarring agents are used. The first signs and symptoms are increasing pain, redness and deteriorating vision. If these happen contact the department immediately.

Very high pressure in the eye
This is a rare problem that may need a laser or a surgical procedure to correct.

Complete loss of vision in cases of advanced glaucoma
As discussed above complete loss of vision is rare. It can, however, be a significant risk following surgery in an eye where there is already very advanced loss of vision as a result of glaucoma.

Sympathetic ophthalmitis
This is an inflammation and permanent loss of vision in the fellow eye following surgery in the first eye.

This problem is so remote that for practical purposes may be ignored. This extremely rare complication is included in this document for completeness.

Laser related complications

The laser has occasional complications. If eye pressure drops too suddenly, there may be a bleed behind the retina. This bleed usually settles on its own but may temporarily blur your vision. This complication happens in less than 1 in every 100 cases.

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The eye may become too soft in up to 4 out of every 100 cases after puncture. Nothing needs to be done unless the vision blurs or there are signs visible on the retina. Your surgeon will tell you if changes on the retina due to low eye pressure are detected; in which case you may need surgery to build up the pressure.

After the laser the iris may push through the puncture sites causing eye pressure to build up. The surgeon may then have to perform a different type of laser to remove the iris. This happens in up to 10 out of every 100 cases. Rarely the iris may have to be removed surgically in the operating room.

Contact information

Admissions Office
Cheltenham General Hospital
Tel: 0300 422 4001
Monday to Friday 8:00 am to 4:00pm

Gloucester Eye Clinic
Tel: 0300 422 8358
Monday to Friday, 8:00am to 5:00pm

Cheltenham Eye Clinic
Tel: 0300 422 3200
Monday to Friday, 8:00am to 5:00pm

Further information

Anand N, Kumar A, Gupta A. Primary phakic deep sclerectomy augmented with mitomycin C: long-term outcomes. Journal of Glaucoma. 2011 Jan;20(1):21-7.
Website: https://pubmed.ncbi.nlm.nih.gov/20179623/

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