Deep sclerectomy for the treatment of glaucoma

Introduction
This leaflet provides information for patients being offered the above-mentioned type of glaucoma surgery.

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 will need surgery.

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

Before proceeding to read about this operation you may wish to read the available information leaflets on glaucoma and cataract.

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

Occasionally glaucoma surgery needs to be undertaken urgently. But for most patients there will be an interval between your outpatient clinic appointment and the admission date for the operation.
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 operation it is very important that you continue with the drops, and occasionally tablets, prescribed by your eye doctor.

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

**Pre Assessment Clinic**

You will be sent an appointment for assessment prior to surgery.

At this visit:
- Please bring your current distance glasses and a list of all your medication
- Your blood pressure will be measured
- If you take Warfarin you will be asked to visit your GP 1 week before your operation to have your INR checked
- Tell the nurse if you take Clopidogrel or Aspirin to thin your blood.

**Who will perform the operation?**

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

**The day of surgery**

- Unless you have been told otherwise your operation will be performed as a daycase under local anaesthetic
- Please arrive on time at Eyford Ward on the second floor of East Block at Cheltenham General Hospital
- If your operation is under local anaesthetic you may eat and drink as normal
- Unless instructed otherwise take all medicines and use all drops as usual
- Wear comfortable loose fitting clothing. You will not need to undress for the operation
- Do not wear make-up or bring any valuables
• The nurses will admit you to the ward and may put some drops in your eye.

The surgeon will visit you to answer any last minute questions and to ask you to sign a form that says you fully understand all about the operation 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 operation
• Be aware that as with any operation there are potential risks and complications as well as the intended benefits
• Be happy to go ahead with the operation
• Expect to be in hospital for a total of 3 to 4 hours.

How is the operation done?

In the anaesthetic room
• Iodine drops are used as an antiseptic
• Local anaesthetic is injected around the eye – this stings a little
• 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 see much with the eye
• The local anaesthetic is given to prevent any pain or discomfort during the operation
• You may see some bright or coloured lights – this is normal
• You will be aware of the surgeon touching your face and/or forehead – this is also normal.

In the operating theatre
• You will be lying down
• The eye will be cleaned again with iodine solution
• A sterile plastic drape is 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 operation is 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 by a very small sponge, to slow down or prevent subsequent healing and scarring at the site of surgery.
- 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.

The operation can be combined with cataract surgery. If you are having the combined operation please also read the information booklet leaflet on cataract surgery. At the end of the procedure the eye is given a small dose of antibiotic and a medicine to reduce inflammation. The eye is then covered with a shield or a pad.

**After the operation**

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

After about 1 hour a nurse will examine your eye to check that everything is satisfactory before you go home.

After the surgery you will have to use steroid drops every 2 hours for up to 2 months.

**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 1 week after the operation at Gloucestershire Royal Hospital.

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, therefore, that there is a required commitment for you to apply the drops prescribed for you after surgery and to attend the outpatient clinic as instructed.

**Dos and don’ts after the operation**

**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 hair in the shower with the eye kept shut or by leaning back at a basin
- Be aware that the vision is often blurred for a number of weeks after the procedure
- 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 undergone surgery
- In due course you may need a new spectacle prescription and you will be advised in the clinic when this can be done
- Expect to be off work for 2 weeks.

**Don’t**
- 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.
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 eyes without any glaucoma drops for up to 5 years after this surgery.

Complications are fortunately rare, particularly with this type of glaucoma operation:

**Perforation of the membrane during surgery**
Sometimes, in about 5% of cases, a hole is accidentally made in the filtration membrane. This is usually of no serious consequence 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 operation.

If eye pressure is too high after surgery your surgeon may then do a laser procedure. This is done in outpatients 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 doesn’t work, either glaucoma eye drops may be restarted or bleb needling may be done (see leaflet on bleb needling).
Rare complications include:

**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 required. Irreversible loss of vision is not common but can occur.

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

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

**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 operation 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 occur.

**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 occur 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 occur contact the department immediately.

**Very high pressure in the eye**
This is a rare problem that may require a special laser procedure or a special 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 occurs in less than 1% of cases.

The eye may become too soft in 1 to 4% of 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 that case you may need an operation 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 do a different type of laser to remove the iris from the laser. This happens in 5 to 10% of cases. Rarely the iris may have to be excised surgically in the operating room.
Contact information

Admissions Office
Cheltenham General Hospital
Tel: 0300 422 3150

Gloucester Eye Clinic
Tel: 0300 4226718
Monday to Friday, 8:00am to 5:00pm

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

Night time and Weekends
Tel: 0300 422 2222
Please ask to speak to the eye doctor on call.

Further information


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