

Glaucoma drainage implant (Baerveldt glaucoma implant)

This leaflet contains information on your glaucoma diagnosis and glaucoma drainage implant surgery. This type of surgery is performed to reduce the pressure inside your eye. Please read the leaflet carefully.

Diagnosis

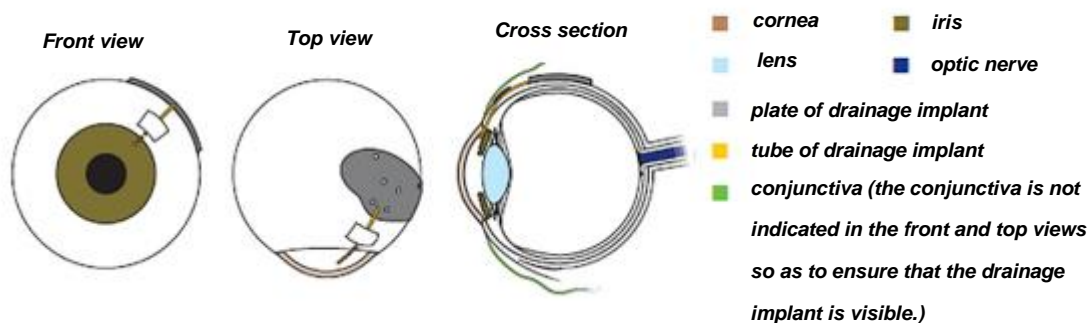
The eye produces fluid that provides the cornea and lens with nutrients. This fluid is called aqueous humour and is not the same as regular tears. Aqueous humour is drained from your eye without you noticing anything. The drainage channel is situated between the whites of your eyes (the sclera) and the coloured part of the eye, the iris. The word 'iris' is derived from the Greek word for 'rainbow'.

If your eye's drainage system (called the trabecular meshwork) does not work properly, eye pressure may rise. This happens because the aqueous humour is trapped in your eye.

High eye pressure may damage the optic nerve and cause glaucoma. At first, you will barely notice that anything is happening. Later on you will experience some blurry fields of vision.

Even later, your visual acuity (the sharpness of your vision) will deteriorate. Glaucoma is a disorder that can be slowed down, but not cured. In order to slow down glaucoma, eye pressure must be reduced. If eye drops are not effective, or not effective enough, a glaucoma draining implant can be placed inside the eye. This operation reduces eye pressure, which will help you keep a large visual field and sharp vision.

Eye with glaucoma drainage implant



How a glaucoma drainage implant works

A glaucoma drainage implant is a small tube, made of plastic, with a small plate attached to it, made of silicon. The tube is inserted into your eye, in front of the iris. The tube is covered on the outside of your eye with a small piece of donor sclera that is sutured onto your eye. When you look in the mirror, you will be able to see the donor sclera. It will look like a tiny white rectangle at the top of your eye. The suture will dissolve of its own accord after about 6 weeks. Do you have an artificial lens following cataract removal surgery? Or have you previously had an operation in which the vitreous was removed from your eye (vitrectomy)? If so, the little

tube will be placed in a different spot. In such an event, we prefer to insert the tube behind the iris, in order to protect the cells of the cornea. The plate will be placed behind the sclera and will be invisible.

There are various kinds of implants. The type chosen by your doctor will depend on your situation.

- **Baerveldt Glaucoma Implant**
The tube is closed off with a suture. This suture will dissolve of its own accord. After about 6 weeks, the tube will open. The aqueous humour will then be drained to the plate via the tube.
- **Paul Glaucoma Implant**
The tube is not closed off with a suture. The aqueous humour is drained at once.
- **Ahmed Glaucoma Implant**
The tube is not closed off with a suture. The aqueous humour is drained at once.

Pre-operative screening

Before the operation, please report to Desk 22 for a screening interview. This is called pre-operative screening (POS). It involves having a conversation with a nurse. He/she will explain to you what will happen during the operation.

For this intake interview, we will need a list of all the medicines you are taking. You can get such a list free of charge from your pharmacy. Please bring this list with you every time you visit the hospital.

Preparing for the operation

- Three days before the operation, you must apply Pred Forte or prednisolone (without any preservatives) eye drops to the eye on which you are about to undergo surgery, 3 times daily.
- You must also continue to apply the eye drops that reduce eye pressure, and take the tablets you have been prescribed (if any).
- On the evening before the operation, you must apply Tobrex ointment once to the eye that is about to undergo surgery.
- On the morning of the operation, you do not have to apply any eye drops to your eye.
- If you normally also apply drops to your other eye, you can continue doing so as usual.

The operation

The operation is performed under general anaesthesia (narcosis) or under local anaesthesia. If you are to undergo general anaesthesia, the sedative will be administered by means of an intravenous infusion. You will be asleep during the operation.

If you are to undergo local anaesthesia, only your eye will be numbed. You will receive an injection under your eye. Before you are given this injection, the anaesthetist will first give you another medication that will prevent the injection from being painful. You will remain awake during the operation, but you won't feel any pain.

A surgical drape will be put on top of you. Fresh air will circulate underneath, so you won't have any difficulty breathing.

The operation will take about 1 hour.

After the operation

- After the operation an eye pad dressing with a protective plastic eye patch will be applied in front of your eye. This is done to protect your eye.
- You will not be allowed to drive a car after the operation, because the protective patch you are wearing will temporarily prevent you from judging depth and distance properly.
- Be sure to bring someone else to the hospital who can take you home after the operation.
- Your vision may be very blurry after the operation.

Check-ups

Once you are home, you may remove the eye pad dressing and protective eye patch and very carefully clean the area around your eye.

At home you must start applying the eye drops you have been given.

You will have your first check-up on the day after the operation. During this check-up, the eye that just underwent surgery will be examined, and your eye pressure will be measured.

Afterwards you will have a few more check-ups:

- 1 week after the operation;
- 3 to 4 weeks after the operation;
- 2 to 3 months after the operation.

The date of your first appointment will be in a letter that will be sent to your home or emailed to you. Or perhaps the nurse will give you that letter at the hospital.

Rules to be observed after the operation

On the day after the operation, you must start applying Pred Forte or prednisolone eye drops and Ultracortenol eye ointment. During the first 6 weeks, you must apply these medications 6 times daily. After that you can reduce the number of eye drops by 1 drop each week, meaning that you will apply these eye drops for a total of 11 weeks.

Please follow the dosing schedule below.

- Weeks 1 through 6:
apply Pred Forte or prednisolone eye drops 6 times daily, and apply Ultracortenol eye ointment before going to bed

- Week 7:
apply Pred Forte or prednisolone eye drops 5 times daily, and apply Ultracortenol eye ointment before going to bed
- Week 8:
apply Pred Forte or prednisolone eye drops 4 times daily, and apply Ultracortenol eye ointment before going to bed
- Week 9:
apply Pred Forte or prednisolone eye drops 3 times daily, and apply Ultracortenol eye ointment before going to bed
- Week 10:
apply Pred Forte or prednisolone eye drops twice daily, and apply Ultracortenol eye ointment before going to bed
- Week 11:
apply Pred Forte or prednisolone eye drops once daily, and apply Ultracortenol eye ointment before going to bed

If you are allergic or hypersensitive to preservatives, you will apply minims prednisolone rather than Pred Forte. These minims (ampoules) can be used for 12 hours after opening. In other words, you don't have to throw them away after applying just 1 drop.

If you have been applying eye drops or taking tablets to reduce your eye pressure, the doctor will tell you whether to stop doing so or not. You can keep using any medication that you have been using for the eye that did not undergo surgery.

It's important that you apply eye drops the right way. If you apply drops the right way, your eyes will heal better and sooner. For more detailed information on how and when to apply eye drops, go to www.oogdruppelen.nl. You will also find a leaflet entitled 'Eye Drops and Eye Ointment' there, in Dutch and English.

Additional rules to be observed after the operation

- Protect your eye from impact pressure in the first 2 weeks after the operation.
- Don't rub your eye. Rubbing your eye may damage your cornea. However, you can dab at your eye, or gently touch it.
- Wear protective goggles, glasses or sunglasses during the day.
- Use the protective eye patch when you go to bed. You don't have to place a new gauze swab between the patch and your eye.
- You must not use any eye make-up or contact lenses for 4 weeks afterwards.
- You must not play sports, exercise, swim, go to the sauna or lift heavy objects for 2 weeks afterwards.
- You CAN ride your bike, walk, read and watch TV, as much as you like.

- Whether or not you can work depends on what kind of work you do. Your ophthalmologist will discuss this with you.

Results

Placing a glaucoma drainage implant (which is what we will do in this operation) reduces eye pressure, which will help you keep a large visual field and sharp vision. In other words, the operation will prevent your vision from deteriorating. The operation is successful in about 80% of patients. Some patients do have to keep applying eye drops after the operation to reduce eye pressure. This is necessary in 60% of patients.

Discomforts and risks

You will feel little to no pain in your eye after the operation. However, the insertion of a drainage implant will have a big impact on your eye. You may experience very high eye pressure, very low eye pressure or other eye-related symptoms.

Double vision

The drainage implant may cause some difficulties in eye movements. It may cause dizziness or double vision, but those things typically pass of their own accord. Some patients (28%) still experience this problem one year after the operation. Some patients (4%) need an operation to reduce the dizziness or double vision.

Cloudy cornea

Your cornea may gradually grow cloudy in the years after the operation. If this happens, your vision will grow blurrier. This happens due to the loss of cells on the inside of the cornea (8% risk after 10 years). These cells allow the cornea to remain clear. These cells may be lost if the tube that is part of the Baerveldt drainage implant is close to the cornea. Unfortunately, there is no way to grow new cells. We try to prevent these problems by placing the tube as far away from the cornea as possible. Ideally, we'd even place it behind the iris. If your vision becomes cloudy or blurry, the position of the tube will be adjusted in a new operation. This often causes the cornea to clear up again. Once the cornea has completely clouded over, the only way to solve the problem is a cornea transplant.

Impaired vision

- After the operation your eye pressure will be lower than before the operation. As a result, the strength of your glasses may no longer be correct. This often means that your vision will be less good after the operation.
- Furthermore, your retina may temporarily grow thicker if your eye pressure is suddenly reduced. If this is the case, the retina will be less effective, meaning your vision will be impaired. Generally, your vision will slowly recover, over the course of a few weeks or months.

- Blood in your eye may affect your vision, as well. When you move or bend over, the blood in the eye will start moving around, which will impair your vision. Usually, the blood will disappear in 2 weeks.
- Sometimes the visual acuity (sharpness) of the eye that underwent surgery will remain less good than it was before the operation.

Very high eye pressure

Your eye pressure may be too high right after the operation. For this reason, some patients must use additional medication in the first weeks after the operation, to reduce eye pressure. The suture that closes off the tube will dissolve of its own accord after about 6 weeks. This is when the tube will start working and your eye pressure will decrease.

Very low eye pressure

In some cases, eye pressure will be low, or too low, which will cause blurred vision. This may be due to aqueous humour leaking from the hole in the tube. It may also be due to the fact that the glaucoma drainage implant is too effective. In very rare cases, you may have to undergo surgery on the eye again. In this case, the drainage tube will be closed, or your eye will be temporarily filled with a thick substance.

Other symptoms or risks

Another problem (complication) that may occur is a change to the shape of your pupil, due to the tube. Your vision and the function of the tube won't be affected by this. Like any other operation, drainage implant surgery poses certain risks. For instance, you may lose your vision due to infection or bleeding. Fortunately, this is very unlikely to happen. You are much more likely to experience high eye pressure.

Undergoing treatment at Oogziekenhuis Rotterdam

Oogziekenhuis Rotterdam trains doctors, paramedics and nurses. This means that you may be (partially) treated by someone who is still training to become an ophthalmologist. This is always done under the supervision and responsibility of a fully qualified ophthalmologist.

Oogziekenhuis Rotterdam's policy is to refer patients back to their own ophthalmologist, or to another ophthalmologist closer to their own home. Naturally, we will only refer you back if your ophthalmic symptoms are fully under control. This is also true for patients who came to Oogziekenhuis Rotterdam of their own accord, to obtain a 'second opinion'.

Scientific research

Oogziekenhuis Rotterdam's doctors conduct research on the efficacy of glaucoma drainage implants, so as to improve the treatment given to patients. For this reason, we may call you to

ask if you wish to take part in such a clinical trial. If you do, you will receive a lot of information on the purpose of the trial and the risks associated with it.

Contact us at once

Is your eye suddenly turning red, or are you experiencing a lot of pain in the eye? Or is your vision suddenly deteriorating a lot? If so, please contact the Acute Eye Care unit at once. The Acute Eye Care unit can be reached 24 hours a day, 7 days a week:

- Monday through Friday, between 7.30am and 5pm: 010 401 7777
- Remaining hours: 010 401 7727.

More information

If you have any questions after reading this leaflet, please ask them to the ophthalmologists of the glaucoma treatment team during surgery hours.