

Glaucoma Drainage Devices (Tube Surgery)

However, the covering may thin out with time and cause plate or tube exposure. Further surgery will then be necessary to patch it up to prevent infection. In some cases, removal of the implant may be necessary but this is very rare.

o **Movement / migration of the implant**

Rarely, the stitches holding the plate may break or loosen with time, causing the implant to move. This can cause movement of the tube, resulting tube touch to structures within the eye, or eye retraction with tube failure. Tube repositioning in the operating theatre may then be necessary.

o **Double vision**

This is uncommon after a tube surgery, especially with the Ahmed valve implant. The surgery or scarring and fibrosis may interfere with the muscles of the eye and cause double vision. This is usually temporary but some cases may need further surgery to alleviate this complication.

• **Sudden loss of vision (wipe-out)**

In patients with late-stage glaucoma, there is very little healthy optic nerve left, so any surgery to the eye can result in the loss of the remainder of the optic nerve. However, this complication is very rare.

It is important to note that although surgery poses risks, not having surgery also carries the risk of progressive blindness if the eye pressure is not well controlled.

What should I expect after the surgery?

You will be reviewed the next day after surgery. Frequent follow-ups will be required in the first few weeks after surgery. The timing of follow-ups and future reviews depends on your recovery.

Most of the time, the vision in the operated eye may be reduced in the first few weeks or longer. It may take about two to three months for the vision to stabilise, sometimes even longer in complicated cases.

The eye may feel a bit sore or prickly due to the stitches in the eye. This should get better a few days to weeks after surgery. If your eye is recovering well but worsens suddenly (i.e. more pain and redness or worse vision), you should inform your ophthalmologist immediately.

You will receive a prescription for eye drops after surgery, typically steroid (for treating inflammation) and antibiotic (for preventing infection) eye drops. It is important that you instill the eye drops as instructed. After the surgery, you will no longer need to use your previous glaucoma eye drops. However, in the longer run some patients may need to restart these to lower the eye pressure to an appropriate level. In your other eye, you should continue with any glaucoma eye drops as before.

What are the Do's and Don'ts after tube surgery?

Please refer to the *Glaucoma Surgery Post-operative Care and Advice* leaflet.

Is my glaucoma cured? Will I need further surgery?

There is no cure for glaucoma. Surgery is done to lower the eye pressure to reduce the risk of further visual loss. In general, surgery provides an alternative route for the fluid inside the eye to drain out, thereby lowering the eye pressure to a safe level.

Tube surgery can and often does keep the eye pressure low for several years. Some operations may start to work less well after a period of time. This depends on many factors such as age of the patient, type and severity of the glaucoma, etc.

If the surgery fails to keep the eye pressure to an appropriate level, your ophthalmologist may prescribe pressure-lowering eye drops to you. In some cases, patients may need to have further glaucoma surgery if the eye pressure becomes inadequately controlled.

Please consult your surgeon if you have any further queries about the surgery.

LOCATION MAP



This patient information leaflet is a general guide to help patients understand specific eye conditions, treatment or tests. The information does not replace the need for individual advice from an ophthalmologist. Please consult with your ophthalmologist about your specific eye condition and/or concerns.

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GLAUCOMA
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A CLOSER LOOK: GLAUCOMA DRAINAGE DEVICES (TUBE SURGERY)



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Glaucoma Drainage Devices (Tube Surgery)

Why do I need tube surgery?

Glaucoma is a disease of the optic nerve and usually the eye pressure is too high for your own eye. If uncontrolled, blindness can result from damage of the optic nerve. In order to lower the eye pressure, eye drops and sometimes laser can be used. But when those measures are inadequate to lower the eye pressure, sometimes it is necessary to do an operation.

A glaucoma drainage device implantation is usually only performed after medications, laser procedures and other surgical procedures (e.g. trabeculectomy) have failed or are deemed unsuitable. In certain types of glaucoma, a glaucoma drainage device may be considered as the first surgical procedure due to high risk of failure of other procedures.

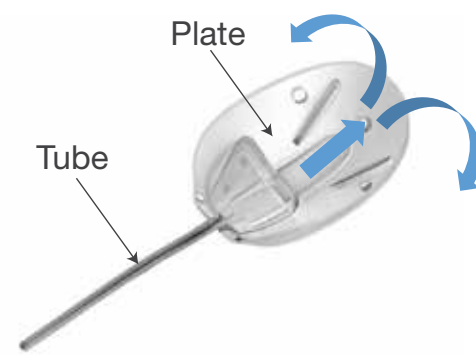
What is a glaucoma drainage device?

A glaucoma drainage device is a small device that is implanted to reduce the eye pressure. There are two main parts to the device, a tube and a plate.

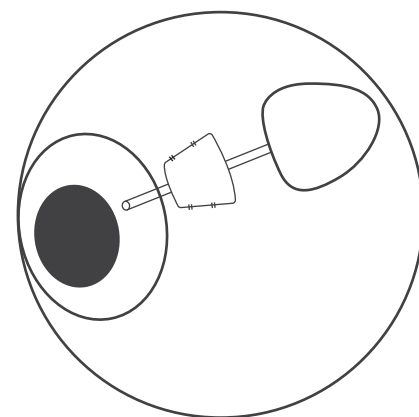
The tube is made up of silicone and is inserted into the front chamber of the eye through a small hole to drain fluid from inside the eye to the plate that acts like a reservoir for this fluid. The plate is attached to the white wall (sclera) of the eye and is covered by the conjunctiva (covering of the eyeball) so it is not visible. The drained fluid is then absorbed back into the blood through blood vessels in the conjunctiva.

The most commonly used device in SNEC is the Ahmed valve implant. This surgery is done as a day procedure so you can go home on the same day. The surgery takes about 30 to 45 minutes. Before the surgery, the surgeon will give a local anaesthetic injection around the eye to numb the area and light sedation will also be given by the anaesthetist.

It is important to know that this operation is not done to improve your vision. It is performed to help lower the eye pressure, and preserve your vision in the long term.



The Ahmed Glaucoma Valve Implant



Placement of the tube device

What are the risks and complications of a tube surgery?

- **Infection**
As with any surgery, tube surgery will carry the risk of infection. Infections are rare and most can be treated with topical

antibiotics (eye drops). The more serious infections are even rarer, but they can lead to permanent loss of sight. It is important to inform the ophthalmologist if you experience the onset of eye redness and pain after surgery.

- **Bleeding**
This can occur at the front or back of the eye, or at the outer covering of the eye. Bleeding at the front of the eye and outside the eye is usually mild and short-lived. Bleeding at the back of the eye can lead to loss of sight but this is rare. You must inform the surgeon before operation if you are taking any blood-thinning medications.
- **Eye pressure is too low**
Although steps are taken to reduce this risk, it may still happen and can lead to reduced vision. The good news is that vast majority of such cases will settle by itself and the vision will return to normal. However, if the eye pressure is too low for a long period of time, or if it is so low that it causes other problems, the surgeon may need to inject a “jelly-like” substance into the front of the eye in the clinic or take you back to the operating theatre to adjust the implant.

Usually this is successful and the eye pressure will return to an appropriate level.

- **Eye pressure is too high**
In the early period after surgery, the tube may be blocked by proteins or blood but this usually settles when they dissolve. The eye pressure can sometimes be high six to eight weeks after surgery as some scarring may occur around the plate. This is a normal response to implanted devices in the eye. Your ophthalmologist may restart the pressure-lowering eye drops to reduce the eye pressure.
- **Wound leak**
This can happen if there is poor wound healing. Some cases can settle with non-surgical intervention. However, the surgeon may need to take you back to the operating theatre for wound resuturing if the wound leak does not resolve or if it causes other problems.
- **Damage to the lens or cornea**
During tube surgery, the small protruding tube portion of the implant will be placed at the front of the eye and it may cause damage to structures of the eye, such as the lens or cornea. Your surgeon will take extra care to position it carefully but if it causes constant touch to the lens, cornea or other structures, you may need to be taken back to the operating theatre to reposition it.
- **Cataract formation**
A tube surgery can also result in worsening of your cataract which is why some surgeons may recommend performing a combined cataract and tube surgery at the same time. If your surgeon decides not to perform the combined surgery, you can develop cataract later. When it causes significant reduced vision, a day surgery can then be performed to remove the cataract.
- **Tube / plate-related complications**
 - **Exposure**
The plate is secured onto the white wall (sclera) of the eye and the tube is covered with a sclera patch and the outer covering (conjunctiva) of the eye.