

Glaucoma Surgery

iStent[®]

What is Glaucoma?

Glaucoma is a disease that damages the optic nerve. This nerve sends signals from your retina (the light sensitive layer at the back of your eye) to your brain, where they are processed into images that you see.

Glaucoma affects 1 in 50 people over the age of 40. Glaucoma is the name for a group of conditions that cause damage to the optic nerve where it leaves the eye. If left untreated, glaucoma will cause a slow but steady loss of vision. Glaucoma typically affects the peripheral visual field, rather than central vision, which is why visual field testing is performed to identify and monitor the condition. By the time glaucoma affects your central vision it is often very advanced.

How does glaucoma happen?

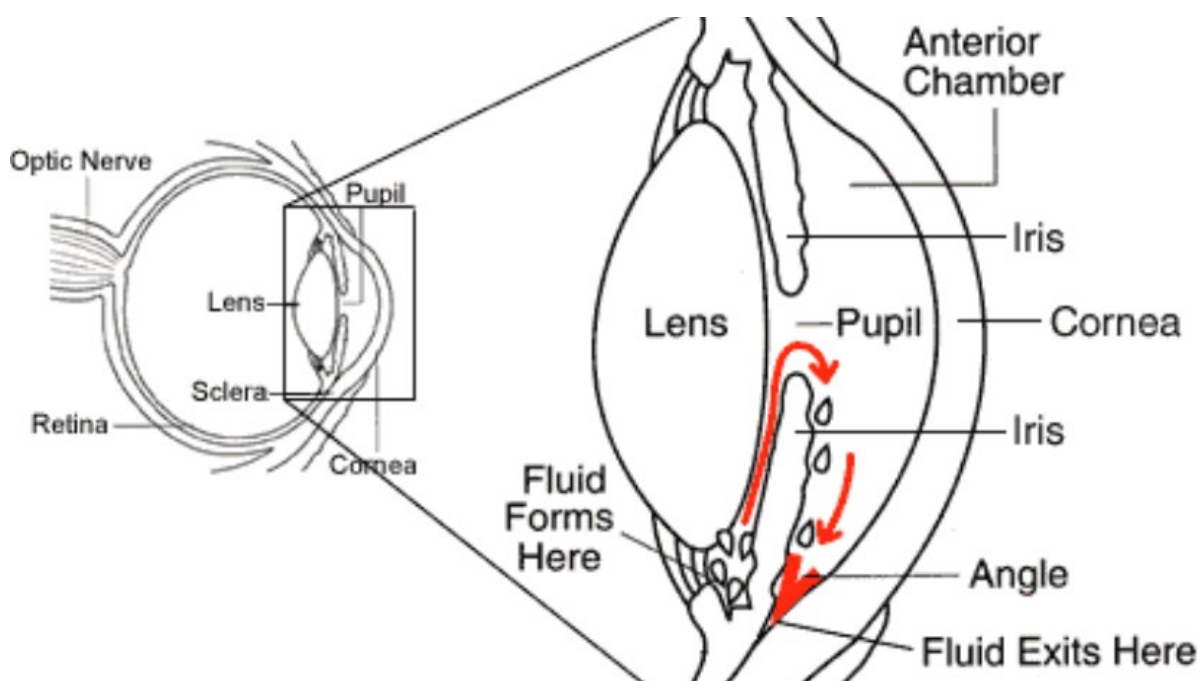


Fig 1. Production and drainage pathway of fluid in the eye

To understand glaucoma, it helps to learn what happens in a healthy eye. Inside a healthy eye is an amount of pressure which helps the eye to maintain its shape. This pressure is a balance between the amount of fluid being produced in the eye and the amount of fluid that drains out.

Glaucoma Surgery

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In an eye with glaucoma, there is a build-up of fluid, usually because the normal outflow pathway doesn't work as well as it should. The result is a rise in pressure above the normal level, which damages the optic nerve. Open angle glaucoma is the most common type of glaucoma.

There is a subtype of glaucoma called normal tension glaucoma, where similar damage to the optic nerve happens despite the eye pressure being normal. These individuals often have other risk factors including a particularly sensitive optic nerve but the condition is not understood entirely. It is still beneficial to lower the eye pressure further in this condition.

How is glaucoma treated?

The majority of glaucoma is treated with eye drops which lower the pressure. There are 4 different classes of medication which are commonly used. In some cases drops alone aren't enough to reduce the eye pressure, for example:

- As optic nerve damage advances we need to aim for an even lower eye pressure to reduce the risk of further damage
- The pressure in some eyes does not lower sufficiently to eye drops alone
- The outflow pathway may be damaged
- Rarely, eye drops cannot be tolerated due to side effects

In this situation the next step is to consider glaucoma surgery.

What is the iStent®?

The iStent® (see Fig 1) is a tiny 1 millimeter long titanium tube. The iStent® is designed to be inserted into the drainage channel in the eye, providing additional drainage which reduces pressure in the eye.

Insertion of the iStent® is most commonly as an additional procedure alongside cataract surgery. The iStent® can be inserted as a stand alone procedure.

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Fig 1a. iStent® device Fig 1b. The size of the iStent® device shown in comparison to a fingertip

The iStent® is suitable for patients who have open angle glaucoma but may not be suitable in those who have very advanced glaucoma or where the natural drainage system has been severely damaged and it is not possible to insert the device.

The iStent® is made from non-magnetic titanium, the same material used for replacing heart valves so it won't be rejected by the body or cause an allergic reaction. It will not set off airport scanners and will not cause any problems if you need to have an MRI scan.

What are the benefits?

By lowering your eye pressure the iStent® slows progression of your glaucoma. Each individual is different and the exact eye pressure result varies.

Some patients may be able to stop their glaucoma drops following iStent® insertion.

The iStent® will not cure your glaucoma, reverse any damage already caused by glaucoma or bring back any lost vision.

What are the risks?

1. Risks of cataract surgery

The majority of patients have an iStent® procedure alongside cataract surgery. You will also have received a cataract surgery information leaflet. Please familiarise yourself with the risks outlined in this document as these apply to your surgery.

2. Risks of iStent® insertion

Glaucoma Surgery

iStent®

Additional risks of iStent® insertion are minimal. These include:

- a. **Bleeding:** A very small amount of bleeding inside the eye occurs during the operation but this resolves within a few days. Occasionally there can be a larger bleed, but this is unusual.
- b. **Failure to lower pressure:** In some cases the iStent® fails to lower your eye pressure. In this case it will not create any additional harm to your eye.

Although the iStent® has been approved for use, it is a new procedure so there is still a lot to learn about it and some of the safety issues may not be known. We are continually examining the outcomes for patients who have the implant, so that we can understand more about it.

What are the risks of not having the procedure?

If the eye pressure remains elevated despite medical therapy there is a risk your vision will deteriorate.

Are there any alternatives?

Alternatives include the standard glaucoma surgery (trabeculectomy). This is a more invasive surgery, carries more risk and more intensive follow up than the iStent® procedure. Your doctor will be able to discuss this further.

Before your operation

You should continue any eye drops and tablets for your glaucoma as prescribed until the time of your surgery, unless directed otherwise by your Ophthalmologist.

During your operation

Implantation of an iStent® takes 5-10 minutes. It is usually performed at the end of cataract surgery when you will be asked to assist by turning your head gently to one side.

After your operation

- You must continue your glaucoma drops after the operation
- You must use new unopened bottles of all the drops you take to use in the operated eye after the surgery.
- Any eye drops that you use in your other eye must be continued as normal.
- You will be reviewed in the eye clinic 1 week after your operation then again at 1 month.

Glaucoma Surgery iStent[®]

If you require this information in an alternative language or format (such as Braille, audiotape or large print), please ask the staff who are looking after you.