

Glaucoma



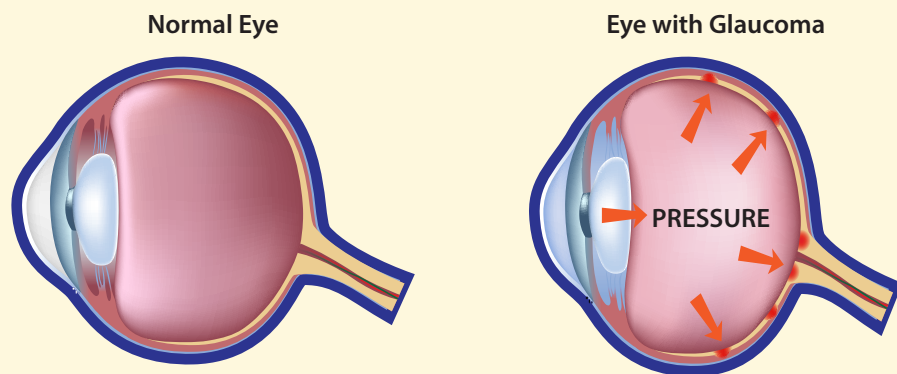
Changi
General Hospital

SingHealth

What is glaucoma?

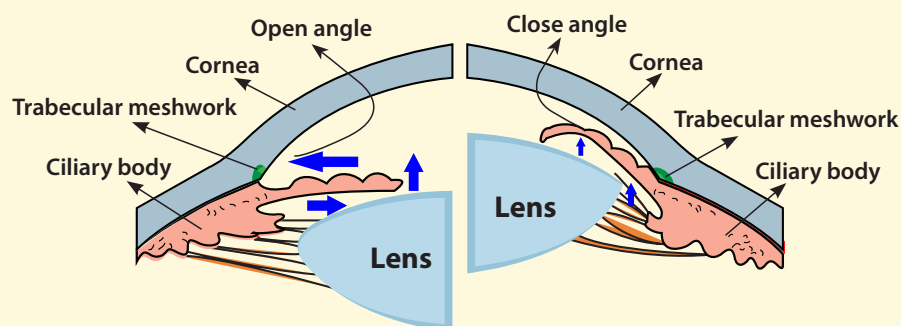
Glaucoma is an eye disease where the optic nerve is damaged by increased eye pressure, leading to gradual loss of vision. If left untreated, glaucoma can lead to irreversible blindness.

Pressure in your eye helps to keep its shape and your vision in focus. To maintain normal eye pressure, the fluid in the eye is continually being produced and drained.



There are two main types of glaucoma:

- ▶ **Closed-angle (or Narrow) Glaucoma** – where the drainage angle between the peripheral cornea and iris becomes closed, preventing the normal drainage of eye fluid.
- ▶ **Open-angle Glaucoma** – where the drainage angle remains open but there is increased resistance in the flow of eye fluid through the abnormal drainage angle tissues.



Blue arrows shows the direction of flow of the fluid (aqueous) in the front part of the eye

Both types may occur either spontaneously (**primary glaucoma**) or as a result of another condition (**secondary glaucoma**). Secondary glaucoma may be caused by certain conditions such as poorly controlled diabetes, eye inflammation, tumours, previous eye surgeries or injuries.

Sometimes a person's eye pressure may be within the normal range with "an open angle" but they may still have glaucoma – a condition known as **normal tension glaucoma**. These patients would require treatment to further lower the eye pressure.

A person's eye pressure may also be higher than the normal range with "an open angle" but without any evidence of damage from glaucoma – a condition known as **Ocular Hypertension**. The eye doctor will determine if these patients require treatment.

Other types of glaucoma

Acute angle closure is a potentially sight-threatening ocular emergency and can be treated with eye drops and oral or intravenous medications to reduce the eye pressure and prevent the eye from going blind. It can lead to closed-angle glaucoma.

A **laser procedure (laser peripheral iridotomy)** will be required to make a tiny hole in the outer border of the iris to relieve the obstruction of the drainage angle of the eye and prevent further episodes of sudden rise in eye pressure. Numbing eye drops are given before the laser treatment to make it relatively pain-free. Occasionally the eye pressure may remain raised and surgery such as cataract surgery with or without adjunctive glaucoma surgery (trabeculectomy) – may be necessary.

Open angle glaucoma and **normal tension glaucoma** are more common amongst those who are over 60 years old. Although the drainage angle is open, there is an increased resistance of flow of eye fluid through the abnormal drainage angle tissues. This causes the eye pressure to rise, resulting in damage to the optic nerve.

Symptoms of glaucoma

In most cases, glaucoma is asymptomatic as the initial vision loss is mainly peripheral and not easily noticeable. However, in an acute angle closure in which there is a sudden increase in eye pressure, the following symptoms may occur:

- ▶ Red and painful eye
- ▶ Headache
- ▶ Nausea and vomiting
- ▶ Blurred vision, glares and haloes

How is glaucoma detected?

Regular eye examinations by an eye doctor are the best way to detect glaucoma.

Eye examinations aim to:

- ▶ Measure your eye pressure
- ▶ Examine your field of vision
- ▶ Examine your optic nerve



Treatment of glaucoma

Glaucoma cannot be cured but, in most cases, it can be successfully controlled. The main aim of glaucoma treatment is to lower your eye pressure to a safe level to prevent further deterioration of your optic nerve functions (vision and visual field).

Treatment depends on the type and severity of glaucoma which you are diagnosed with. Treatment includes:

- ▶ Eye drops
- ▶ Oral medications
- ▶ Laser (including laser peripheral iridotomy (LPI), selective laser trabeculoplasty (SLT), etc)
- ▶ Minimally Invasive Glaucoma Surgery (or MIGS)
- ▶ Filtering surgery (Trabeculectomy)
- ▶ Drainage implants

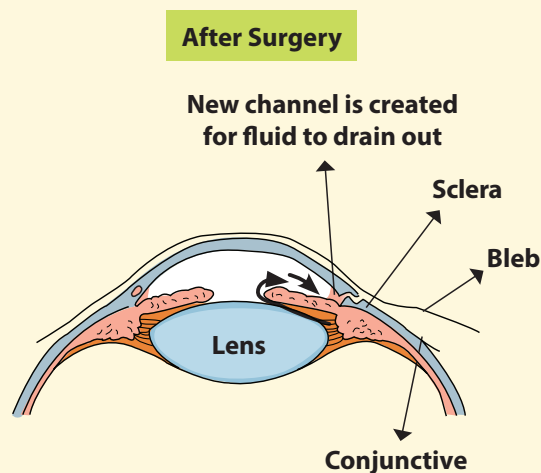
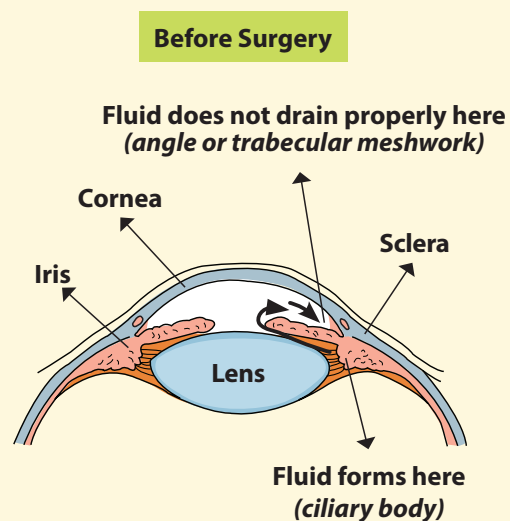
In most cases, eye drops are prescribed to lower your eye pressure. In some cases, it is necessary to perform a laser procedure or surgery to achieve effective lowering of eye pressure. This could be due to the type of glaucoma or when medications fail to control the condition. In general, surgery provides an alternative route for the fluid inside the eye to drain out, thereby lowering the eye pressure to a safe level. Your eye doctor will advise on individualised treatment options. Even after successfully controlling eye pressure, regular monitoring is still required.

Trabeculectomy

Trabeculectomy is one of the most common glaucoma surgery performed. It is typically indicated when the glaucoma is getting worse and not controlled with medical therapy. It involves creation of a channel within the eye (iris and sclera) to allow the eye fluid to drain out of the eye under the eye lining (conjunctiva) so as to lower the eye pressure and keep it under control.

Before trabeculectomy surgery

- ▶ Tests will be done to check that you are fit for surgery.
- ▶ You may be asked to apply eye drops for one to seven days prior to the surgery.
- ▶ You will be advised to stop taking food and drinks (including water) six hours before surgery.
- ▶ If you are on blood thinners, you may be advised to stop them for a week before surgery.



During trabeculectomy surgery

- ▶ Surgery is usually done as a day surgery procedure under regional or topical anaesthesia with sedation.
- ▶ The surgery involves creation of a channel within the eye (iris and sclera) to allow the eye fluid to drain out of the eye under the eye lining (conjunctiva). After surgery, an eye pad and eye shield will be applied over the operated eye.

Post-surgery care

- ▶ Some blurring of vision and redness is common during the first two to three weeks.
- ▶ You may experience some discomfort in your eye because of the sutures.
- ▶ You will need to see the doctor in the clinic a day after the operation and eye drops will be prescribed.
- ▶ Avoid rubbing and pressing on the operated eye and wear the eye shield at night for the first few weeks.
- ▶ Avoid strenuous physical activity including swimming.
- ▶ You may shower but avoid getting soap, shampoo and water into your eyes.
- ▶ Avoid bending your head downwards, lifting or carrying heavy objects.
- ▶ Avoid driving after the operation until further advised by the doctor.
- ▶ Resume your normal diet and rest at home.

If you notice any of the following, you should go to the eye clinic (during office hours) or the Accident and Emergency (A&E) department (after office hours) immediately:

- ▶ Increasing pain and redness of the eye.
- ▶ Persistent discharge from the eye.
- ▶ Sudden blurring of vision or swelling of the eye.



Singapore
General Hospital



Changi
General Hospital



Sengkang
General Hospital



KK Women's and
Children's Hospital



National Cancer
Centre Singapore



National Dental
Centre Singapore



National Heart
Centre Singapore



National
Neuroscience Institute



Singapore National
Eye Centre



SingHealth
Community Hospitals



Polyclinics
SingHealth

PATIENTS. AT THE HEART OF ALL WE DO.®


2 Simei Street 3 Singapore 529889
Tel: (65) 6788 8833 Fax: (65) 6788 0933
Reg No 198904226R

CGH Appointment Centre

For appointments and enquiries,
please call: (65) 6850 3333

Operating hours:
8.30 am to 5.30 pm (Monday to Friday)
8.30 am to 12.30 pm (Saturday)
Closed on Sunday & Public Holiday

For more information, please visit www.cgh.com.sg

 facebook.com/ChangiGeneralHospital

Information is valid as of February 2022 and subject to revision without prior notice.

All information provided within this publication is intended for general information and is provided on the understanding that no surgical and medical advice or recommendation is being rendered. Please do not disregard the professional advice of your doctor.