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GLAUCOMA

What is glaucoma?

Glaucoma is one of the most important causes of preventable blindness in the world. Glaucoma is a disease that causes progressive damage to the optic nerve (eye nerve) with gradual loss of vision, and may lead to blindness if left untreated.

What causes glaucoma?

- The small channels that drain the eye fluid from the eye may become clogged or completely blocked, as a result the fluid and pressure builds up in the eye and this damages the optic nerve (**closed angle glaucoma**).
- The eye may also produce too much fluid that cannot drain adequately through these channels, thereby resulting in an increased eye pressure (**open angle glaucoma**).
- **Normal tension glaucoma** refers to a condition where the optic nerve is damaged despite the eye pressure being "normal"
- **Congenital glaucoma** is a rare condition where babies are born with high eye pressure; usually due to the incomplete development of the drainage channels of the eye before birth.
- **Secondary glaucoma** refers to high eye pressures and optic nerve damage that develops as a result of an eye injury, inflammation, advanced diabetes and cataract, and eye tumours.

Who is at risk of glaucoma?

Glaucoma affects people of all races, ages and genders.
The following people are at higher risk:

- Over the age of 40 years
- Family history of glaucoma
- Abnormally high intraocular pressure
- African, Scandinavian, Celtic or Russian ancestry
- Diabetic
- Short/near-sighted (myopic)
- Long-term use of steroids
- Previous eye injury
- If you suffer from vascular diseases; like high or low blood pressure, or migraine
- If you supper from sleep apnoea

What are the symptoms of glaucoma?

Many people do not know that they have glaucoma until they lose some of their eyesight. It is a painless condition that develops slowly over time. Patients experience a very gradual worsening of their side (peripheral) vision; this is called tunnel vision. Unfortunately the loss of vision is permanent and cannot be reversed.

Very rarely glaucoma does produce symptoms; in some cases of acute glaucoma the patient may experience headache, redness of the eye, blurred vision/halos around lights, and nausea and vomiting.

The diagnosis of glaucoma is usually made during a routine eye examination, when the eye pressure is found to be elevated or when the appearance of the optic nerve is suggestive of glaucoma. Additional tests such as visual field examination and optic nerve scans are used to confirm and monitor the disease.

Intraocular pressure (eye pressure) is measured with a test called tonometry; it normally measures between 10 and 22 mmHg.

Treatment of glaucoma

The goal of treatment is to lower the intraocular/eye pressure, and improve the blood flow to the optic nerve. This is mainly accomplished by the use of eye drops, but occasionally laser treatment or surgery is needed.

Medical therapy

- Glaucoma treatment starts with the prescription of eye drops (in almost all cases).
- The eye drops work by either increasing the drainage of fluid from the eye, or by decreasing the amount of fluid (aqueous humour) produced by the eye.
- These medications must be administered every day, and at the prescribed times. If more than one eye drop has been prescribed, wait at least five minutes in between the different drops.
- If eye drops alone cannot adequately reduce your eye pressure, oral medication may be prescribed. These oral medications are not suitable for long term use due to their side effects.

Surgery (laser procedures and incisional surgery)

Laser procedures

- Laser therapy may be recommended for patients already using multiple eyedrops; this will help reduce the number of eye drops that are required to achieve the necessary reduction in IOP.
- In patients where the side effects from the eye drops are unacceptable, laser may be used as a first-line therapy.
- **Argon laser trabeculoplasty** (ALT or LTP) and **selective laser trabeculoplasty** (SLT) are used to improve the permeability of the existing outflow channels, thereby lowering the eye pressure.
- **Diode laser cyclophotocoagualtion** is a used to decrease the amount of intraocular fluid (aqueous humour) produced by the ciliary body inside the eye.

Incisional surgery

- If medical treatment and laser procedures do not work to adequately lower the eye pressure, incisional surgery may be needed to achieve this.
- The goal surgery is to create new channels for the intraocular fluid to leave the eye, thereby lowering the intraocular pressure.
- **Trabeculectomy** and the insertion of **specialised glaucoma drainage devices** (**ExPress®/Ahmed valve)** are examples of this kind of surgery.
- **Minimally invasive glaucoma surgery (MIGS)** uses devices, such as **iStent®** or **Xen®** implants, to achieve a modest reduction in intraocular pressure.

During your consultation, the ophthalmologist will discuss the different treatment options with you.