

## Glaucoma

### Definition:

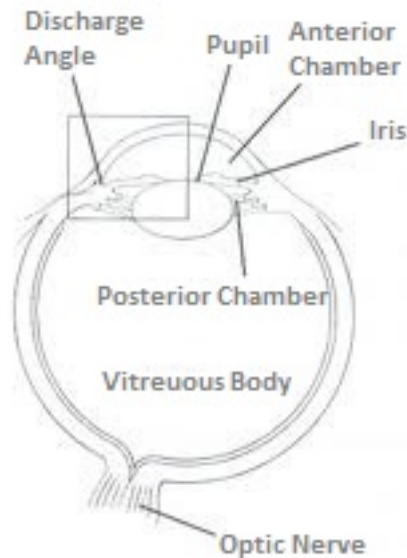
Glaucoma is a group of eye conditions that damage the optic nerve, the health of which is vital for good vision. This damage is often caused by an abnormally high pressure in the eye. If this condition is left untreated it can lead to blindness. Glaucoma patients sometimes see blue spots around sources of light, and this is how the name came to be; the word glaucoma came from ancient Greek, meaning clouded or blue-green hue.

### Causes:

The eye constantly produces a fluid called (aqueous humor) to maintain its spherical shape. This fluid normally drains out through a tissue called the trabecular meshwork at the angle where the iris and cornea meet, and this plays an essential role in maintaining normal eye pressure. When this fluid is overproduced or the drainage system doesn't work properly (If there's an imbalance between production and drainage of aqueous humor), the fluid can't flow out at its normal rate. The buildup of this fluid leads to an elevated eye pressure, which increases pressure on the optic nerve and retina and makes gradual damage to the optic nerve.

### Symptoms and types:

- Open-angle glaucoma: Gradual visual impairment without pain.
- Acute angle-closure glaucoma:
  - Eye pain.
  - Nausea.
  - Severe visual impairment, especially in poor lighting.
  - Halos around lights.
  - Eye redness.



- Congenital glaucoma: It occurs in newborn infants or it may develop during the first few months of their life, and the symptoms include:
  - Abnormally large eyes.
  - Abnormally large pupils.
  - The eye may eventually lose its transparency and turn white.

#### **Groups most at risk of developing glaucoma:**

- People who suffer from elevated intraocular pressure.
- The elderly.
- People of African origin
- People with family history of glaucoma.
- People who suffer from certain medical conditions such as diabetes, heart disease, high blood pressure and thyroid problems.
- People who suffered certain eye injuries or conditions such as tumors, retinal detachment, myopia, and corneal abrasion.
- People who take cortisone medications, especially eyedrops, for a long time.

#### **Complications:**

If left untreated, glaucoma can lead to permanent vision loss. This usually happens through the following stages:

- Blind spots in the peripheral vision.
- Peripheral vision loss (tunnel vision).
- Complete blindness.

### Diagnosis:

Diagnosis of glaucoma depends on the patient's medical history and symptoms.

### The clinical examination includes:

- Measuring intraocular pressure.
- Examining the optic nerve to see if there are changes since the beginning of the disease.
- Conducting a visual field test.
- Conducting a visual acuity test.
- Conducting a corneal pachymetry.

### Treatment:

Early diagnosis and treatment of glaucoma are two major factors that help prevent vision loss. Glaucoma is treated by lowering eye pressure (intraocular pressure) down to acceptable levels, thereby preventing optic nerve and tissue damage. Treatment options include:

- **Prescription eyedrops, or oral medications** that either help increase the drainage of aqueous humor or reduce its production. In most cases, eyedrops are enough if the patient adheres to the doctor's instructions. Prescription eyedrop medications include: Prostaglandins, Beta blockers, Alpha-adrenergic agonists, and Carbonic anhydrase inhibitors.
- **Laser therapy:**

Laser therapy can be very effective with all types of glaucoma. It is used as an option for treating:

  - **Open-angle glaucoma:** The doctor uses a small laser beam to open clogged channels and enlarge the angle through which the aqueous humor fluid is drained to keep eye pressure within normal levels. In certain cases, surgical intervention may be

needed to treat glaucoma. Examples of glaucoma surgical procedures include:

- **Filtering surgery:** With a surgical procedure, the surgeon creates an opening in the white of the eye (sclera) and removes part of the trabecular meshwork to get rid of excess fluid and lower eye pressure.
- **Implantation of glaucoma drainage devices:** In this procedure, the surgeon inserts a small tube shunt in the eye to drain away excess fluid and lower eye pressure.

#### Prevention:

- It is important to undergo an eye examination every 3-5 years after the age of 40, and every year after the age of 60.
- Make sure to treat high eye pressure to reduce your risk of glaucoma.
- Maintain a healthy diet and make sure to keep your blood pressure within the normal range.
- Avoid serious eye injuries by wearing protective glasses.

#### Clinical Health Education Department

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