

Glaucoma

“The Silent Thief”

What is glaucoma?

Glaucoma is a disease of the optic nerve head caused by the increased fluid pressure in the eye. The eye normally maintains a constant intraocular pressure. When the circulation gets blocked, fluid starts accumulating in the eye. As the fluid builds up it begins to exert pressure inside the eye and damages structures vital for vision, like optic nerve head.

Fig. (4.a) Normal Optic Disc

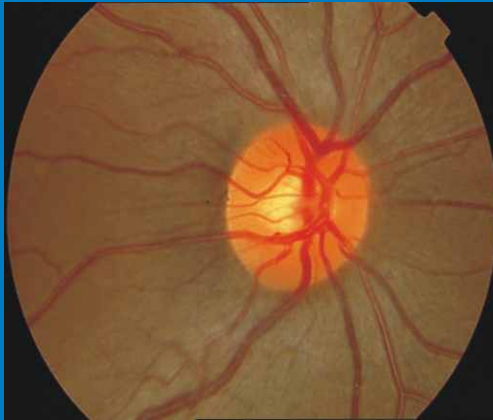
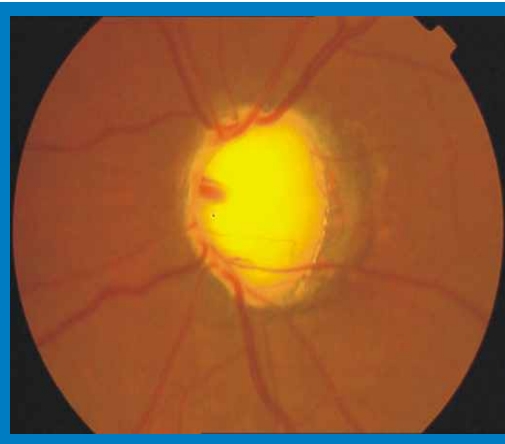


Fig. (4.b) Glaucomatous Optic Disc



Incidence and Prevalence of Disease

Glaucoma is the third leading cause of blindness worldwide. It is estimated that up to 70 million people have glaucoma and that 6.7 million will experience bilateral blindness from this disease.

Who are the people at risk for glaucoma?

- People over 60 years of age.
- Black races commoner than whites.
- Family history of glaucoma especially in the first degree relatives.
- Myopes (short-sighted) & hypermetropes (long-sighted) people.
- Diabetic & Hypertensives.
- People with history of Steroid use or history of Eye Injury etc...

Types of glaucoma

There are basically two types of glaucoma

1. Open angle glaucoma is more common. The incidence is 1 in 100 after 40 years.
2. Angle closure glaucoma: incidence is 1 in 1000 after 40 years. It is an acute onset glaucoma with sudden increase in the eye pressure with pain in the affected eye, headache and vomiting. This needs an emergency treatment.

What are the symptoms of Open Angle Glaucoma?

At first, open-angle glaucoma has no symptoms. It causes no pain. Vision stays normal.



Fig.(4.c) Normal Visual Field

Fig.(4.d) Moderate Loss

Fig.(4.e) Advanced Loss

Without treatment, people with glaucoma will slowly lose their peripheral (side) vision. Over a period of time, central vision may also decrease until no vision remains.

If I have increased eye pressure does that mean I have glaucoma?

No, not every person with increased eye pressure will develop glaucoma. Whether you develop glaucoma depends on the level of pressure your optic nerve can tolerate without being damaged. This level is different for each person. That's why not just the eye pressure but a comprehensive dilated eye examination is very important.

Comprehensive eye examination

As a part of the routine eye examination, eye pressure is checked for all the patients using the Applanation tonometer which is the most accurate.

For patients suspected to have glaucoma, or high risk group patients and patients with family history of glaucoma, the following tests are to be done.

Visual acuity test: This eye chart test measures how well you see at various distances.

Diagnostic techniques

Optical Coherence Tomography (OCT):

It is a non-invasive scanning method (similar to the CT scan for brain) by which the optic nerve head is diagnosed for its diseases.



Fig. (4.f) Optical Coherence Tomography (OCT) Machine

Non contact tonometer: to check the eye pressure by non contact technique

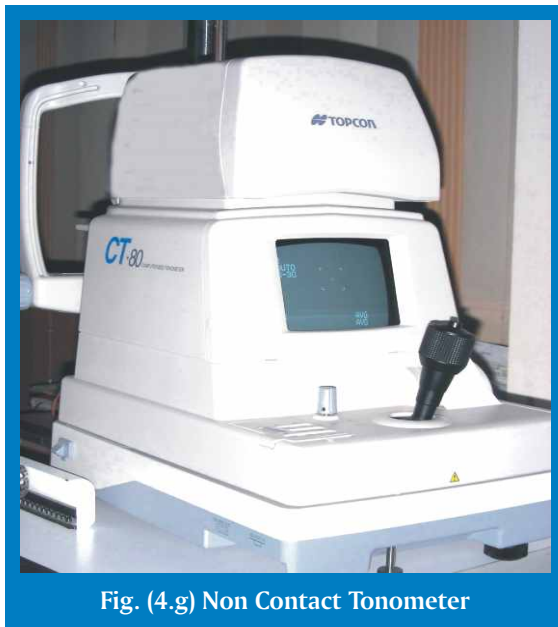


Fig. (4.g) Non Contact Tonometer



Fig. (4.h) Applanation Tonometer

Goldmann Applanation tonometer: to check the eye pressure.



Fig. (4.i) Automated Field Analyser

Visual field test: This test measures your side (peripheral) vision. It helps your eye care professional to tell if you have lost side vision, a sign of glaucoma.

Gonioscopy: The study of the angle of the eye by using gonio lenses

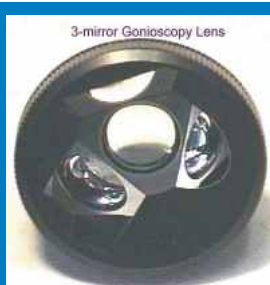


Fig. (4.k) Three Mirror Gonio Lens

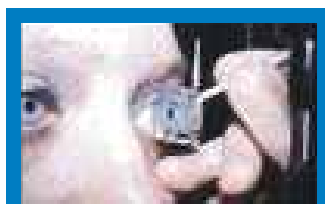


Fig. (4.j) Four Mirror Gonio Lens

Ophthalmoscopy: The method of examining the inner part or back of the eye. This is done with direct, indirect and non contact methods using +78D, +90D lenses.

Treatment:

Includes either or combination of the following:

1. Medical treatment: in the form of eye drops or tablets is the most common early treatment for glaucoma. It is very important to use the drops regularly as prescribed.
2. Nd-YAG laser Iridotomy and Trabeculoplasty: is an outpatient procedure which is especially useful in narrow angles and angle closure glaucoma.
3. Conventional surgery or Trabeculectomy: indicated in advanced or moderately advanced cases which are not controlled by medication or laser. This is a microsurgical procedure with good results.



Fig. (4.1) Nd YAG Laser Machine

Caveats

- There are mainly two types of glaucoma, Open Angle and Narrow Angle.
- Glaucoma is strongly a familial condition.
- Early diagnosis and treatment can prevent blindness due to glaucoma.
- Medical and surgical treatment depends on the individual condition. Eye drops, Laser treatment (Laser Iridotomy) and Surgery (Trabeculectomy) may be required according to the type of glaucoma.