

# GLAUCOMA

## What is Glaucoma ?

Glaucoma is a group of eye diseases that gradually steal sight without warning. In the early stages of the disease, there may be no symptoms. It is estimated that half of the people affected by glaucoma may not know they have it.

Vision loss is caused by damage to the optic nerve. This nerve acts like an electric cable with over a million wires. It is responsible for carrying images from the eye to the brain.

It was once thought that high pressure within the eye, also known as intraocular pressure or IOP, is the main cause of this optic nerve damage. Although IOP is clearly a risk factor, we now know that other factors must also be involved because even people with “normal” levels of pressure can experience vision loss from glaucoma.



Normal Vision



Vision with Glaucoma

## Glaucoma Clinic at rushabh

**Early detection is vital to stopping the progress of this sight threatening disease.**

RUSHABH Eye Hospital and Laser Center has a specialized Glaucoma Clinic with a Certified Senior Glaucoma Consultant of repute specializing in Glaucoma Diagnosis and Management.

The Glaucoma Clinic is equipped with advanced Glaucoma Diagnostic Equipment like 3-D OCT, SWAP Perimetry and Orbscan 2 based Corneal Pachymetry.



## Can I Have Glaucoma ?

Unfortunately glaucoma is a disease, which cannot be seen or felt by the patients in the early stages. It is usually spotted during the course of a routine eye check-up done by an Eye Surgeon, when high IOP is suspected and more detailed test is conducted. The mistake that most people commonly make is getting only their glass numbers checked by an Optician ignoring the need for a detailed eye check up.

Sometimes the patient discovers it and come to the Dr with complaints of mild headache, fuzzy vision in morning or seeing rainbow colours around lights. These all indicate raised IOP.

Get an Eye Check up routinely above the age of 40 years.



## Risk factors for Glaucoma are:-

**Age:** Glaucoma is much more common among older people. You are six times more likely to get glaucoma if you are over 40 years old.

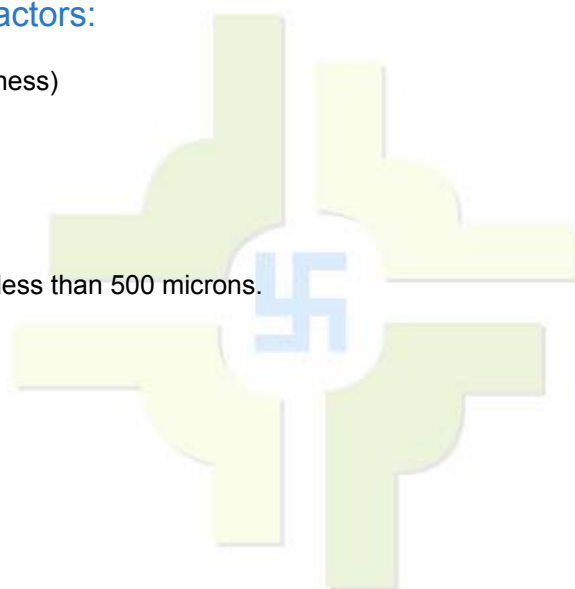
**Family History Of Glaucoma:** The most common type of glaucoma, primary open angle glaucoma, is hereditary. If members of your immediate family have glaucoma, you are at a much higher risk than the rest of the population. Family history of glaucoma increases the risk of glaucoma four to nine times.

**Indiscriminate use of Steroids:** Studies indicate Steroids increase intraocular pressure. These could be in the form of Oral medications, Steroid Inhalers and Steroid Eye Drops used for long periods of time.

**Injury to Eye:** Injury to the eye may cause secondary open angle glaucoma. This type of glaucoma can occur immediately after the injury or years later.

## Other Possible Risk factors:

- ✦ High myopia (nearsightedness)
- ✦ Diabetes
- ✦ Hypertension
- ✦ Central corneal thickness less than 500 microns.



## Types of Glaucoma

Adult glaucoma falls into two categories

✦ **Open Angle glaucoma**

✦ **Closed Angle glaucoma**

These are marked by increase of intra ocular pressure ( IOP ), or pressure inside the eye.

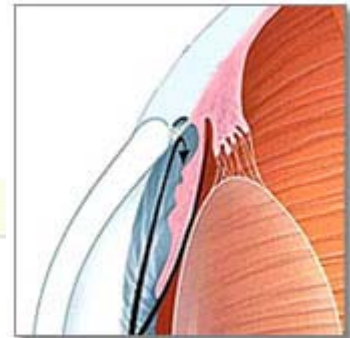
### Open Angle Glaucoma

This is the most common form of glaucoma.

Think of the eye as a sink with a tap that is always open. The water flows through if the drainage mechanism is working all right. The trouble arises when the drainage is clogged and the water begins to collect.

In the same way, the inside of the eye contains fluid that is constantly flowing and is drained out of the eye. Glaucoma happens when the eye's drainage canals become clogged. The pressure inside the eye (also called intraocular pressure or IOP) rises because the correct amount of fluid can't drain out of the eye. This results in the fluid accumulating in the eye and over a period of time it leads to increased intra ocular pressure. Over a period of time, this high pressure inside the eye (IOP) can damage the optic nerve (or nerve of the eye)

Most people have no symptoms and no early warning signs. If open angle glaucoma is not diagnosed and treated, it can cause a gradual loss of vision. This type of glaucoma develops slowly and sometimes without noticeable sight loss for many years. It usually responds well to medication, especially if caught early and treated.



**Open Angle Glaucoma**

### Angle Closure Glaucoma

This type of glaucoma is also known as acute glaucoma or narrow angle glaucoma. It is very different from open angle glaucoma in that the eye pressure usually rises very quickly.

This happens when the drainage canals get blocked or covered over, like a sink with something covering the drain.

With angle closure glaucoma, the iris is not as wide and open as it should be. The outer edge of the iris bunches up over the drainage canals, when the pupil enlarges too much or too quickly. This can happen when entering a dark room.

Treatment of angle closure glaucoma usually involves surgery to remove a small portion of the outer edge of the iris. This helps unblock the drainage canals so that the extra fluid can drain. Usually surgery is successful and long lasting. However, you should still receive regular check-ups.

Symptoms of angle closure glaucoma : include headaches, eye pain, nausea, rainbows around lights at night, and very blurred vision.



**Angle Closure Glaucoma**

## Glaucoma Evaluation

### Diagnostic Tests

Early detection, through regular and complete eye exams, is the key to protecting your vision from damage caused by glaucoma.

Regular eye check up helps us to diagnose Glaucoma. Rushabh eye hospital and laser center has one of the most modern and sophisticated Glaucoma Clinic.

**The following table gives us, how regularly eye check up should be done.**

- ❖ Between age of 35 to 40 years: First Check up
- ❖ Between age of 40 to 60 years: Once in every two to three years
- ❖ After age of 60 years: Once every year



**Anyone with high risk factors, should be tested every year or two after age 35.**

### Routine Tests for Glaucoma:

Regular glaucoma check-ups include two routine eye tests: tonometry and ophthalmoscopy.

#### 1. Tonometry

The tonometry test measures the inner pressure of the eye or intraocular pressure with a special instrument called applanation tonometer.

#### 2. Ophthalmoscopy

Ophthalmoscopy is used to examine the inside of the eye, especially the optic nerve.

If the pressure in the eye is not in the normal range, or if the optic nerve looks unusual, then full glaucoma evaluation is advised.

Full Glaucoma Evaluation consists of tests called perimetry, gonioscopy, pachymetry, optic disc photography and OCT (optical coherence tomography or laser imaging of the nerve of the eye).

#### 3. Perimetry

The perimetry test is also called a visual field test. During this test, you will be asked to look straight ahead and then indicate when a moving light passes your peripheral (or side) vision. This helps draw a "map" of your vision.



#### 4. Gonioscopy

Gonioscopy is a painless eye test that checks if the angle where the iris meets the cornea is open or closed, showing if either open angle or closed angle glaucoma is present.

Optic Nerve Computer Imaging

#### 5. OCT

The OCT instrument utilizes a technique called optical coherence tomography which creates images by use of special beams of light. The OCT machine can create a contour map of the optic nerve, optic cup and measure the retinal nerve fiber thickness. Over time this machine can detect loss of optic nerve fibers.



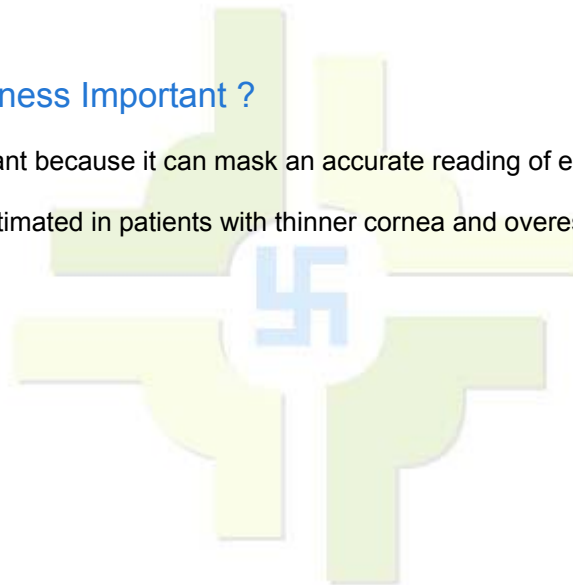
#### 6. Pachymetry

Simple , quick and painless test to Determine Corneal Thickness

### Why is Corneal Thickness Important ?

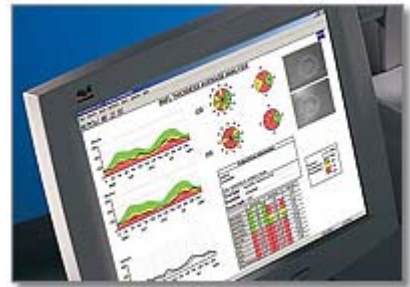
Corneal thickness is important because it can mask an accurate reading of eye pressure.

Actual IOP may be underestimated in patients with thinner cornea and overestimated in patients with thicker cornea.



## Truth & Facts about Glaucoma

Once diagnosed as a glaucoma patient, you require constant and lifelong care. If detected early, it can be controlled immediately and there by prevent any vision loss. Although glaucoma can be controlled, any damage that has already occurred cannot be reversed.



Glaucoma can be successfully controlled with eye drops, Pills or surgical operations. This prevents further damage and thus preserves vision. Often, people tend to think that once their IOP has been brought down to safe levels they have been cured of glaucoma. Even when medication has successfully controlled glaucoma it is important to constantly monitor the condition by checking IOP levels regularly & use medications regularly. Periodic eye examinations are vital in controlling glaucoma. Glaucoma can worsen without your being aware of it and your treatment may need to be changed over time.

We hope the following information is helpful to you.

### Few facts about glaucoma

- ❖ Glaucoma is a leading cause of blindness. Estimates put the total number of suspected cases of glaucoma at around million.
- ❖ Glaucoma can cause blindness if it is left untreated. And unfortunately approximately 10% of people with glaucoma who receive proper treatment still experience loss of vision.
- ❖ There is no permanent cure (yet) for glaucoma.
- ❖ Glaucoma is not curable, and vision lost cannot be regained. With medication and/or surgery, it is possible to halt further loss of vision. Since glaucoma is a chronic condition, it must be monitored for life.
- ❖ Diagnosis is the first step to preserving your vision.
- ❖ Everyone is at risk for glaucoma from babies to senior citizens. Yes, older people are at a higher risk for glaucoma but babies can be born with glaucoma (approximately 1 out of every 10,000 babies born in the world). Young adults can get glaucoma, too.
- ❖ Estimates put the total number of suspected cases of glaucoma at around 65 million worldwide.



**Glaucoma can be very destructive to your vision; in fact, it's the leading cause of blindness**

### Symptoms of glaucoma

With open angle glaucoma, the most common form, there are virtually no symptoms. Usually, no pain is associated with increased eye pressure.

Vision loss begins with peripheral or side vision. You may compensate for this unconsciously by turning your head to the side, and may not notice anything until significant vision is lost. The best way to protect your sight from glaucoma is to get tested. If you have glaucoma, treatment can begin immediately.

## Golden Rules for Glaucoma

- **Use your medications regularly:** It will be especially easy to forget to use your medication when your pressures are under but to prevent intermittent rise in eye pressure please put drops regularly. Get an extra supply of medication in case you misplace a bottle of eye drops or pills.
- **Know what your medications are & how best to use them:** Know the name and dosage of each medication you are using.
- **Schedule your regular check ups on time:** It is easy to put off or forget your regular check ups when your IOP is under control or, when you are busy with work or personal activities. Please go for regular IOP check ups and perimetry test as advised.
- **Maintain Good Health:** Maintaining good general health is important and also contributes to taking care of your eyes. Pay attention to proper diet and nutrition, exercise, and avoid nicotine and excess caffeine. Reduce your day to day stress.



## Medication Tips

1. Schedule medications around daily routine like on waking up or breakfast & bedtime.
2. Remember that "Four times a day" means four times in 24 hours that is at 7am. At noon, 6pm & bedtime. "Twice a day" means every 12 hours that is at 7 am and 7 pm or at 10 am and 10 pm
3. Keep your medications in a special visible place at home (for instance on a kitchen table or on a bathroom shelf) carry them with you when your are away from home. If you are scheduled for medication during office hours, you can keep an extra supply in your office or carry it in your bag, so you don't risk forgetting to take your medication.
4. Do talk to us and try and understand how your medication works. It will make it easier for you to remember you're routine.
5. Schedule If the medications you are on, is/are inconvenient, uncomfortable to use or too expensive, talk to us about it we can try alternative.
6. Lasik Testimonials



## Living with Glaucoma

There are few adjustments; a person with glaucoma has to do, like getting used to frequent eye checking & using medications regularly. BUT diagnosis of glaucoma shouldn't prevent you from enjoying your life.



## Glaucoma Treatment

Treatment is aimed at controlling the pressure within the eye & to prevent damage to the optic nerve. There are two modalities by which pressure can be controlled.

- ✦ By Medicines
- ✦ By Surgery



### Medical line of treatment : Glaucoma medications

A number of medications are currently in use to treat glaucoma. Glaucoma specialist at Rushabh Eye Hospital and Laser Center will prescribe a combination of medications or change your prescription over time to reduce side-effects or provide a more effective treatment. Typically medications are intended to reduce elevated intraocular pressure and prevent damage to the optic nerve.

Glaucoma is an eye disease that gradually steals your vision. Often, glaucoma has no symptoms and can suddenly result in vision loss. Without proper treatment, glaucoma can lead to blindness. The good news is that with regular eye exams, early detection, and treatment, you can preserve your sight. ON prescription of a glaucoma medication, it is important to carefully follow your medication regimen to continually preserve a healthy eye pressure and prevent vision loss.

### Medical line of treatment has few advantages & disadvantages

Advantages: No operation, so no complications faced.

Disadvantages: Eye drops have to be put regularly & may have some side effects. This may lead to irregular use of drops, which will lead to increase in eye pressure & this will damage the optic nerve.



### Glaucoma Surgery

The type of surgery recommended will depend on the type and severity of your glaucoma and the general health of your eye. Surgery can help lower pressure when medication is not sufficient, however it cannot reverse vision loss.

Filtering microsurgery to reduce intraocular pressure is called Trabeculectomy.

### Surgical line of treatment has few advantages & disadvantages

Advantages: Can be done in any type of glaucoma, results are immediate, this is long lasting & medications usually are not needed afterward.

Disadvantages: It is costly, requires hospitalization & may have some complications like late infection & late failure.

## How to put Eyedrops

Prescription eye drops for glaucoma help maintain the pressure in your eye at a healthy level and are an important part of the treatment routine for many people. Always check with our medical team if you are having difficulty.

### Remember:

- ✦ Follow our prescription orders properly.
- ✦ Tell us if you are allergic to any drugs.
- ✦ Wash your hands before putting in your eye drops.
- ✦ Be careful not to let the tip of the dropper touch any part of your eye.
- ✦ Make sure the dropper stays clean.
- ✦ If you are putting in more than one drop or more than one type of eye drop, wait five minutes before putting the next drop in. This will keep the first drop from being washed out by the second before it has had time to work.
- ✦ Store eye drops and all medicines out of the reach of children.

### Steps for Putting in Eye Drops:

- ✦ Start by tilting your head backward while sitting, standing, or lying down. With your index finger placed on the soft spot just below the lower lid, gently pull down to form a pocket.
- ✦ Let a drop fall into the pocket.
- ✦ Slowly let go of the lower lid. Close your eyes but try not to shut them tight or squint. This may push the drops out of your eye.
- ✦ Gently press on the inside corner of your closed eyes with your index finger and thumb for two to three minutes. This will help keep any drops from getting into your system and keep them in your eye, where they are needed.
- ✦ Blot around your eyes to remove any excess.

