

## Glaucoma

Glaucoma refers to a category of eye disorders often associated with a dangerous buildup of internal eye pressure (intraocular pressure or IOP), which can damage the eye's optic nerve that transmits visual information to the brain.



With untreated or uncontrolled glaucoma, you might eventually notice decreased ability to see at the edges of your vision (peripheral vision). Progressive eye damage could then lead to blindness.

In fact, glaucoma creates at least some vision loss in more than half of the approximately 2.5 million Americans estimated to have the eye disease and is the second leading cause of blindness.

## Glaucoma Symptoms

Glaucoma often is called the "silent thief of sight," because most types typically cause no pain and produce no symptoms until noticeable vision loss occurs.

For this reason, glaucoma often progresses undetected until the optic nerve already has been irreversibly damaged, with varying degrees of permanent vision loss.

But with acute angle-closure glaucoma, symptoms that occur suddenly can include blurry vision, halos around lights, intense eye pain, nausea and vomiting. If you have these symptoms, make sure you see an eye care practitioner or visit the emergency room immediately so steps can be taken to prevent permanent vision loss.

## Diagnosis, Screening and Tests for Glaucoma

During routine eye exams, a **tonometer** is used to measure your intraocular pressure, or IOP. Your eye typically is numbed with eye drops, and a small probe gently rests against your eye's surface. Other tonometers send a puff of air onto your eye's surface.

An abnormally high IOP reading indicates a problem with the amount of fluid (aqueous humor) in the eye. Either the eye is producing too much fluid, or it's not draining properly.

Normally, IOP should be below 21 mmHg (millimeters of mercury) — a unit of measurement based on how much force is exerted within a certain defined area.



If your IOP is higher than 30 mmHg, your risk of glaucoma damage is 40 times greater than someone with an IOP of 15 mmHG or lower.\* This is why glaucoma treatments such as eye drops are designed to keep IOP low.

**Visual field testing** is a way for your eye doctor to determine if you are experiencing vision loss from glaucoma. Visual field testing involves staring straight ahead into a machine and clicking a button when you notice a blinking light in your peripheral vision. The visual field test may be repeated at regular intervals to make sure you are not developing blind spots from

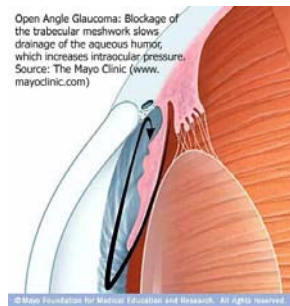
## Glaucoma (continued)

damage to the optic nerve or to determine the extent or progression of vision loss from glaucoma.

**Gonioscopy** also may be performed to make sure the aqueous humor (or "aqueous") can drain freely from the eye. In gonioscopy, special lenses are used with a biomicroscope to enable your eye doctor to see the structure inside the eye (called the drainage angle) that controls the outflow of aqueous and thereby affects intraocular pressure.

### Types of Glaucoma

The two major types of glaucoma are **chronic or primary open-angle glaucoma (POAG)** and **acute angle-closure glaucoma or narrow-angle glaucoma**. The "angle" in both cases refers to the drainage angle inside the eye that controls aqueous outflow. Other variations include normal-tension glaucoma, pigmentary glaucoma, secondary glaucoma and congenital glaucoma.



### Primary open-angle glaucoma (POAG)

About half of Americans with chronic glaucoma don't know they have it. This common type of glaucoma gradually reduces your peripheral vision without other symptoms. By the time you notice it, permanent damage already has occurred.

If your IOP remains high, the destruction caused by POAG can progress until tunnel vision develops, and you will be able to see only objects that are straight ahead.

### Angle-closure glaucoma

Angle-closure or narrow-angle glaucoma produces sudden symptoms such as eye pain, headaches, halos around lights, dilated pupils, vision loss, red eyes, nausea and vomiting.

These signs may last for a few hours, and then return again for another round. Each attack takes with it part of your field of vision.

### Normal-tension glaucoma

Like POAG, normal-tension glaucoma (also termed normal-pressure glaucoma, low-tension glaucoma or low-pressure glaucoma) is an open-angle type of glaucoma that can cause visual field loss due to optic nerve damage. But in normal-tension glaucoma, the eye's IOP remains in the normal range.

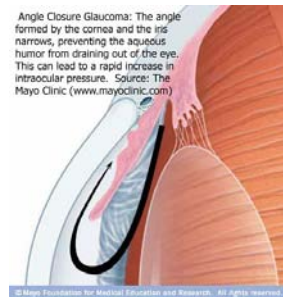
Also, pain is unlikely and permanent damage to the eye's optic nerve may not be noticed until symptoms such as tunnel vision occur.

The cause of normal-tension glaucoma is not known. But many doctors believe it is related to poor blood flow to the optic nerve. Normal-tension glaucoma is more common in those who are Japanese, are female and/or have a history of vascular disease.

### Pigmentary glaucoma

This rare form of glaucoma is caused by pigment deposited from the iris that clogs the drainage angle, preventing aqueous humor from leaving the eye. Over time, the inflammatory response to the blocked angle damages the drainage system.

You are unlikely to notice any symptoms with pigmentary glaucoma, though some pain and blurry vision may occur after exercise. Pigmentary glaucoma affects mostly white males in their mid-30s to mid-40s.



## **Glaucoma (continued)**

### **Secondary glaucoma**

Symptoms of chronic glaucoma following an eye injury could indicate secondary glaucoma, which also may develop with presence of eye infection, inflammation, a tumor or an enlarged cataract.

### **Congenital glaucoma**

This inherited form of glaucoma is present at birth, with 80 percent of cases diagnosed by age one. These children are born with narrow angles or some other defect in the drainage system of the eye.

It's difficult to spot signs of congenital glaucoma, because children are too young to understand what is happening to them. If you notice a cloudy, white, hazy, enlarged or protruding eye in your child, consult your eye doctor. Congenital glaucoma typically occurs more in boys than in girls.

### **Glaucoma Treatments**

Treatment can involve glaucoma surgery, lasers or medication, depending on the severity. Eyedrops with medication aimed at lowering IOP used to be the first line of therapy to control glaucoma. With the advent of the SLT laser, most patients prefer this treatment over the traditional eyedrops

Because glaucoma often is painless, people may become careless about strict use of eyedrops that can control eye pressure and help prevent permanent eye damage.

In fact, non-compliance with a program of prescribed glaucoma medication is a major reason for blindness caused by glaucoma.

Most patients prefer the in-office laser procedure over a regiment of eyedrops. Not only does the procedure eliminate the non-compliance concerns, patients will also see an elimination of the "red eye" that many glaucoma patients experience from taking their eyedrop medications. Also, patients will save money on reducing medications, co-pays and/or co-insurance expenses.

*Want to learn more? Please call Dr. Lothes at (614) 841-9300 to set-up an examination and consultation.*