

Gordon Wuebbolt, MD

Michael Landy, OD

Michael O'Neill, OD

Lauren Moore, OD

Ralph Witchev, OD

Open Angle Glaucoma

Glaucoma is the term used to describe a group of eye disease in which the intraocular pressure (pressure within the eyeball) is increased and causes progressive damage to the optic nerve. The optic nerve is like a telephone wire transmitting images from the eye to the brain. As the optic nerve is slowly damaged, characteristically-shaped blind areas develop that can progress to loss of vision or even total blindness, usually painlessly

Open angle glaucoma (also called chronic open angle glaucoma and chronic simple glaucoma) is the most common type, accounting for about 90% of all glaucoma. It usually affects both eyes, though one eye may be involved earlier than the other. It usually does not occur until middle life, though sometimes younger individuals are affected. The condition tends to be hereditary. It is not contagious and not related to cancer. The high pressure in the eyes is not the same as high blood pressure.

What Causes Open Angle Glaucoma?

Glaucoma is caused by a problem in the eye's fluid drainage system.

A clear fluid called aqueous humor (or simply aqueous) fills the anterior chamber, a compartment at the front of the eye between the cornea (clear "window" that overlies the colored iris) and the iris. Aqueous is produced and circulated in the eyeball to supply essential nutrients to the eye and keep a normal, gentle pressure within it, like a balloon or tire.

The pressure is maintained within a narrow range by a control system that delicately balances the production and drainage of aqueous from the anterior chamber.

The drainage channels - the trabeculum filter and the Canal of Schlemm - are located near the "angle", a wedge-shaped space in the anterior chamber that encircles the iris, where it meets the edge of the cornea.

Glaucoma can occur when a blockage develops in the drain mechanism, preventing aqueous from leaving the eye easily. Since aqueous continues to be produced, the pressure within the eye gradually builds up (over months to years). If the pressure stays much above a normal level for enough time, the delicate blood supply and fibers in the optic nerve are likely to be damaged.

2 Farm Colony Dr
Warren PA 16365
814-726-2303

2A Park Way
Seneca PA 16346
814-677-6404

462 Fairmount Ave
Jamestown NY 14701
716-484-6700

110 E Columbus Ave
Corry PA 16407
814-655-1300

1136 Central Ave
Dunkirk NY 14048
716-366-2033

2223 W. State St.
Olean, NY 14760



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Examination and Diagnosis

As part of the routine eye examination, the pressure within your eyes is checked by a painless test called tonometry. Depending on the type of tonometer used, you may be given anesthetic eye drops. An elevated pressure is one sign that you may have glaucoma -in other words, tonometry cannot tell for sure that glaucoma is present or that the pressure needs treatment. Many people have glaucoma even with a normal pressure

A diagnosis of open angle glaucoma can be made only by a thorough examination in which various eye functions and certain structures inside the eye are evaluated. A visual field test (which measures the extent of your side vision) is necessary to discover if any areas of vision have been lost. The inside of the eye is examined with several instruments. A gonioscope -which is a special type of contact lens with built-in mirrors that allows a view into the angle structure- is placed on the eye so the condition of the drainage channels can be studied. The retina and optic nerve are examined with an ophthalmoscope. Photos of the optic nerve are important to track any changes over time.

If the optic nerve does not appear to be damaged and there is no loss of visual field evident, an increase eye pressure does not need to be treated. However, it does need to be examined regularly (every few months) to watch for any developing changes.

Treatment

The goal of treatment is to lower the eye pressure. Almost always, this can be accomplished by the regular use of prescription eye drops. Some of these work by improving the filter drainage mechanism; others lower the production of aqueous. Oral medication may also be prescribed to lower pressure by reducing the aqueous production.

Even when the medications are faithfully used, they are sometimes unable to stop the disease from progressing. Then, laser treatment may be recommended. This procedure, called laser trabeculoplasty (L TP), can lower the pressure, sometimes dramatically, though it still might need to be supplemented with medications. Even when L TP is successful, it is not always a permanent solution; months or years later, pressure may again rise to dangerous levels.

If all other therapy combinations have not been successful, filtration surgery may be recommended. The most common of these procedures, called trabeculectomy, is the surgical creation of a new drainage channel. There are other surgical procedures, which can provided even greater drainage, if needed, it reduce the ocular pressure and save vision.

Surgery always has risks and side effects. If it becomes necessary in your case, those risks will be carefully examined along with potential benefits.

Glaucoma is usually a lifetime problem. Never assume that you have been cured, and do not stop treatment unless you have been told to do so. Left untreated, this disease can cause total blindness. On the other hand, proper treatment and regular checkups can help you to preserve your precious eyesight for the rest of your life.