Glaucoma

Glaucoma is the name for a group of diseases that have the common feature of poor internal drainage of eye fluids. When eye fluids don’t drain properly, pressure increases within the eye, squeezing and damaging the optic nerve (the nerve that sends visual messages from the eye to the brain). The result is a loss of vision.

Glaucoma is the second leading cause of blindness in the United States (next to macular degeneration) and the primary cause of blindness in African Americans. However, glaucoma is often symptomless, painless and so slow to progress that many people are unaware they have it until their vision is already damaged. Regular eye examinations, especially as people age, can discover the disease in its early stages, which is key to preserving as much vision as possible.

The types of glaucoma include:

- **Primary open-angle glaucoma**, caused when the trabecular meshwork, a network of drainage tissue between the iris (the colored part of the eye) and the cornea (the clear, "window" located at the front of the eye that covers the iris and pupil), becomes clogged for unknown reasons. This prevents adequate fluid drainage, upsetting the balance between fluid production and absorption in the eye. Without appropriate treatment, open-angle glaucoma becomes a progressive, chronic disease that can cause complete blindness.

- **Angle-closure glaucoma**, which occurs when the angle between the iris and cornea is decreased, blocking fluid drainage completely. This can occur at any age but is more frequent after age 30 and is more common in Asians, particularly those of Burmese or Vietnamese descent. (Note: The term "angle" describes the contour of the opening between the iris and the cornea. This channel funnels fluids to the trabecular meshwork. If the angle is completely open, that is, the distance is normal but the meshwork is clogged, the diagnosis is chronic open angle glaucoma. If the angle is closed, the diagnosis is acute closed angle glaucoma. A good analogy is a shower drain. A clogged but open drain equates to chronic open angle; a closed drain is comparable to acute closed angle. If you do not have glaucoma, the drain is open and unclogged.) Angle-closure glaucoma may be either:
  - **Acute angle-closure glaucoma**, an ophthalmic (eye disease) emergency with rapid onset of symptoms. Immediate treatment is required to prevent permanent blindness.
  - **Sub-acute, chronic or intermittent angle-closure glaucoma**, which occurs when the angle between the iris and cornea is partially or intermittently (sometimes) blocked.

- **Normal-pressure glaucoma**, which occurs when symptoms develop although eye-fluid pressure is within normal limits. It may occur due to unusual sensitivity of the retina and optic nerve to fluid pressures.
• **Congenital glaucoma**, a developmental eye defect that appears at birth or soon afterward, although it may not be detected until later. It often results from defects in the drainage system of the eye.

• **Childhood or juvenile glaucoma**, a rare condition that may occur in infancy, childhood or adolescence. There are few or no symptoms during the early stage of the disease. It may be due to a defect in eye development or other congenital (present at birth) problems or a complication of trauma or another disease. Childhood glaucoma differs from congenital glaucoma, which is due solely to developmental defects in the drainage system of the eye.

• **Secondary glaucoma**, which results from uveitis, an inflammation of the uveal tract, containing the iris, the ciliary body (structure behind the iris that produces fluid), and the choroid (inner lining of the eye). Secondary glaucoma can occur at any age. It can also be caused by eye trauma, diabetes, prolonged steroid use, cataracts, or a tumor.

Risk factors for glaucoma include race (higher incidence in African Americans), family history, age (over 60 for Caucasians and over 40 for African Americans), extreme nearsightedness, a history of eye surgery or injury, diabetes, prolonged steroid use, obesity, smoking or alcohol abuse.

**Note your symptoms**

• **Open-angle glaucoma** may involve no symptoms for a long time after onset in this chronic condition. Once the condition progresses to its advanced form, however, symptoms usually occur in both eyes and begin with loss of peripheral vision; you'll notice you are having difficulty seeing stairs or words. Other symptoms may include mild achiness in your eyes, seeing bright rainbow-colored rings around lights or bright objects (halo vision) and poor night vision.

• **Acute-angle closure glaucoma** results in blindness within two to five days if not treated. This type of glaucoma begins quickly, usually with inflammation, pain and pressure in one eye, accompanied by visual blurring, nausea, vomiting and severe headaches.

• **Congenital glaucoma** is usually diagnosed within the first six months of life, with the earliest symptom being an excess flow of tears. Symptoms of secondary glaucoma are the same as those of either chronic open-angle or acute closed-angle, depending on the process causing the glaucoma.

• **Sub-acute angle-closure glaucoma** can occur as short episodes of eye pain, redness, blurry vision and halos that resolve spontaneously (by themselves). Even though symptoms disappear without treatment, damage builds in the eye. People who do not seek treatment for sub-acute angle-closure glaucoma are at high risk of developing acute angle-closure glaucoma.

• **Normal pressure glaucoma** has symptoms of impaired vision similar to those of open-angle glaucoma.

• **Childhood or juvenile glaucoma** is usually diagnosed during infancy, childhood or adolescence. Symptoms are excessive flow of tears, light sensitivity, excessive blinking, or twitching of the eyelids.

• **Secondary glaucoma**, whether it occurs during childhood or adulthood, can have the same symptoms as either open-angle or angle-closure glaucoma, depending on the process involved.
**What your doctor may do**

If glaucoma is diagnosed in its early stages and treatment begins promptly, vision can likely be maintained. Glasses cannot correct glaucoma but there are options for controlling it.

Most cases of glaucoma can be controlled with prescription eyedrops, inserts, ointments or oral medications. These medications can reduce fluid flow into the eye or improve drainage, thus reducing optical pressure. Infants and children with glaucoma are usually prescribed the same medications as adults. If the glaucoma does not respond to medication or if the patient is unable to tolerate medication side effects, surgery can help relieve the pressure and control vision deterioration for both open-angle and angle-closure glaucoma.

Many over-the-counter (OTC) and prescription medications should not be taken if you have glaucoma. Talk to your healthcare provider or pharmacist before taking any new medications.

**Screening**

Everyone over the age of 40 should have an eye exam every two years, including a *tonometric* exam (this test measures pressure inside the eye, which is useful in detecting glaucoma). Some health authorities recommend annual tonometry exams on anyone over 35 years of age, or earlier for people with a family history of glaucoma.

Infants and children with a family history of childhood glaucoma or a medical condition associated with secondary glaucoma should be monitored closely.

**Follow-up**

Regular eye exams are vitally important for people diagnosed with glaucoma. This allows your doctor or ophthalmologist to monitor the pressure within your eyes and your response to treatment. You'll need to continue your treatment plan (which will include taking your medications as directed) throughout your life.

In severe cases, weekly visits may be necessary until your condition is stabilized. Once it has stabilized, you won't need to go to the doctor as often. Many patients do well with an annual eye exam if they continue to take their medication as directed. The frequency of your follow-up exams will vary according to the severity of your condition and various risk factors. Your doctor will tell you how frequently you should be re-examined.

**Final note**

Advances in treatment technology have improved the outlook for those diagnosed with glaucoma. Your healthcare provider can provide additional information on this common and troublesome condition.

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