A GLAUCOMA PRIMER

Full Eye Care
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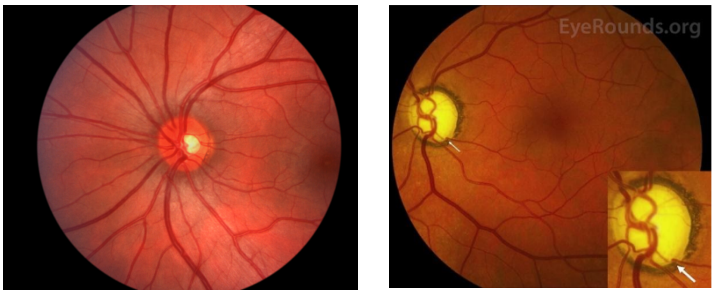
1 WHAT IS GLAUCOMA?

Glaucoma is a disease characterized by damage to the optic nerve. The optic nerve is the “cable” that connects the eye to the brain. Proper function of the nerve is necessary for the brain to process the images that the eye sees.

When this nerve has glaucoma damage, peripheral (side) vision is generally affected first. Therefore, it can go undetected until very late stages of the disease. At that point, most of the peripheral visual field loss that has already occurred cannot be reversed.

Prevention of glaucoma through regular eye check ups is the best way to protect yourself.



Left: normal optic nerve. Right: Glaucomatous nerve with thinning, especially prominent superiorly and inferiorly. Photo Credit: Eyerounds.org

The most common type of glaucoma is “primary open angle glaucoma.” In this type, the drainage system of the eye, known as the trabecular meshwork, is open, but cannot drain fluid out of the eye properly (similar to a clogged drain).

Angle closure glaucoma usually happens to people with short, or “crowded” eyes. Because the length of the eye is smaller than usual, parts of the eye that are adjacent to the drainage system (the iris and lens) can push forward and mechanically cover the drainage system, not allowing proper flow of fluid.

2 WHAT PUTS ME AT INCREASED RISK OF GLAUCOMA AND WHAT IS A GLAUCOMA SUSPECT?

Risk factors for primary open angle glaucoma include:

- African American or Hispanic/Latino heritage
- Higher IOP
- Older age, family history
- Type 2 Diabetes Mellitus
- Myopia (near sightedness)
- Larger cup to disc ratio
- Thin central cornea

Risk factors for angle closure glaucoma include:

- Hyperopia
- Asian heritage
- Female
- Older age, family history

One who has some risk factors listed above but does not have overt optic nerve damage is known as a glaucoma suspect. Regular testing can help ensure that glaucoma suspects who progress to glaucoma are diagnosed and treated as early as possible to minimize/prevent vision loss.

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3 WHAT TYPE OF IN OFFICE TESTING IS AVAILABLE FOR MONITORING GLAUCOMA?

Recurring tests done in office include visual fields and optical coherence tomography (OCT) scans

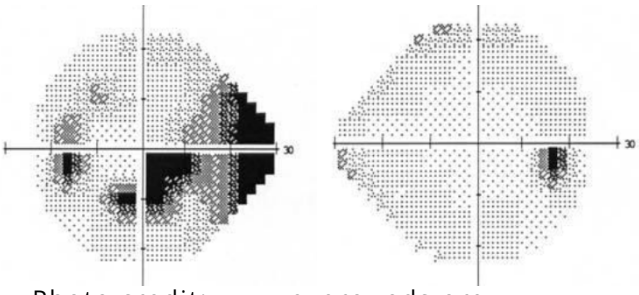

Photo credit: www.eyerounds.org

For a visual field, a patient will be in a dark room, and look into a "perimeter" or area where white dots will be randomly flashed in the patient's peripheral field of view. The patient will "click" a button every time a dot is seen. This test takes about 6 minutes per eye.

As glaucoma progresses, patients lose peripheral visual field, as measured by the perimeter.

An OCT scan maps out the entire optic nerve. This map can be compared from year to year to check whether subclinical (that is, thinning that cannot be detected on exam) thinning is taking place.

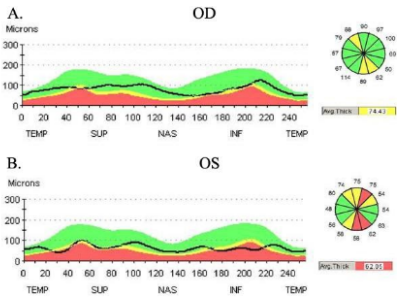

Photo credit: www.eyerounds.org.

In this patient with glaucoma, OCT is thin in both eyes, worse in the left.

Based on changes in your visual field, OCT, intra-ocular pressure, and optic nerve head exam, Dr. Ali can optimize your treatment regimen.

4 WHAT IS THE TREATMENT FOR GLAUCOMA

Initial treatment of primary open angle glaucoma is usually with eye drops to lower eye pressure by 20-30%. There are surgical and laser treatment options as well.

According to recent studies, an additional 5000 daily steps or 2.6 hours of non-sedentary physical activity can decrease the rate of visual field loss by 10%. Another reason to start walking!

For More Information, please see the following resources:

- https://www.aao.org/eye-health/diseases/what-is-glaucoma
- https://www.aao.org/image/glaucomatous-visual-field-progression
- Williams, Ruth, MD et al. Primary Open Angle Glaucoma Preferred Pattern Guidelines. https://www.aaojournal.org/article/S0161-6420(15)01276-2/fulltext
- https://www.glaucoma.org/glaucoma/are-you-an-angle-closure-suspect.php
- Lee MJ, et al. Greater Physical Activity is Associated with Slower Field Loss in Glaucoma. Ophthalmology. 2019 Jul;126(7):958-964