



Glaucoma

a case presentation by
CARLA REMULLA

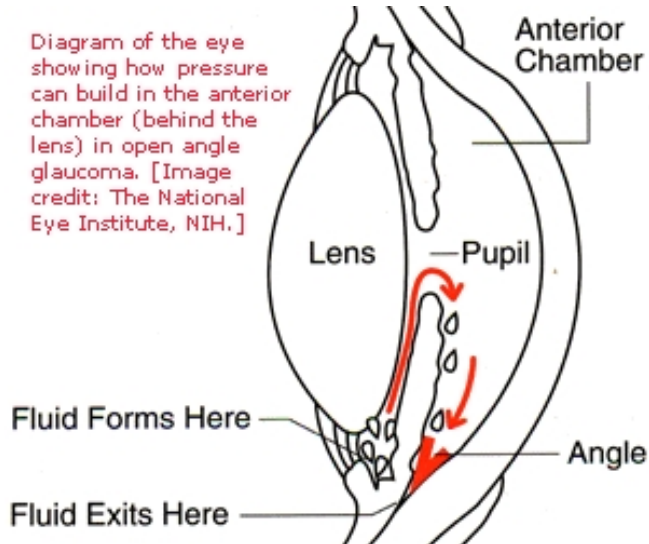


Glaucoma



- Leading cause of blindness
- Genetically inherited
- Damage to the optic nerve (sends impulses to the brain)

- Types:
 - Primary Open-Angle Glaucoma
 - Normal Tension Glaucoma
 - Angle-Closure Glaucoma
 - Trauma-Related Glaucoma
 - Childhood Glaucoma
- Open-Angle Glaucoma is present in 1% of Americans. Most common form in the country.



+ Stages

EXTREME GLAUCOMA



ADVANCED GLAUCOMA



EARLY GLAUCOMA



NORMAL VISION



- Pressure in the eye rises due to slow drainage of aqueous humor
- Cornea adapts without swelling
- Optic nerve cells are destroyed (at the moment, nothing can restore them once dead)
- Blind spots begin to form (peripheral field first)
- Tunnel vision → complete blindness

+ Symptoms



- No swelling
- Painless
- Loss of vision is not obvious
- Irreversible



Classical Diagnostic Methods



- Tonometry – measuring intraocular pressure
- Test for optic nerve damage
- Visual field test – check peripheral vision
- Visual acuity – vision from a distance
- Pachymetry – measuring cornea thickness

+ Classical Treatment

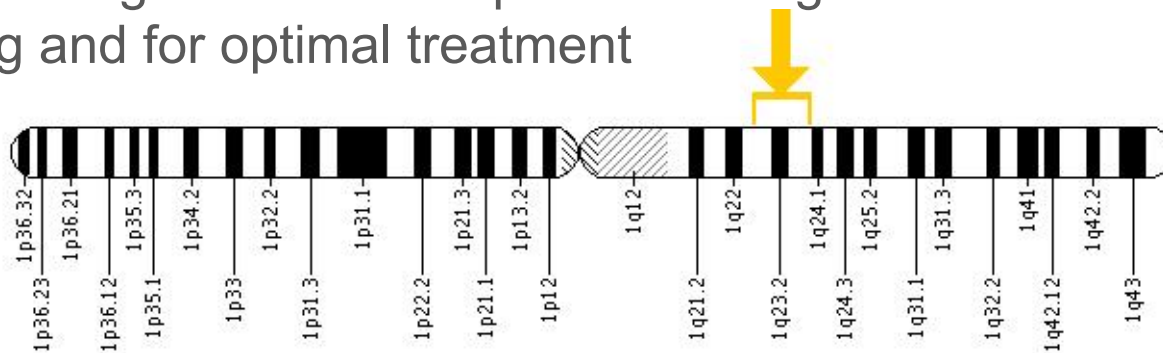


- There is no true cure at the moment and no reversal of damage, only ways to slow down the loss of vision with drugs
- Various ways to lower intraocular pressure – lower pressure, improve drainage, lower amount of fluid produced
 - Eye drops (e.g. prostaglandins, beta blockers, alpha-adrenergic agonists)
 - Oral medication
 - Surgery
 - Laser trabeculoplasty – open clogged drainage canals
 - Trabeculectomy – remove tissue
 - Drainage implants – insert a tube to facilitate draining



Novel Diagnostics and Therapy

- No solidified novel diagnostics and therapy yet
- Recommended: earlier diagnosis and effective treatment by regular eye exams
- 5% of primary open angle glaucoma currently attributed to single-gene forms of glaucoma
 - Mutations in myocilin (MYOC) on chromosome 1 between positions 23 and 24
 - Myocilin is a protein found in the trabecular meshwork and the ciliary body, that regulate the intraocular pressure
- Genetic testing for MYOC for patients at high risk – for predicting and for optimal treatment





Sources



- NCBI <http://www.ncbi.nlm.nih.gov/books/NBK22215/>
- PubMed <http://www.ncbi.nlm.nih.gov/pubmed/12851728>
<http://www.ncbi.nlm.nih.gov/pubmed/21562585>
- Genetics Home Reference <http://ghr.nlm.nih.gov/gene/MYOC>
- Mayo Clinic
<http://www.mayoclinic.com/health/glaucoma/DS00283>
- Glaucoma Foundation
http://www.glaucomafoundation.org/Primary_Open-Angle_Glaucoma.htm