Glaucoma

a case presentation by
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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

- 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

- Mayo Clinic http://www.mayoclinic.com/health/glaucoma/DS00283
- Glaucoma Foundation http://www.glaucomafoundation.org/Primary_Open-Angle_Glaucoma.htm