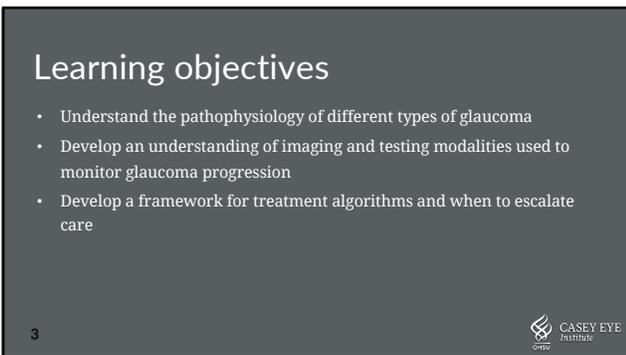


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What is Glaucoma?

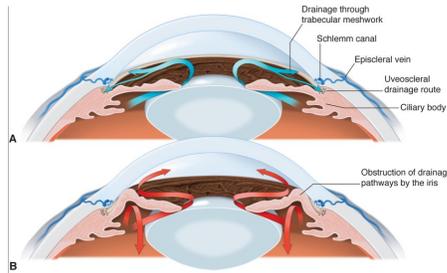
- A group of progressive optic neuropathies characterized by optic disc excavation, loss of retinal ganglion cells, and corresponding vision loss
- IOP at baseline is too high for retinal ganglion cell survival
- 2nd leading cause of blindness in the world, following cataracts
- Risk factors: age, race, elevated intraocular pressure, systemic diseases

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Aqueous humor flow



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Primary Open Angle Glaucoma (POAG)

- Most common form
- Gradual onset, asymptomatic in early stages
- Mechanism: multifactorial - aqueous humor outflow dysfunction, vascular insufficiency
- Risk factors: age, family history, African American or Hispanic descent

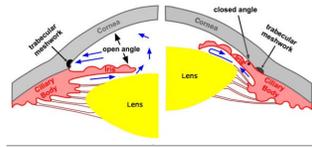
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Angle Closure Glaucoma

- Mechanism: narrowing or closure of the anterior chamber angle
- Symptoms: sudden eye pain, headache, nausea, blurred vision, halos around lights



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Normal Tension Glaucoma (NTG)

- Optic nerve damage despite normal IOP
- Possible vascular dysfunction or cerebrospinal fluid pressure involvement

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Secondary Glaucoma

- Occur due to underlying cause
- Neovascular glaucoma (diabetes, CRVO, OIS)
- Pigmentary glaucoma
- Pseudoexfoliation glaucoma
- Uveitic glaucoma



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Diagnosis of glaucoma

- Tonometry
- Optic nerve evaluation
- Visual field testing
- Gonioscopy
- Pachymetry

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Optic Nerve Evaluation

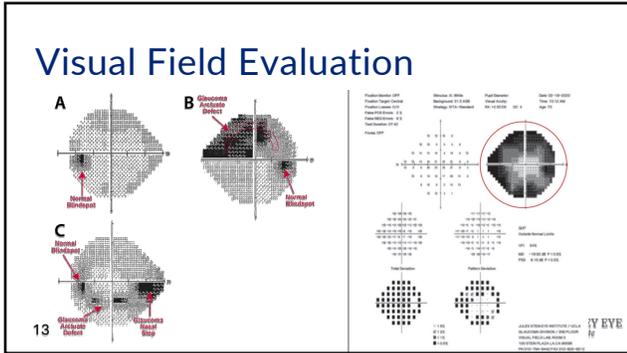
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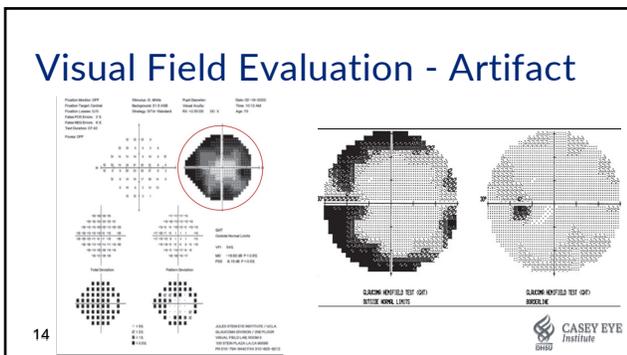
Optic Nerve Evaluation

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When to treat glaucoma

- Based on IOP levels, optic nerve damage, visual field loss
- Early vs. late intervention – preserving vision vs. risk of overtreatment
- Consideration of patient-specific factors (age, life expectancy, comorbidities, medication compliance)

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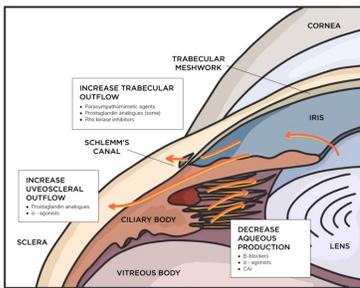
First line: Medications

- **Prostaglandin analogs** (e.g., latanoprost, bimatoprost) – increase outflow
- **Beta-blockers** (e.g., timolol) – reduce aqueous production
- **Carbonic anhydrase inhibitors** (e.g., dorzolamide) – reduce aqueous production
- **Alpha agonists** (e.g., brimonidine) – dual mechanism
- **Rho kinase inhibitors** (netarsudil) –
16 Trabecular outflow enhancement



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First line: Medications



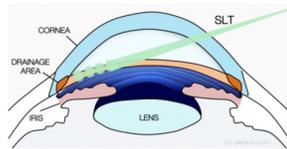
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Laser Therapies

- Selective Laser Trabeculoplasty (SLT) – for POAG
- Argon Laser Trabeculoplasty (ALT) – older method
- Laser Peripheral Iridotomy (LPI) – for angle-closure glaucoma



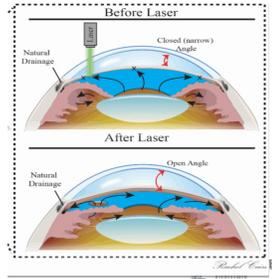
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When to move beyond medications?

- Medication intolerance/noncompliance
- Disease progression despite max medical therapy
- Severe baseline optic nerve damage
- Think about the burdens of surgery
- Shared decision making with patient



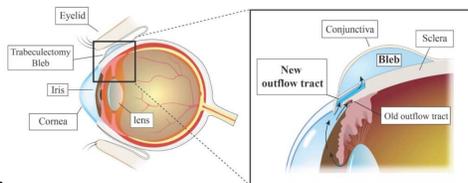
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Surgical Interventions

- Trabeculectomy – gold standard filtering surgery



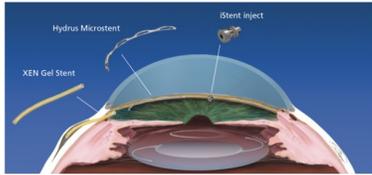
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Surgical Interventions

- Tube shunt procedures (Ahmed, Baerveldt implants)
- Minimally Invasive Glaucoma Surgery (MIGS) – iStent, Hydrus, Xen Gel Stent



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Takeaway Points

- Early detection of glaucoma is critical – asymptomatic in early stages
- First-line treatment = medications
- Surgical options for advanced disease or poor medication response
- Personalized approach based on patient risk factors and disease severity

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Thank You
