

Open angle glaucoma	Closed angle glaucoma
Abnormality in the trabecular meshwork → increased outflow resistance of the aqueous humor.	Block of the angle of drainage of the aqueous humor (iridocorneal angle) → sudden rise in IOP
<p>Causes:</p> <p>Primary (idiopathic- most common form)</p> <p>Secondary:</p> <ul style="list-style-type: none"> <li>- <b>Due to clogging:</b></li> <li>RBC → Hyphema</li> <li>WBC → hypopyon</li> <li>Iris Pigment → pigment dispersion syndrome</li> <li>Lens Protein → pseudoexfoliation syndrome</li> <li>- <b>Due to elevated EVP</b> (episcleral venous pressure):</li> <li>carotid cavernous fistula</li> <li>SVC obstruction</li> <li>Sturge weber syndrome</li> <li>- <b>Scarring (angle recession):</b> Trauma</li> <li>Increased resistance due to medications (steroids)</li> </ul>	<p>Causes:</p> <ul style="list-style-type: none"> <li>- <b>Iris causes:</b></li> <li><u>Chronic (scarring):</u></li> <li>Uveitis → peripheral anterior synechia (iris is adherent to the angle), posterior synechia (iris is adherent to the lens)</li> <li>Neovascularization → Rubeosis iridis</li> <li><u>Acute:</u> pupillary block</li> <li>- <b>Lens causes:</b></li> <li>Luxation</li> <li>Large cataract</li> <li>- Mydriasis (drugs, darkness, stress)</li> <li>- Drugs: Sulfonamides, TCA, MAOi, antihistamines.</li> </ul>
Age > 40 M=F Myopia Positive family history	Age > 40 F>M Hypermetropia Inuit and Asian ethnicity
Asymptomatic until late in the disease (bilateral progressive visual field loss)	<u>Acute angle closure glaucoma:</u> Sudden onset of symptoms Severely painful eye, redness Photophobia and excessive tearing Headache, nausea and vomiting Blurred vision and halos seen around lights On exam: Non reactive oval pupil, cloudy cornea, ciliary injection)
IOP = 20-40 mmHg	IOP > 40 mmHg
<p><b>Investigations:</b></p> <ul style="list-style-type: none"> <li>- <b>Slit lamp examination:</b> look for secondary causes</li> <li>- <b>Tonometer:</b> measure IOP (the most important risk factor)</li> <li>- <b>Gonioscopy:</b> look for iridocorneal angle → classify for open and closed angle glaucoma</li> <li>- <b>Ophthalmoscopy:</b> look for optic disc cupping (increased cup:disc ratio), notching</li> <li>- <b>Optical coherence tomography (OCT):</b> Computer aided imaging of optic nerve and/or nerve fiber layer thickness.</li> <li>- <b>Visual field testing:</b> loss of peripheral visual field → then the disease progresses to central vision</li> <li>- <b>Pachymeter:</b> measure central corneal thickness (thin cornea → falsely low IOP, thick cornea → falsely high IOP)</li> </ul> <p><b>Notes:</b></p> <p><b>Major factors for diagnosis and staging of glaucoma are 1. Optic nerve head, 2. Visual field.</b></p> <p><b>Elevated IOP is not a necessity (e.g. normal tension glaucoma)</b></p> <p><b>IOP is the most important risk factor and the most modifiable one.</b></p> <p><b>Optic nerve damage is irreversible. Treatment is aimed to stop the progression of disease.</b></p>	
<p>Treatment:</p> <p><b>Medical:</b></p> <ul style="list-style-type: none"> <li>- <b>Topical Prostaglandin analogues</b> → increase outflow of aqueous humor.</li> </ul>	

- **Beta blockers, alpha agonists (topical), carbonic anhydrase inhibitors (topical or systemic)** → decrease the production of aqueous humor.

- **Muscarinic agonists (pilocarpine):** induce miosis and pull the iris away from the angle.

- **Laser trabeculoplasty** (decrease resistance)

- **Trabeculectomy** (fistula between anterior chamber and subtenon's space)

- **Cyclodiode laser** (ciliary body ablation → decrease production)

- **Glaucoma drainage devices**

- **YAG Laser Iridotomy**

- **Surgical iridectomy**

(allow fluid to pass from PC to AC (bypass pupillary block))