DEFINITION?

Glaucoma can be appropriately defined as:

- A group of pathological disorders
- With different pathophysiological mechanisms of action
- Causing ganglion cell damage and specific type of optic neuropathy, characterized by
- A specific pattern(s) of optic disc and visual field changes
- And is partly related to a relatively high intraocular pressure
GLAUCOMA RISK FACTORS

- **Good evidence:**
  - Glaucoma damage in the fellow eye
  - Age
  - Black race
  - Positive family history
  - High IOP
  - Myopia
  - Pseudoexfoliation, PD

- **Fair evidence**
  - Large C/D ratio – DM, - Disc hemorrhage

- **Weak evidence**
  - Peripapillary atrophy, migraine, hypothyroidism, sleep apnea, autoimmune disease, nocturnal hypotension

**Refractory glaucoma**

- **was defined as glaucoma associated with a poor surgical prognosis after trabeculectomy**, which remained uncontrolled despite previous filtration surgery or laser treatment or under maximum tolerated medical treatment.

- **Glaucoma shunt devices are typically reserved for refractory glaucoma.**
Shunt Devices:

- There are a variety of different types of drainage devices for management of difficult glaucoma cases.

- However, the only shunts with proven long-term efficacy are those that drain the aqueous externally to bleb under the conjunctiva.

Mechanism of Shunt Devices

- Depend on tube to shunt A. H. from A.C. or vitreous to an extraocular fluid reservoir through formation of fibrous capsule around a synthetic plate.

- Fluid diffuse **passive diffusion** through capsule and absorbed by orbital, episcleral blood vessels and lymphatic tissues.
Types:

- **Non valved implants:**
  - Molteno 1976 Molteno
  - Schocket
  - Baerveldt 1992 Gorge Baerveldt
  - Ex-Press

- **Valved implants:**
  - Krupin
  - Hood
  - White pump
  - Ahmed valve

- **Suprachoroidal:**
  - Micro-gold shunt
  - Micro-stent

Indications:

- NVG glaucoma
- Glaucoma with previous failed surgery.
- Aphakic and pseudophakic glaucoma
- Congenital glaucoma
- ICE syndrome
- Uveitic glaucoma
- Traumatic glaucoma
- Glaucoma post PKP
- Glaucoma post viteroretinal surgery.
The surgical decision depends on:

1. The stage of glaucoma.
2. The rate of deterioration of the disease.
3. Life expectancy of the patient.
4. Presence of risk factors: IOP, age, sex, race, F.H., myopia, corneal thickness, HTN, D.M, ...
5. Status of the other eye.
6. Compliance for regular follow-up.
7. Response to previous lines of therapy.
8. Systemic workup of the patient and systemic medications.
9. The inconveniences of different lines of interventions.
10. The financial impact of treatment on the patient and the community.

NEOVASCULAR GLAUCOMA

- Conditions associated with iris neovascularization (NVI)
  - Proliferative diabetic retinopathy
  - Central & branch retinal vein occlusion
  - Central retinal artery occlusion
  - Other retinal disorders
  - Other ocular disorders
  - Ocular surgery & radiation
  - Systemic diseases
  - Neoplastic diseases
NEOVASCULAR GLAUCOMA

The IOP

- Usually high and not properly controlled by medications
- May be normal or low in NVG due to chronic retinal detachment or carotid artery occlusive disease
- In CAOD, IOP may be elevated after endarterectomy or bypass surgery

NEOVASCULAR GLAUCOMA

Treatment of NVI:

- Pan retinal photocoagulation
- Intravitreal AVGF
Neovascular Glaucoma Management:

- Medical therapy:
  - Avoid miotics, prostaglandins (?)
  - Steroids & cycloplegics are helpful
- Filtering surgery: after regression of NVI
- Aqueous shunting surgery: primary treatment of choice
- Transscleral cyclophotocoagulation
- End-stage treatment: Alcohol injection, Evisceration

- **Coexistence** of cataract and glaucoma causing progressive visual field loss, reduce the visual acuity and narrowing the drainage angle.

- Conjunctival scarring makes dissection difficult and increase the risk of conjunctival tear and buttonhole.

- Also long use of miotics makes the pupil difficult to dilate and difficult cataract surgery.
Combined cataract and aqueous shunt devices in complex cases in which you think trabeculectomy will fail.
Conclusion:

- **Glaucoma** is a chronic, complex progressive disease.
- Diagnosis needs correlations of different risk factors.
- Phacoemulsification with shunt devices implantation are associated with a reasonable success rate in refractory glaucoma cases and complicated cataract provides good visual rehabilitation and control of IOP.
- Still needs long follow up and different complex cases.