

GLAUCOMA

VISION 2020 THE
RIGHT TO SIGHT

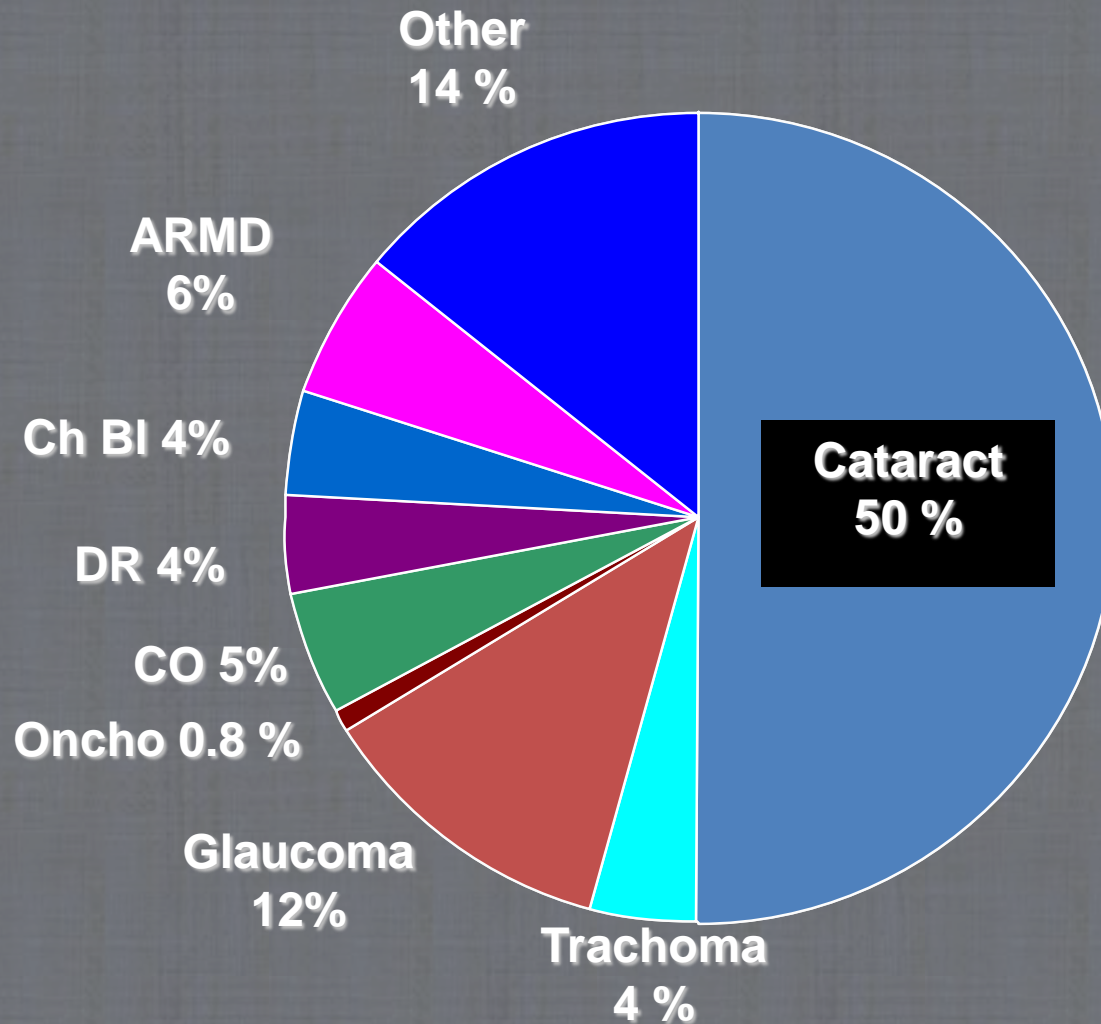
Glaucoma

**Increased Intra-ocular Pressure
Causing damage to
Optic Nerve resulting
Gradual vision loss and
Blindness**

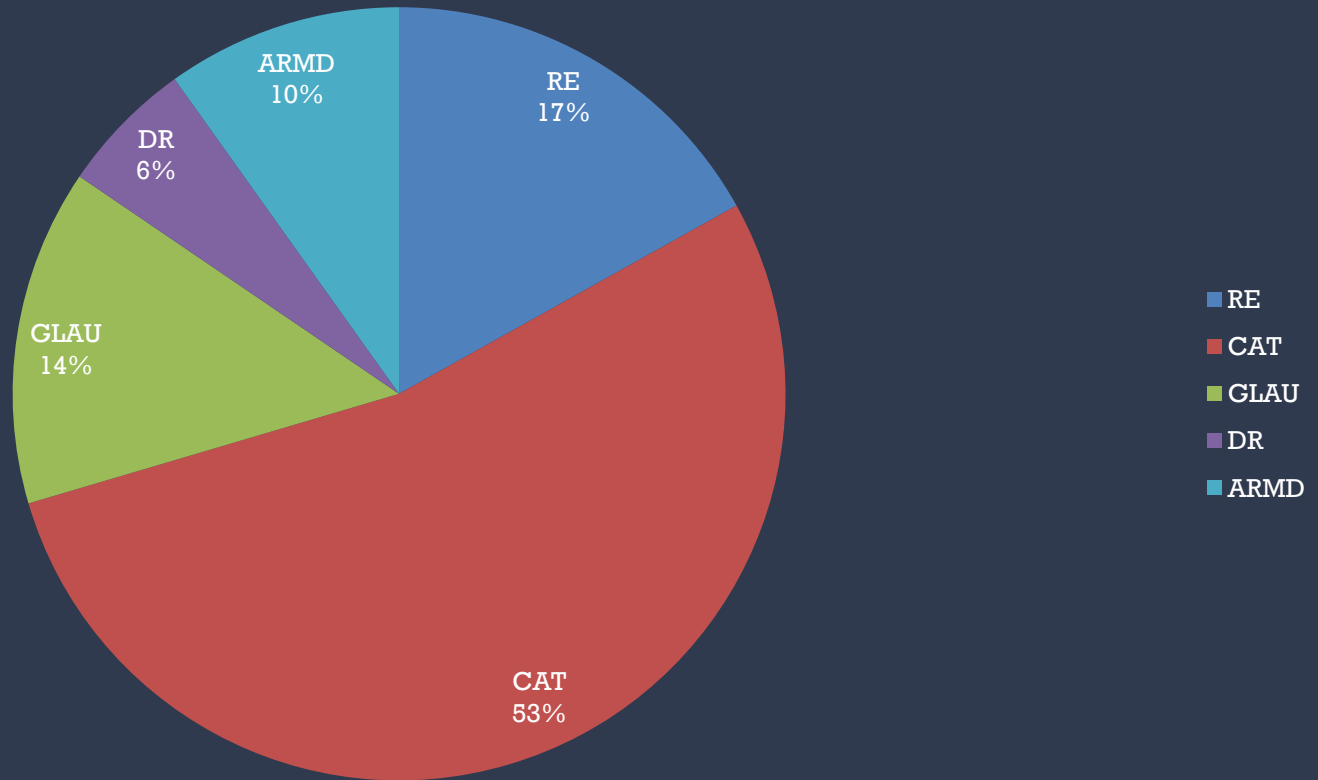
How big is the problem?

- ◉ 4.5 million people blind worldwide due to Glaucoma
- ◉ Many millions are having low vision
- ◉ More common in age 40 & above
- ◉ Number increasing as elderly population increases
- ◉ Many thousands are blind and LV in Sri Lanka
- ◉ Effective intervention programme needed

WORLD BLINDNESS



COUNTRY SITUATION



Who are more vulnerable ?

Individuals...

- Forty years and above
- Family history of Glaucoma
- Myopia

What happens then?

- If untreated..

- Gradual progression of optic nerve damage
- Gradual loss of vision leading to
- Total Blindness

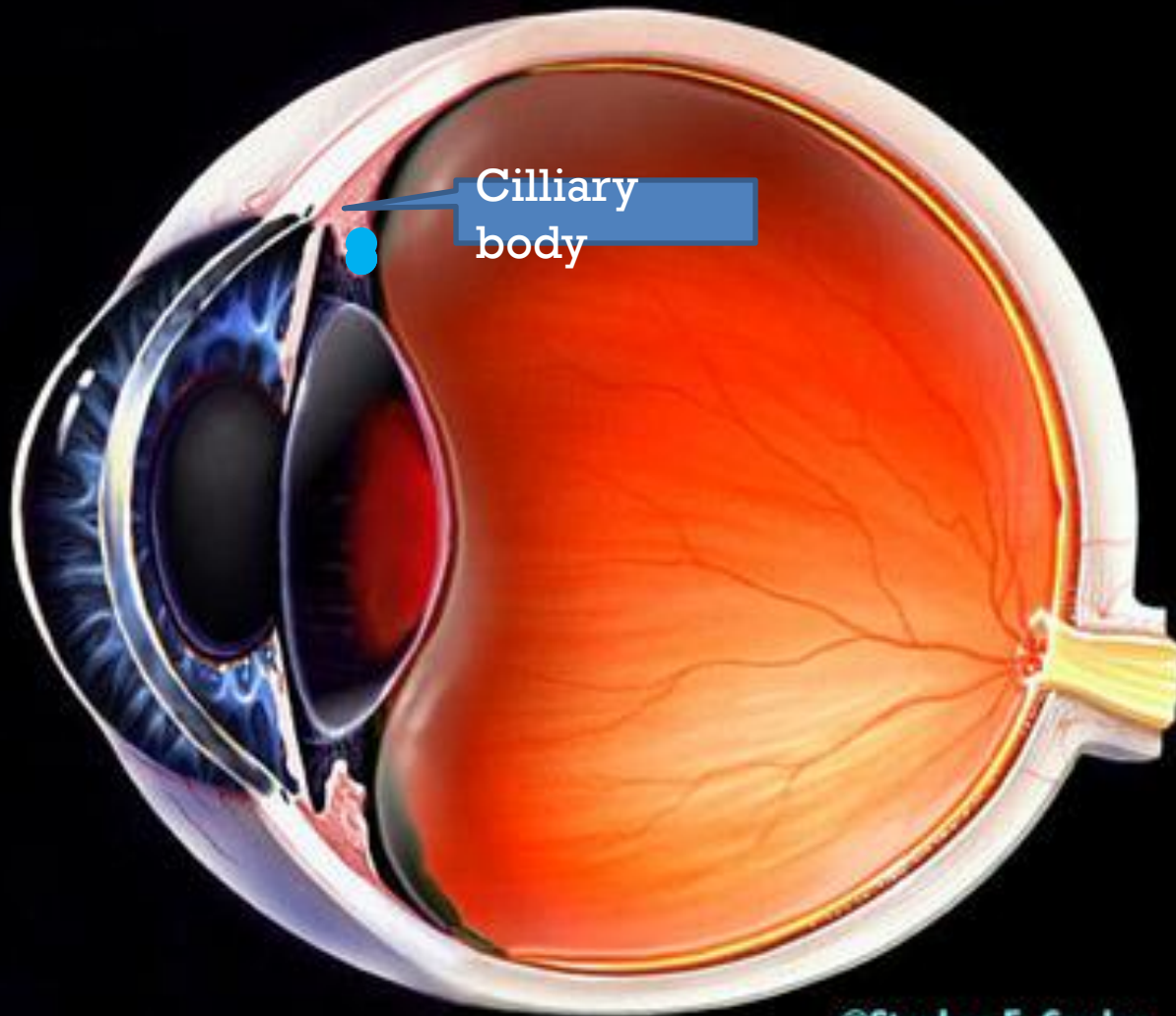
- If treated...

- Near normal vision can be preserved

Types of Glaucoma

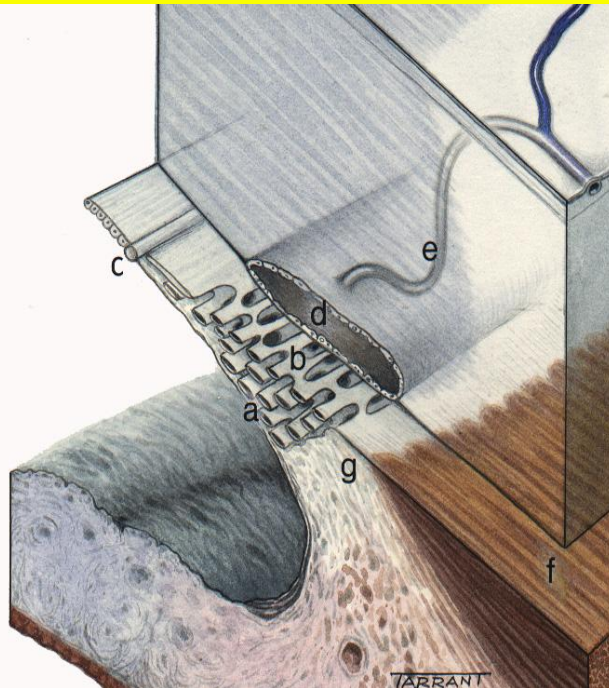
- Primary Glaucomas
- Secondary Glaucomas
- Congenital Glaucomas

Aqueous outflow



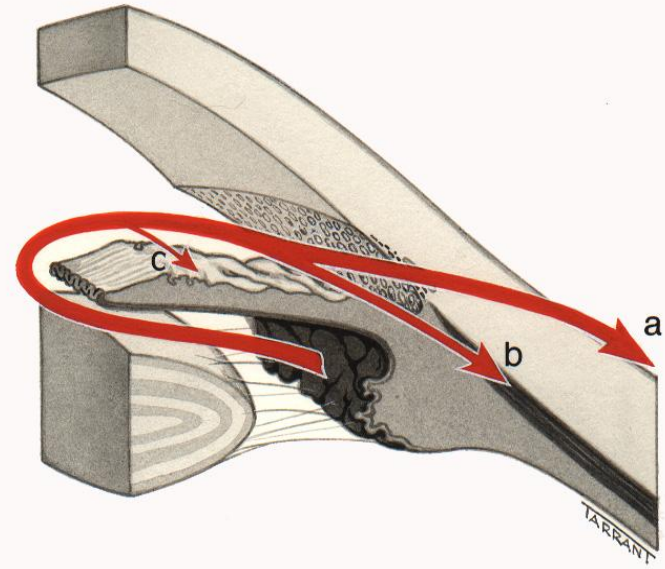
Aqueous outflow

Anatomy



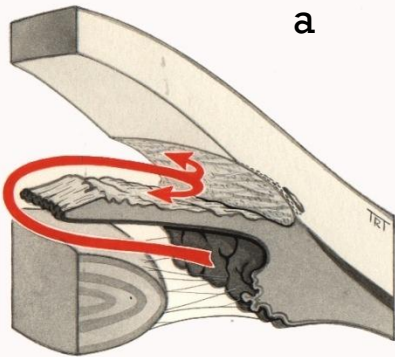
- a - Uveal meshwork
- b - Corneoscleral meshwork
- c - Schwalbe line
- d - Schlemm canal
- e - Collector channels
- f - Longitudinal muscle of ciliary body
- g - Scleral spur

Physiology

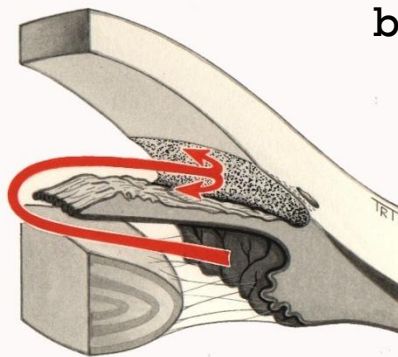


- a - Conventional outflow
- b - Uveoscleral outflow
- c - Iris outflow

What happens in Glaucoma ?



a

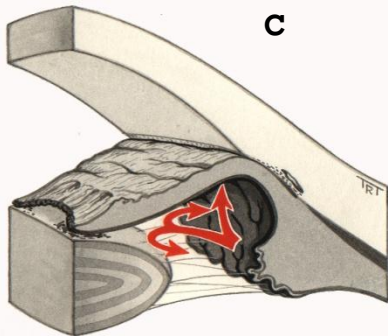


b

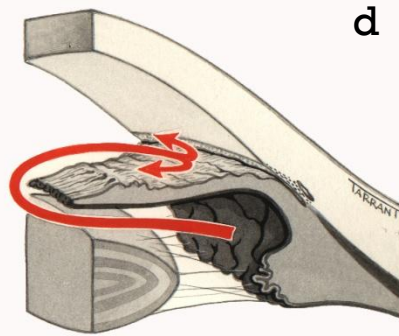
Open-angle

a. *Pre-trabecular* - membrane over trabeculum

b. *Trabecular* - 'clogging up' of trabeculum



c



d

Angle-closure

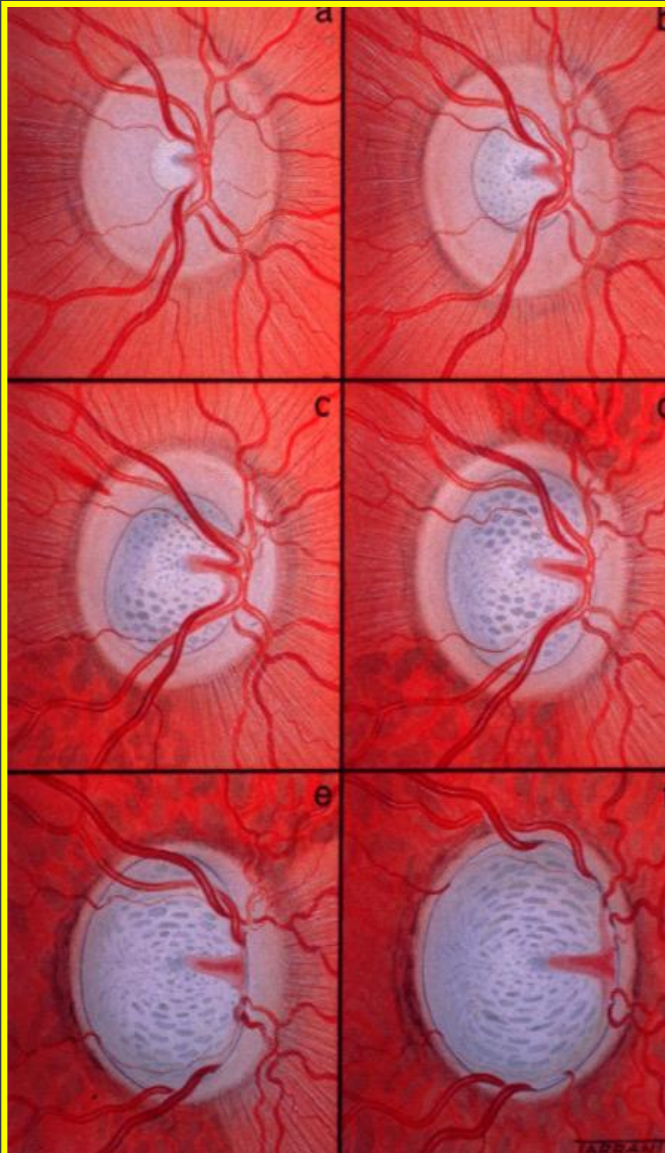
c. *With pupil block* - seclusio pupillae and iris bombé

d. *Without pupil block* - peripheral Anterior synechiae

How to detect ?

- Assessment of cup: disc ratio of optic fundus
- Measurement of Intra-ocular pressure
- Analysis of Visual Fields (>40% Nerve damage needed)
- V̄A assessment is not a correct guideline
 - V̄A is not deteriorated until last

Progression of glaucomatous cupping



a. Normal (c:d ratio 0.2)

b. Concentric enlargement
(c:d ratio 0.5)

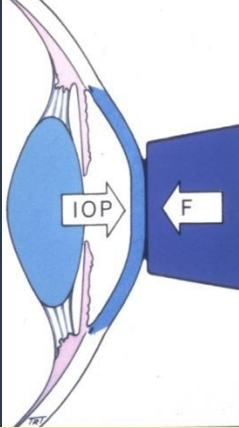
c. Inferior expansion with
retinal nerve fibre loss

d. Superior expansion with
retinal nerve fibre loss

e. Advanced cupping with
Nasal displacement of
vessels

f. Total cupping with loss of
all retinal nerve fibres

How to measure IOP



Goldmann

Contact applanation



Perkins

Portable contact applanation



Schiotz

Contact indentation



Air-puff

Non-contact indentation



Pulsair 2000 (Keeler)

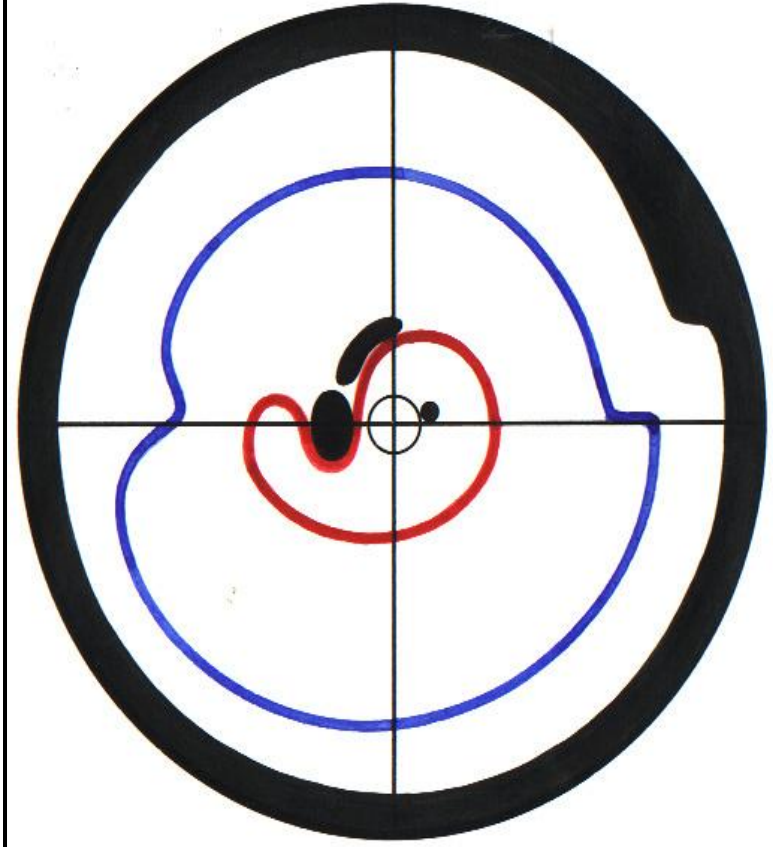
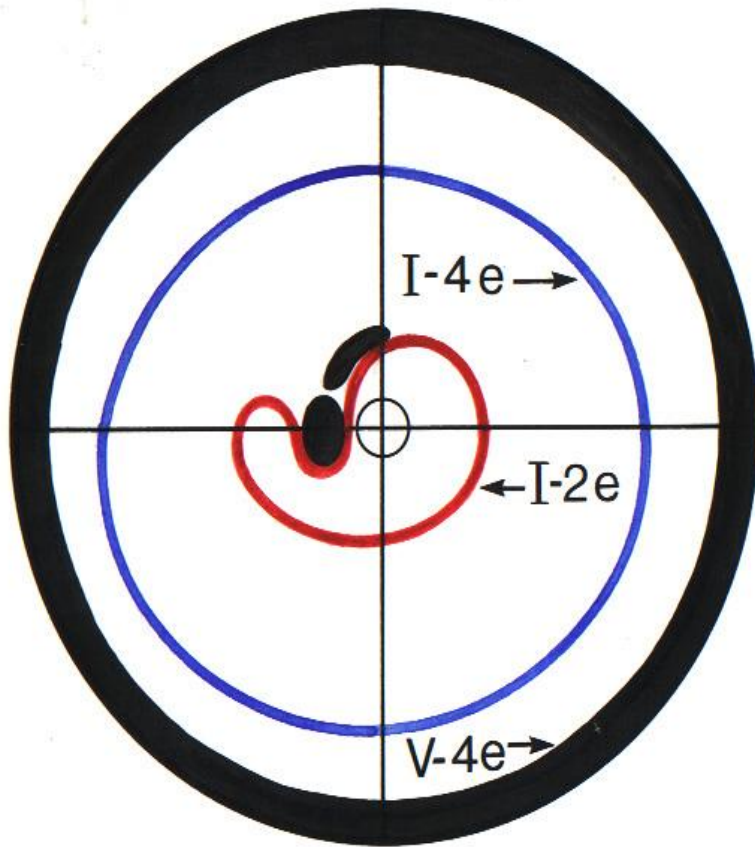
Portable non-contact applanation



Tono-Pen

contact applanation

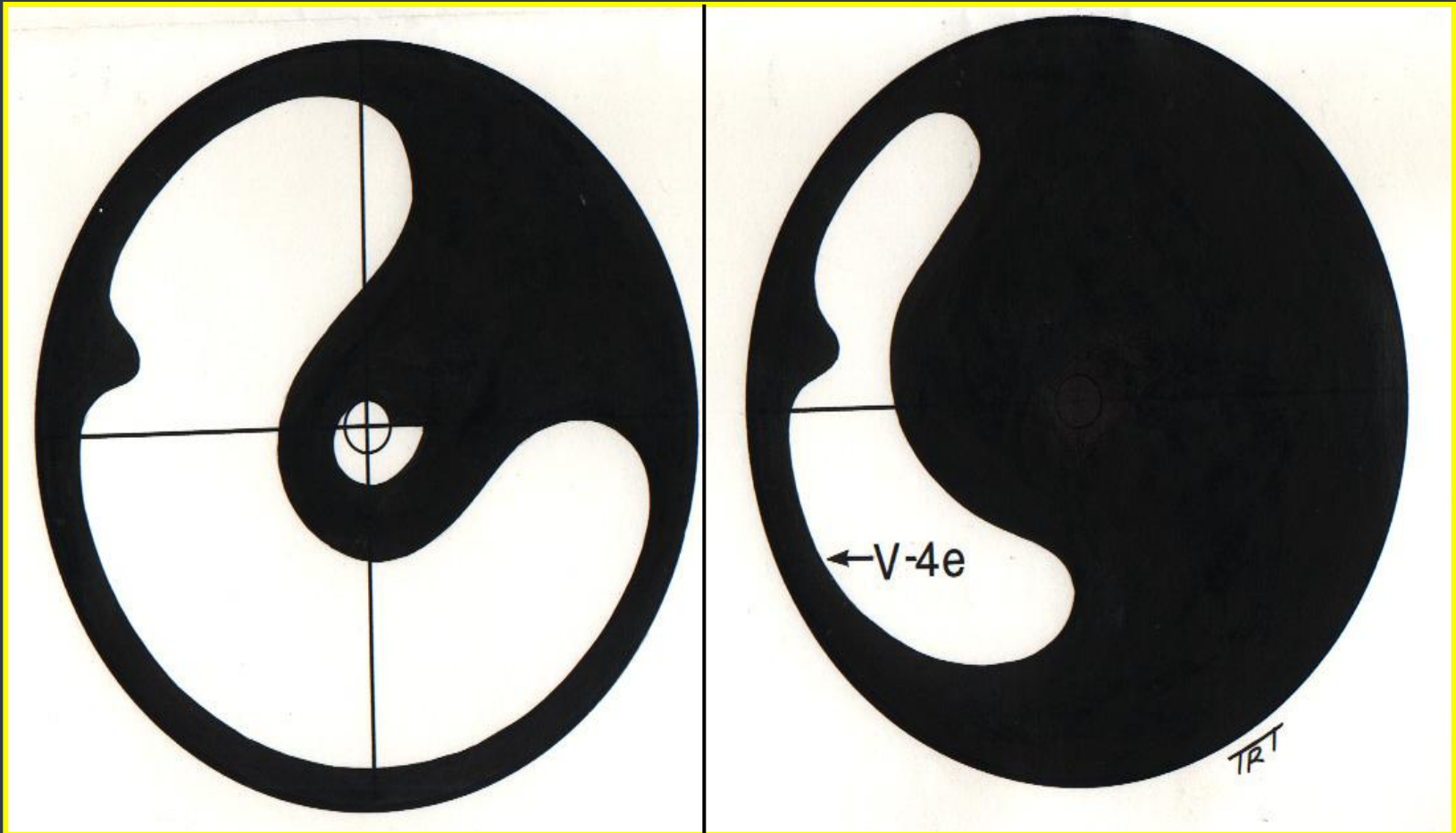
Early visual field defects



- Small arcuate scotomas
- Tend to elongate circumferentially

- Isolated paracentral scotomas
- Nasal (Roenne) step

Advanced visual field defects



- Development of ring scotoma
- Residual central island
- Peripheral and central spread
- Residual temporal island

Treatment of Glaucoma

- Medical treatment
- Surgical treatment
- Follow up

Medical treatment

- ◉ Beta blockers
- ◉ Miotics
- ◉ Adrenergic agonists
- ◉ Carbonic anhydrase inhibitors
- ◉ Prostaglandin analogues

Needs life long treatment most of the times

Surgical treatment of Glaucoma

- ◉ YAG laser peripheral iridotomy
- ◉ Argon laser trabeculoplasty
- ◉ Trabeculectomy
- ◉ Deep sclerectomy
- ◉ Filtration procedures
- ◉ Tube-shunt procedure
- ◉ Cyclophotocoagulation Highly variable

Follow up

- Regular
 - Measurement of IOP
 - Visual fields
- Family screening
- Counseling
- Low vision aids
- Rehabilitation

First Year Plan - Glaucoma

Activity	Sub activity	Completi on date	Responsible for implementation	cost
Conducting awareness Programmes for, Health care professionals, (Govt. / Private sector) General Public		End 2008	V 2020 focal point , coordinator for Glaucoma, Eye Surgeon of the Prov.Hosp, ES of other Hosp. of same prov., V2020 Secretariat, Relevant NGOO	1000 rupees pp.
Government sector	MOH, OT, MO Eye, Eye nurse			
Private sector	Associations of OTs			
	College of GPs involvement			
General Public	Mass media Electronic/ Print /web			

*Selection of province – a common province for, Cataract, Glaucoma and, DR ?

Feedback

- ◉ Please send them to...
- ◉ Vision 2020 secretariat
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 - 0714166352

Thank you !
