



# Glaucoma : The Sneak Thief Of Sight

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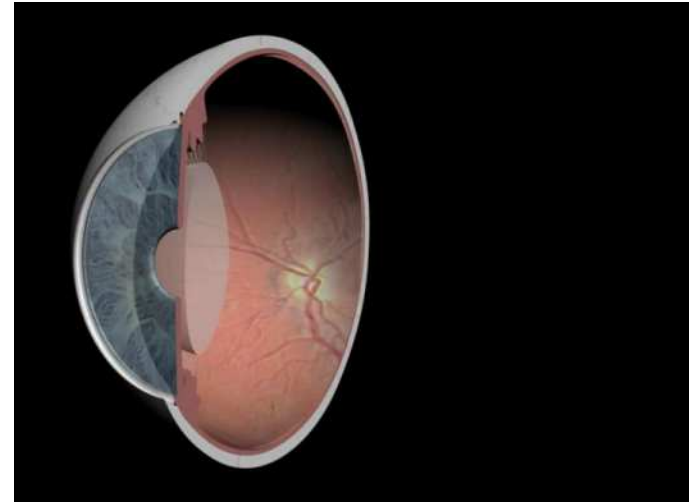
Medical Officer

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# Glaucoma

- **Glaucoma** is a complex disease in which progressive optic neuropathy gradually results in loss of vision by permanently damaging ganglionic cell of retina & the optic nerve, the nerve that transmits visual images to the brain.



# Glaucoma causes:

1. Progressive cupping of optic disc
2. Progressive visual field damage
3. Intra ocular pressure (IOP) is frequently, not invariably raised

# Facts about Glaucoma:

- Glaucoma, which is considered the second-most reason for irreversible blindness in the world.
- More than 60 million peoples are suffering from glaucoma world wide
- At least 10% are going to be blind even with treatment

# Facts about Glaucoma:

- There are often no symptoms in its early stages.
- It is estimated that up to 50 percent of people with glaucoma don't realize they have it.

# The Importance of Heredity

- More than 50 percent of glaucoma is familial, specially among siblings. Glaucoma can be 10 times higher among the siblings
- 15 percent of glaucoma patients have at least one sibling who has glaucoma, and that individual may be totally unaware of the disease.
- But anyone who is a blood relative is at increased risk.

# The Importance of Heredity & others

- Age 35 yr and above have a family history of the disease, one should get a complete eye exam every 1 to 2 years.
- If health problems like diabetes, hypertension, other eye diseases along with family history, one may need to go more often.

# Types of Glaucoma

Common types are hereditary:

- Primary Open Angle Glaucoma
- Primary Angle Closure Glaucoma

Other types of Glaucoma

- Congenital Glaucoma
- Secondary Glaucomas



# Symptoms :

- Mostly asymptomatic.
- Eye ache, headache
- Frequently change of spectacles
- Seeing of rainbow halos around eyes
- Gradual blurring of vision
- Peripheral loss of vision
- Watering, hazy cornea, enlargement of eyes in case of congenital glaucoma.



# Diagnosis

Early detection, thorough regular and complete eye exams is the key to protect vision from damage caused by glaucoma

# Comprehensive Glaucoma Examination:

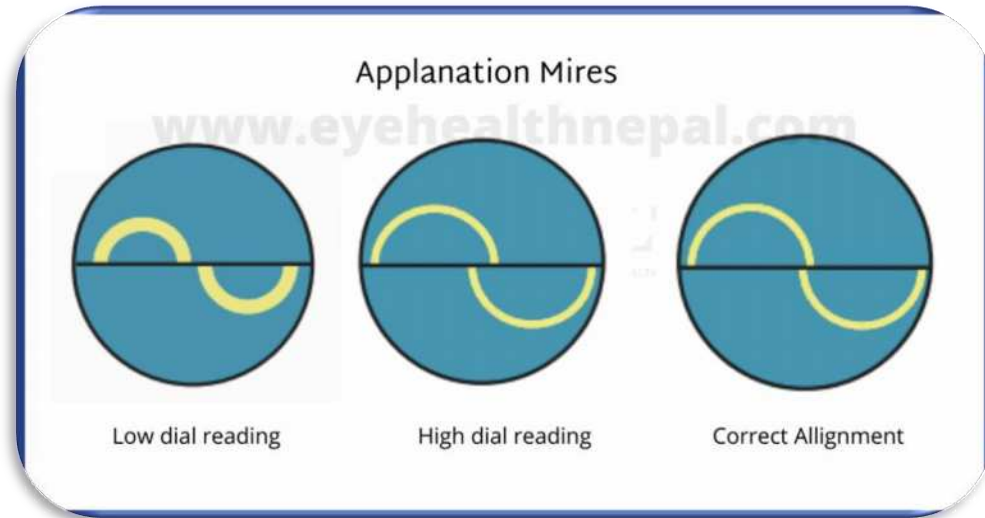
SL	Examination	Instrument
1.	Anterior chamber depth	Slit lamp Bio-microscope
2.	Measurement of IOP	Goldman Applanation Tonometry
3.	Evaluation of Optic Disc	Direct Ophthalmoscope, 78 D, 90 D lenses
4.	Evaluation of Angle of Anterior Chamber	3 or 4 mirror Gonioscope

# AC depth grading by Slit lamp Biomicroscopy:

Van Herick Grade (VHG)	Limbal anterior chamber depth as a fraction of corneal thickness	Angle status
0	No black space observed	Closed
1	$<1/4$	Extremely narrow
2	$1/4$	Narrow
3	$1/4 - 1/2$	Open
4	$>1$	Wide open



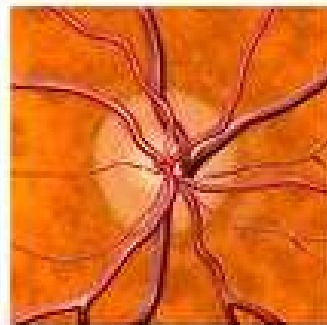
# Goldman Applanation Tonometry to measure IOP



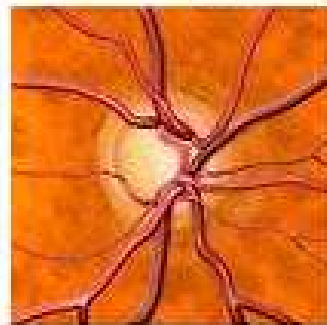
# Optic Disc Evaluation



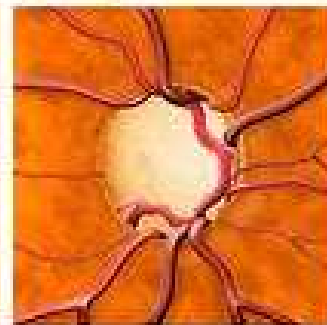
## Optic nerve head cupping progression



0.3 c/d

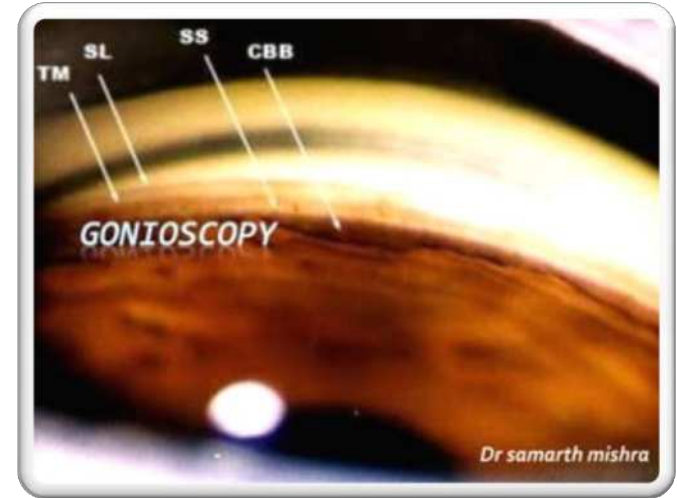


0.6 c/d



0.95 c/d

# AC angle evaluation



Dr samarth mishra

# Investigations for Glaucoma

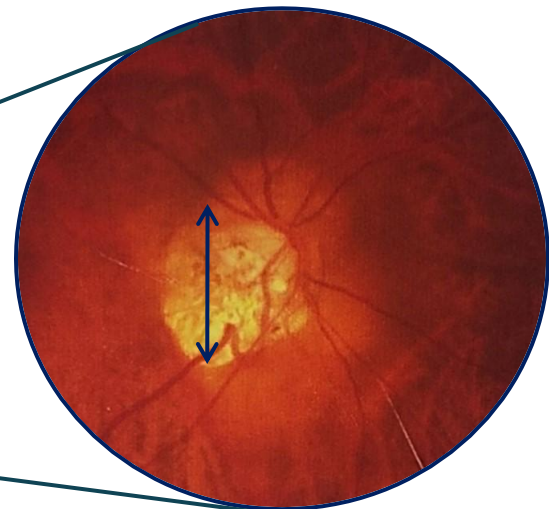
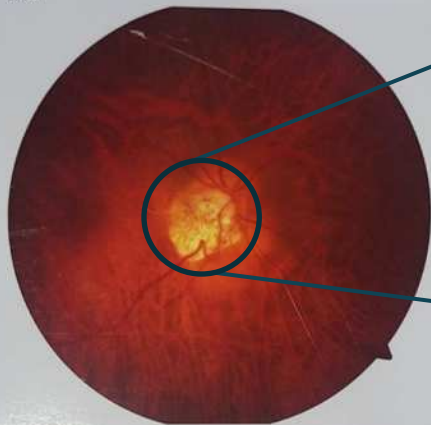
- Color Fundus Photography(CFP)
- Optical Coherent Tomography(OCT - Disc, NRR)
- Visual Field Analysis(VFA)
- Central Corneal Thickness(CCT)
- Anterior Segment OCT(AS-OCT)
- Ultrasound Bio Microscopy(UBM)



Color OD 45° 24/01/2024  
Color

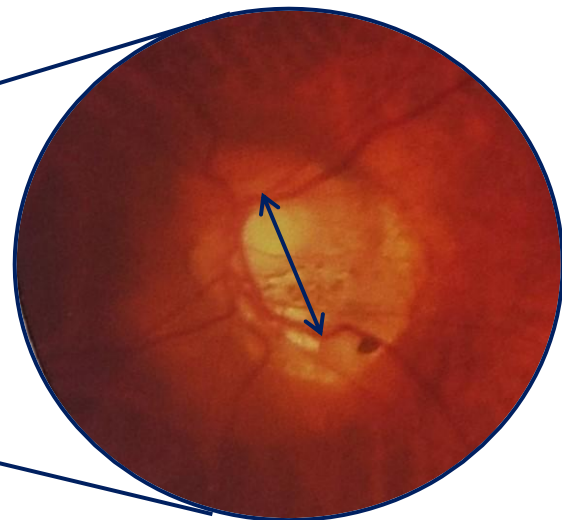
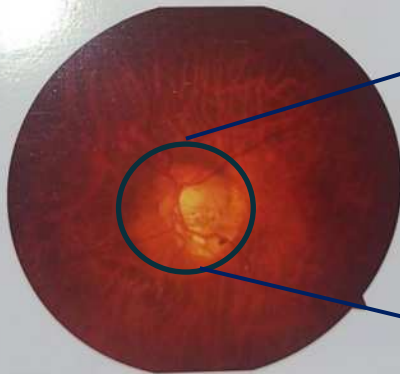
Referring physician:

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Color



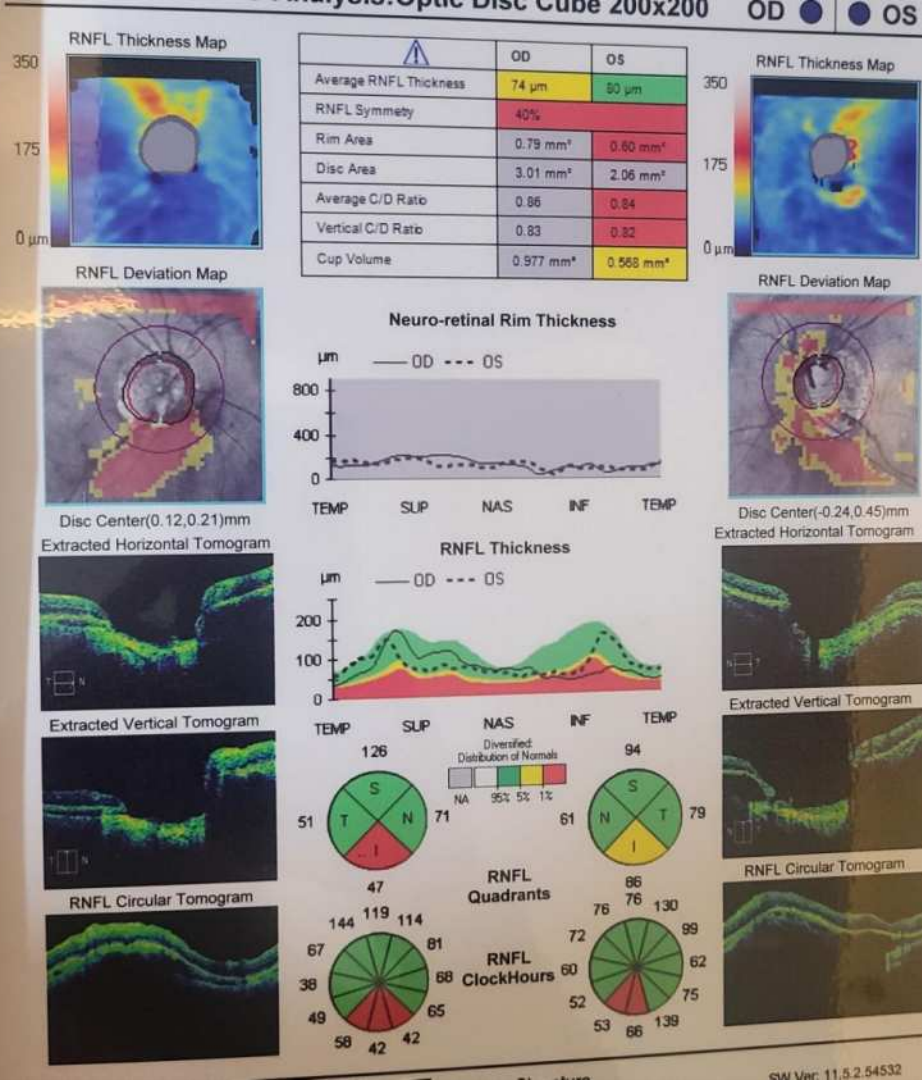
Color OS 45° 24/01/2024  
Color

Color OS 45° 24/01/2024



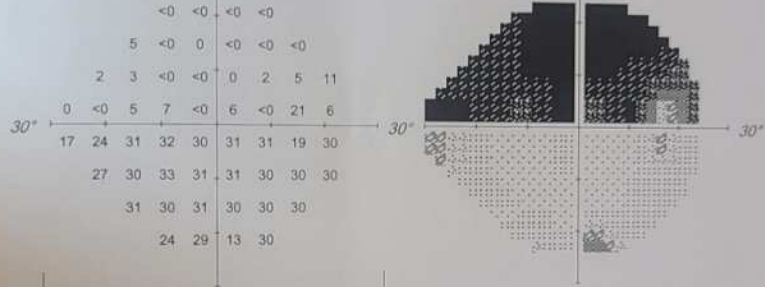
## Color Fundus Photography

# Optical Coherent Tomography



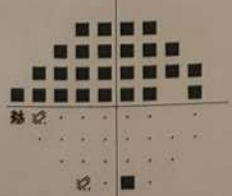
# Right eye

# Left eye



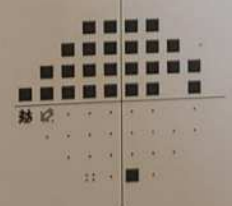
-29	-29	-28	-28				
-23	-31	-29	-31	-30	-30		
-26	-27	-33	-33	-31	-28	-25	-17
-27	-31	-26	-25	-34	-26	-33	-24
-10	-5	0	0	-2	-1	-1	1
-2	0	2	-1	-1	1	0	0
1	0	0	0	-1	0		
-5	-1	-17	0				

Total Deviation



-29	-29	-28	-28				
-23	-31	-29	-31	-30	-29		
-26	-27	-33	-33	-30	-28	-24	-17
-27	-31	-26	-25	-34	-26	-33	-24
-10	-5	0	0	-2	-1	-1	1
-2	0	2	-1	0	-1	0	0
1	0	1	0	0	0		
-5	0	-17	0				

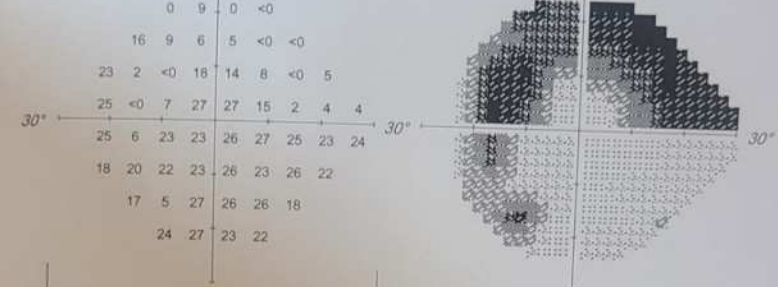
Pattern Deviation



GHT: Outside Normal Limits

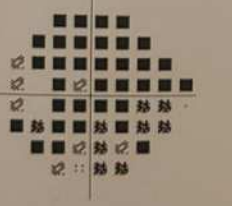
VFI: 52%  
MD24-2: -14.58 dB P < 0.5%  
PSD24-2: 14.62 dB P < 0.5%

∴ P < 5%  
⊗ P < 2%  
⊗ P < 1%  
■ P < 0.5%



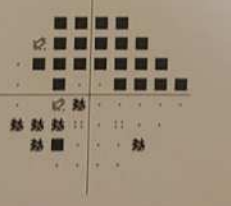
-26	-18	-27	-29				
-11	-19	-23	-24	-31	-30		
-5	-27	-32	-13	-17	-23	-32	-23
-5	-24	-4	-5	-17	-29	-25	-22
-5	-9	-9	-6	-6	-6	-6	-3
-12	-10	-10	-8	-6	-8	-5	-7
-13	-25	-4	-5	-5	-12		
-5	-3	-7	-6				

Total Deviation



-21	-13	-22	-24				
-7	-14	-18	-19	-26	-26		
-1	-23	-27	-8	-12	-18	-27	-18
0	-19	0	-1	-12	-25	-21	-16
0	-4	-4	-1	-1	-1	-1	2
-7	-6	-5	-4	-1	4	0	-2
-8	-21	1	0	0	-7		
0	2	-2	-2				

Pattern Deviation



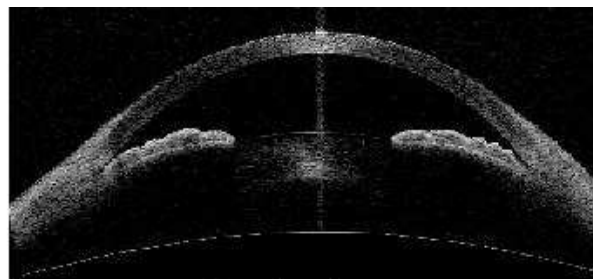
GHT: Outside Normal Limits

VFI: 66%  
MD24-2: -13.89 dB P < 0.5%  
PSD24-2: 10.05 dB P < 0.5%

∴ P < 5%  
⊗ P < 2%  
⊗ P < 1%  
■ P < 0.5%

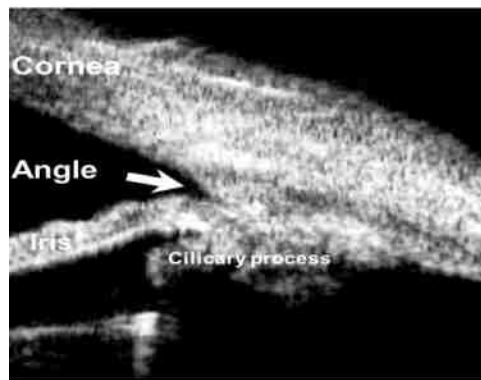


Open angle



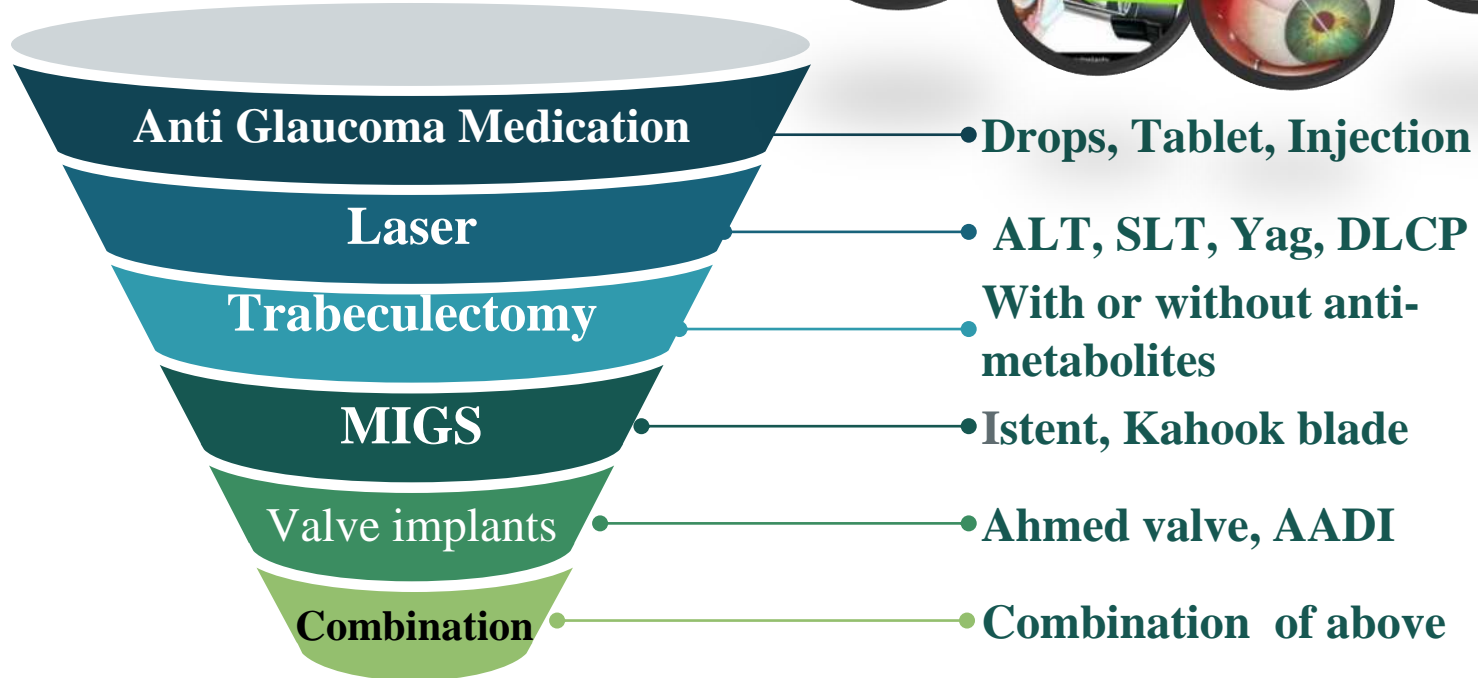
Angle-closure

## Anterior chamber Optical Coherent Tomography



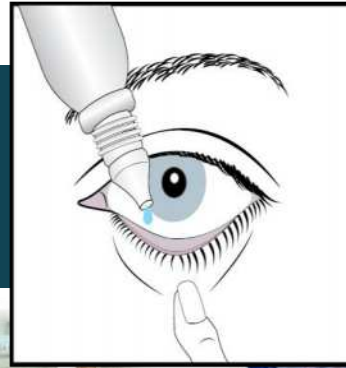
The goal of treatment is to set a target pressure.  
To prevent loss of vision, as vision loss from glaucoma is irreversible.  
The good news is that glaucoma can be managed if detected early  
With medical and/or surgical treatment, most people with glaucoma will not lose their sight.

# Treatment:





# Anti Glaucoma Medication (AGM)



**Tablet**



**Eye Drops**



**Injection**

# LASER in Glaucoma

- Argon Laser Trabeculoplasty(ALT)
- Selective Laser Trabeculoplasty(SLT)
- Transcleral Diode Laser Cyclophotocoagulation(DLCP)
- Argon Laser suturelysis
- Yag Laser Iridotomy
- Yag Laser Iridoplasty



# LASER in Glaucoma

**ALT- 2000**  
**SLT - 2013**

**DLCP-2017**

**YAG Laser**  
**- 1994**

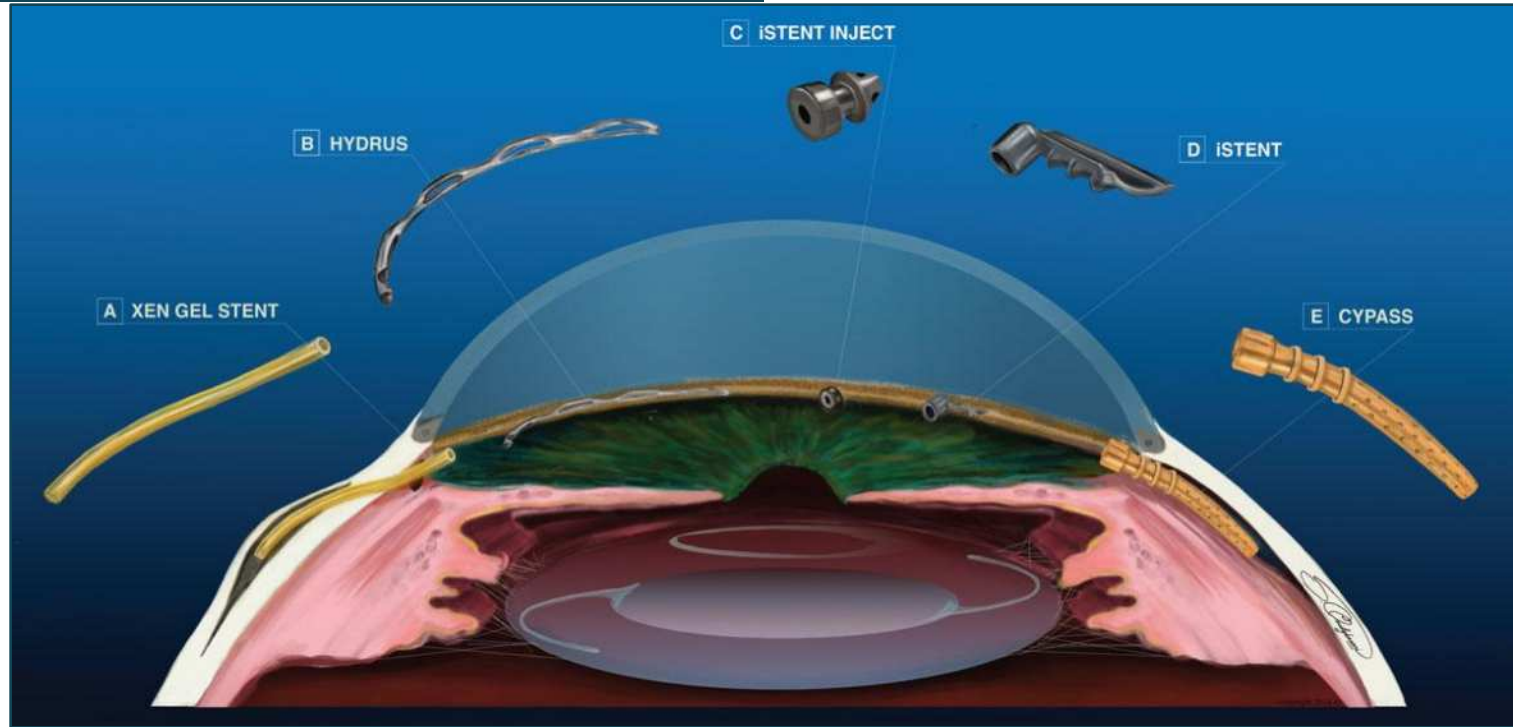






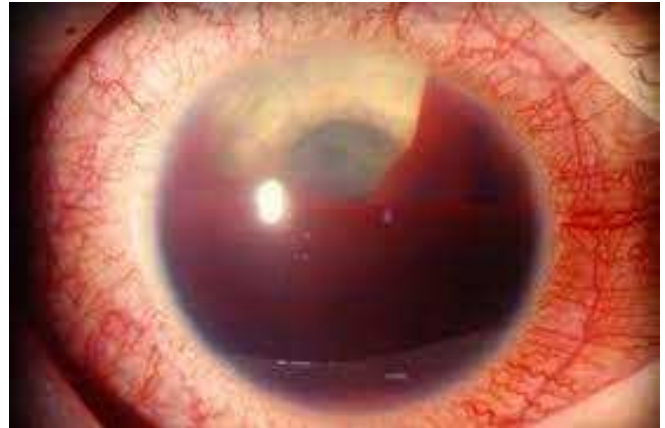


# Different MIGS:



# Prevention of Glaucoma

- Early diagnosis is the key to prevent the progress of primary glaucoma
- Regular eye check up specially having risk factors
- First order relatives of glaucoma patient should screening for glaucoma
- Any ocular trauma should be timely addressed
- Steroid should be judiciously and properly used
- Cataract should not be ignored



Steroid induced glaucoma



# Awareness by World Glaucoma Week

গ্লকোমা সম্পর্কে সাধারণ মানুষকে সচেতন করা  
রোগী, তাদের আত্মীয় এবং সাধারণ মানুষকে গ্লকোমার  
তথ্য দিয়ে সাহায্য করা  
নিয়মিত চক্ষু পরীক্ষার গুরুত্ব তুলে ধরা  
গ্লকোমার ঝুঁকি সম্বন্ধে জানানো  
গ্লকোমার অন্ধত্ব কে প্রতিরোধ করা

# Glaucoma Survey in Bangladesh

- The prevalence of definite and probable glaucoma was 3.1%
- It is estimated that there are approximately 586 000 people 40 years and older with definite or probable glaucoma in Bangladesh

**Ref: The prevalence of glaucoma in Bangladesh: a population based survey in Dhaka division**

M M Rahman, N Rahman, P J Foster, Z Haque, A U Zaman, B Dineen, G J Johnson  
Br J Ophthalmology, 2004; 88:1493-1497

# Glaucoma Survey in Bangladesh

## **A Population Based Survey of the Prevalence and Types of Glaucoma in Bangladesh**

- The survey being conducted on 13791 residential households, with 17,002 completed interviews from September, 2020 to October, 2023 at 57 spots throughout Bangladesh by Bangladesh Glaucoma Society(BGS)
- 12000 patients were screened with full glaucoma examination settings
- Results yet to disseminated and on review board of BJO for publishing as article



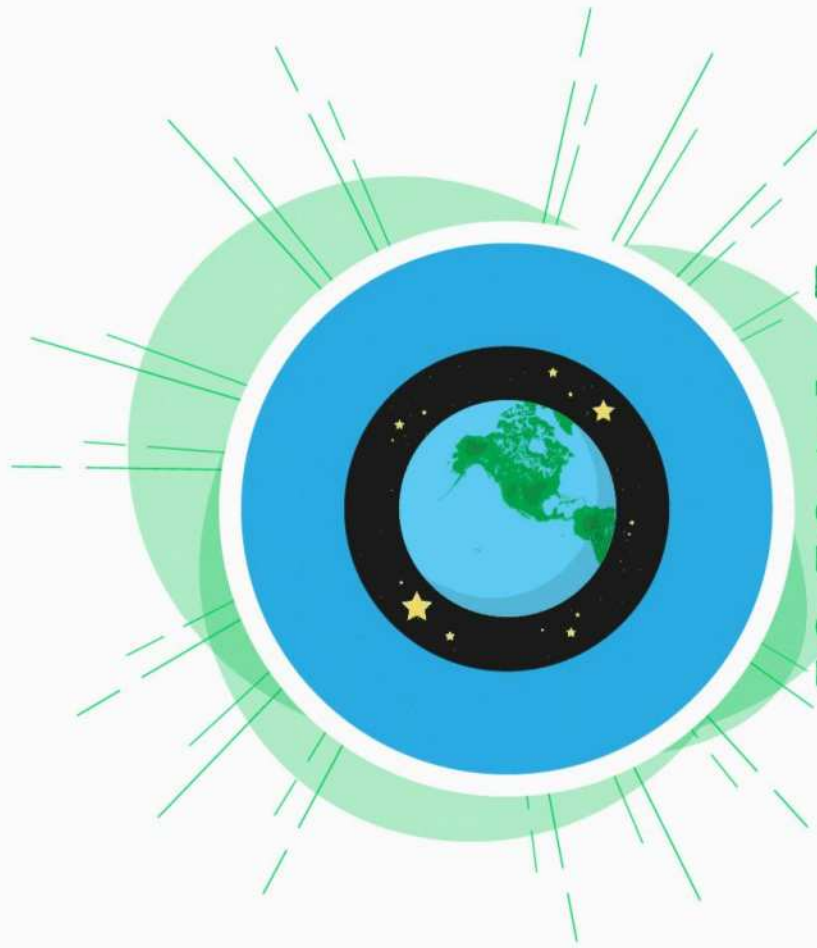
**World Glaucoma Week**  
March 10 - 16, 2024

**SAVE THE DATE!**

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**World Glaucoma Week 2024**

**March 10 - 16**



**THE WORLD  
IS BRIGHT,  
SAVE YOUR  
SIGHT**