



# Chronic Visual Loss

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KAUH

# CHRONIC VISUAL LOSS

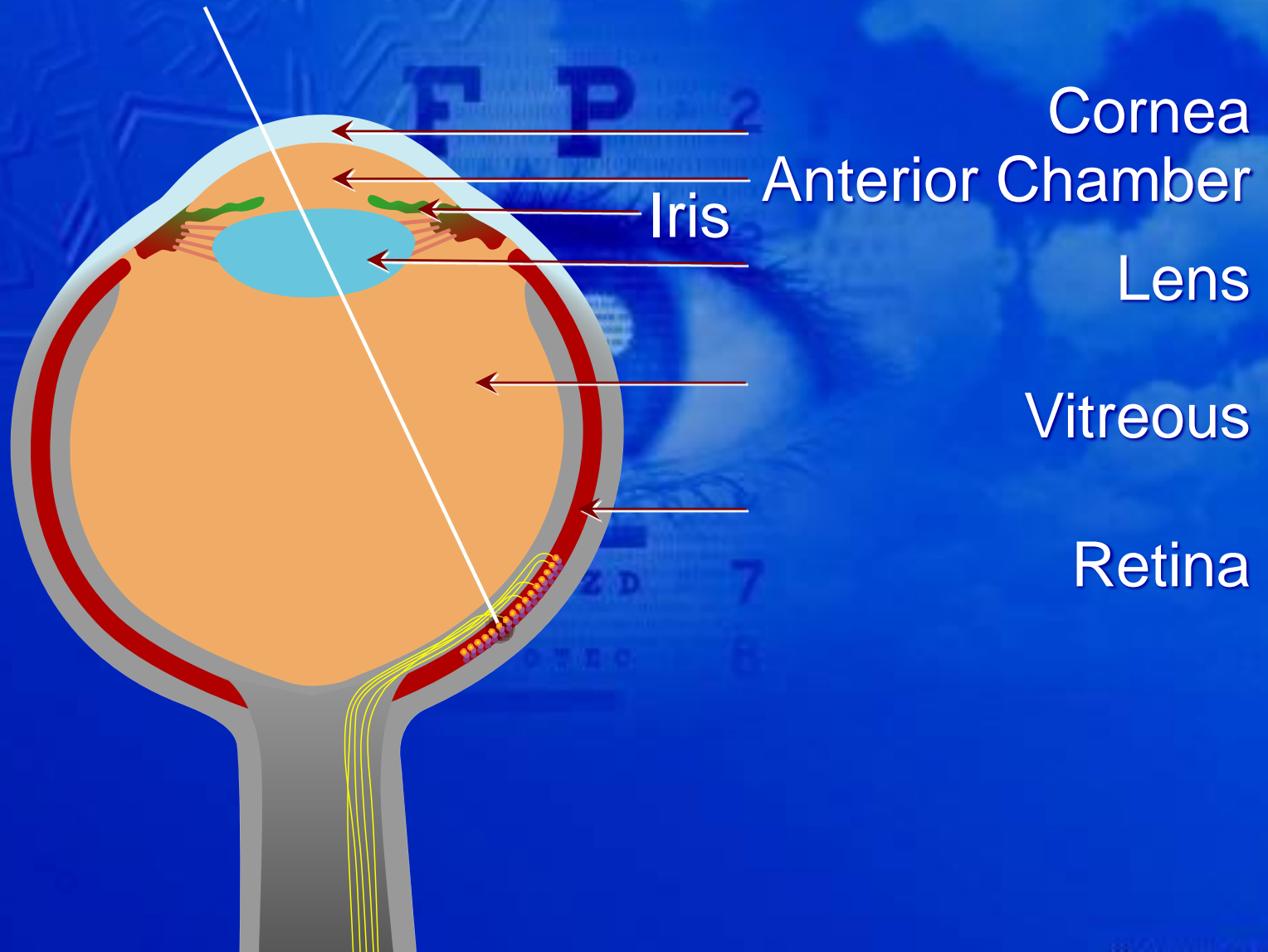
1. Measure intraocular pressure with a tonometer
2. Evaluate the nerve head, classifying it as normal, or abnormal
3. Evaluate the clarity of the lens
4. Evaluate the function and appearance of the macula.

# CHRONIC VISUAL LOSS

Causes of slowly progressive **visual loss** in an adult patient

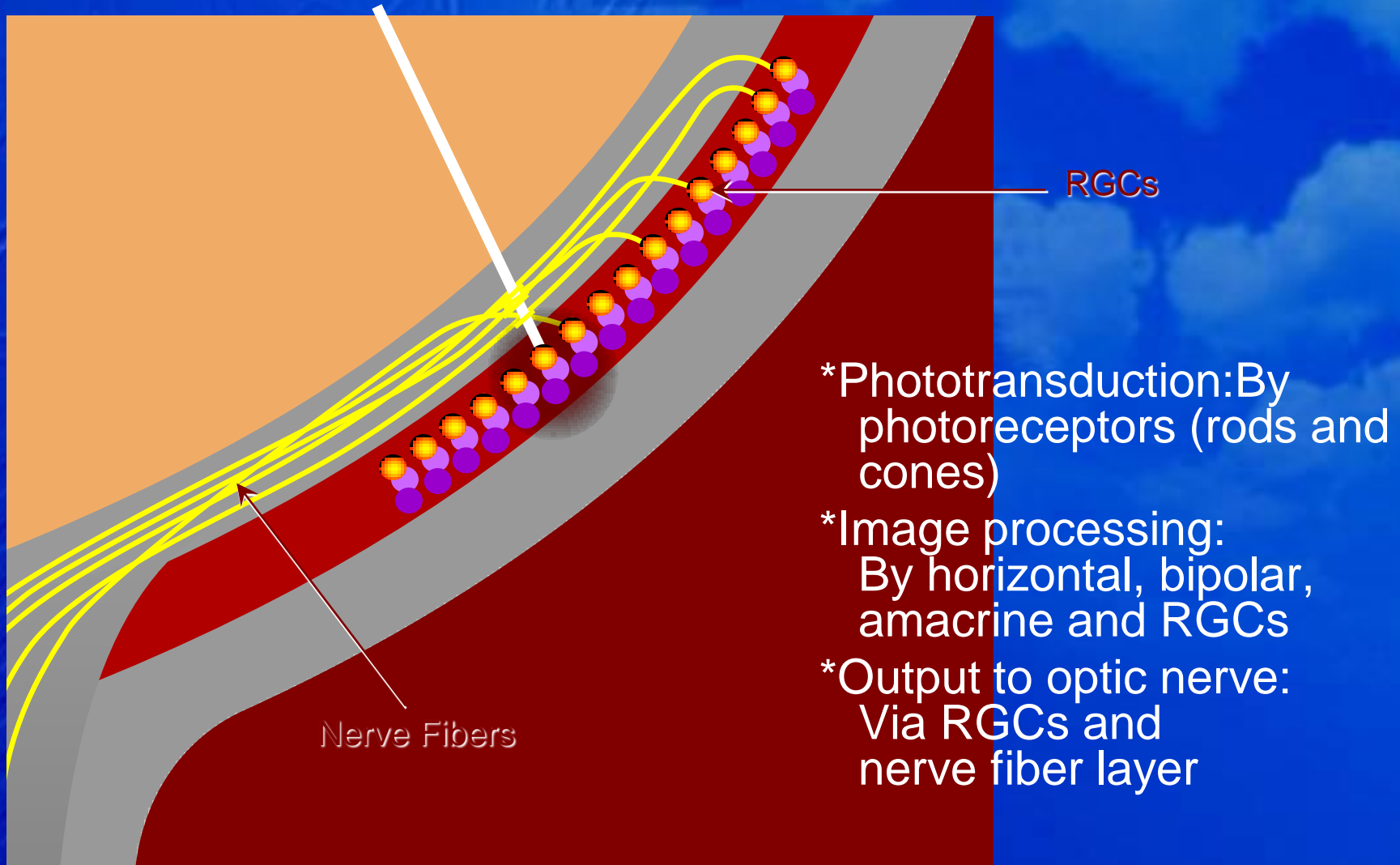
1. Glaucoma.
2. Cataract.
3. Macular degeneration.
4. Diabetic retinopathy .

# The Visual Pathway

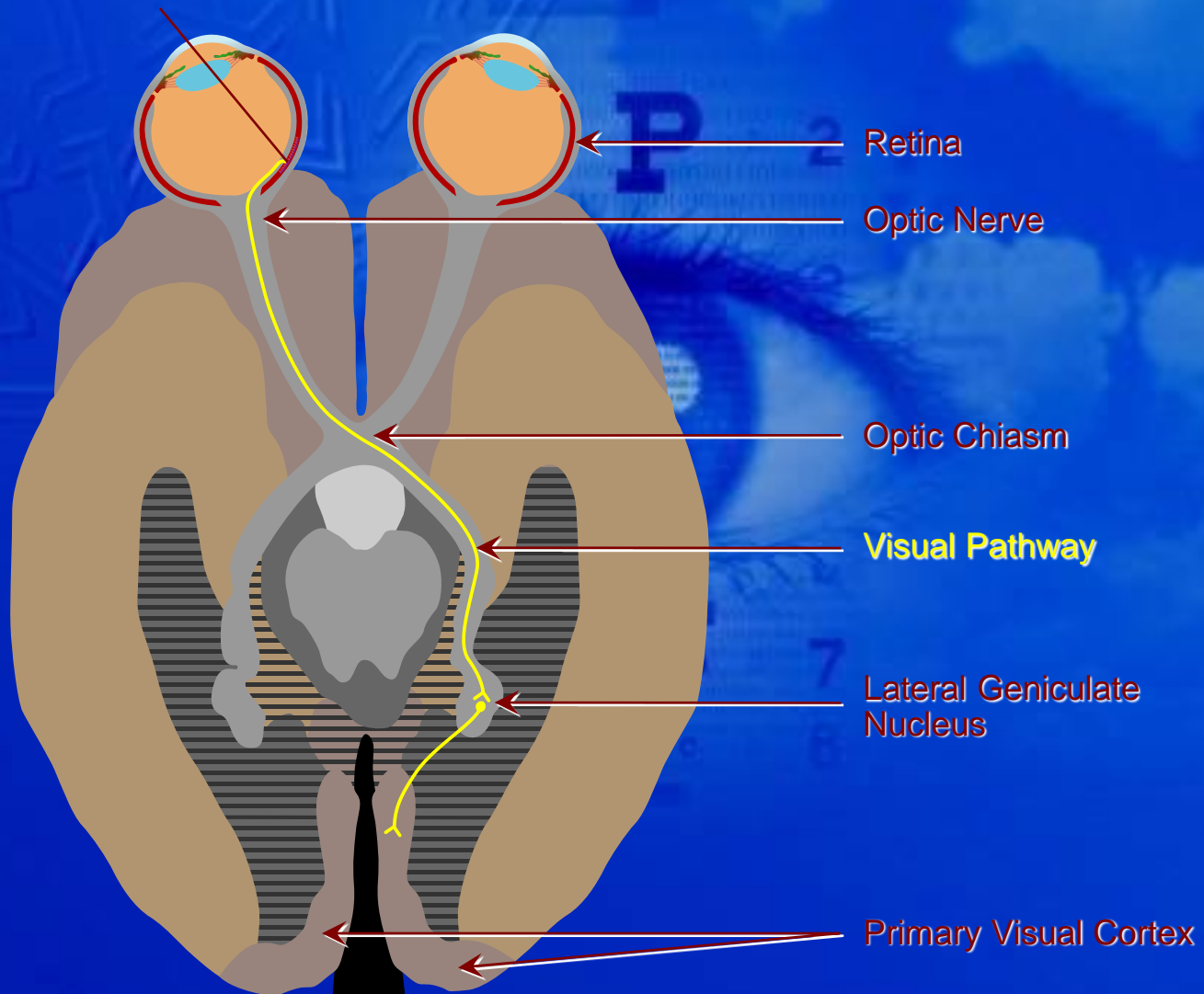




# The Visual Pathway

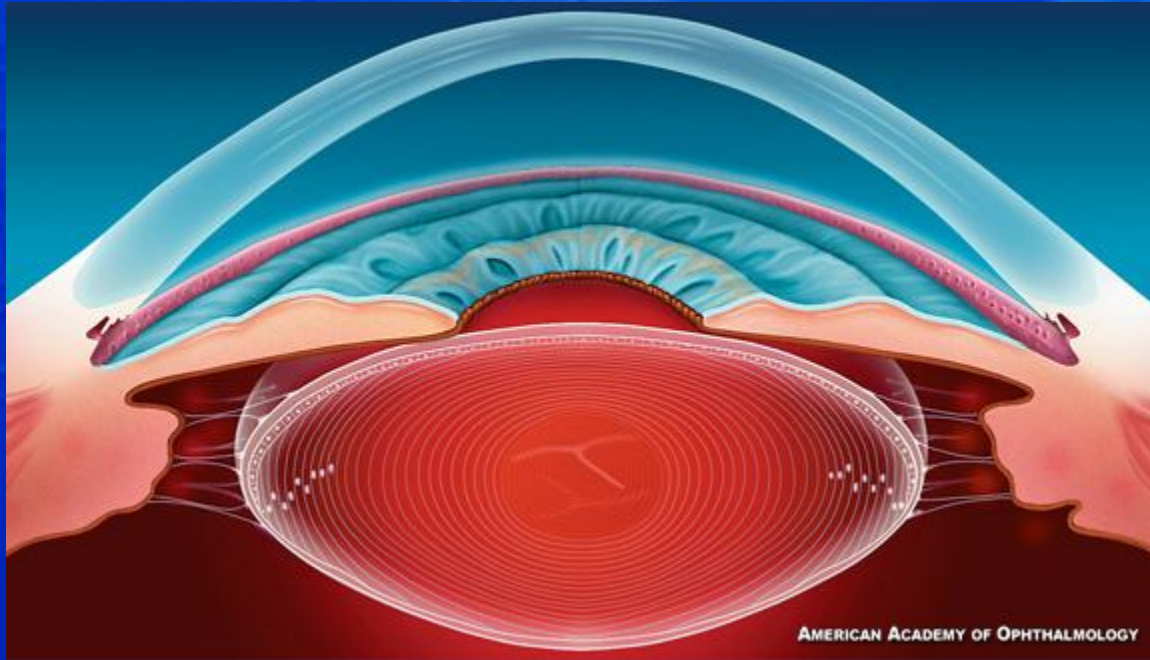


# The Visual Pathway



# GLAUCOMA

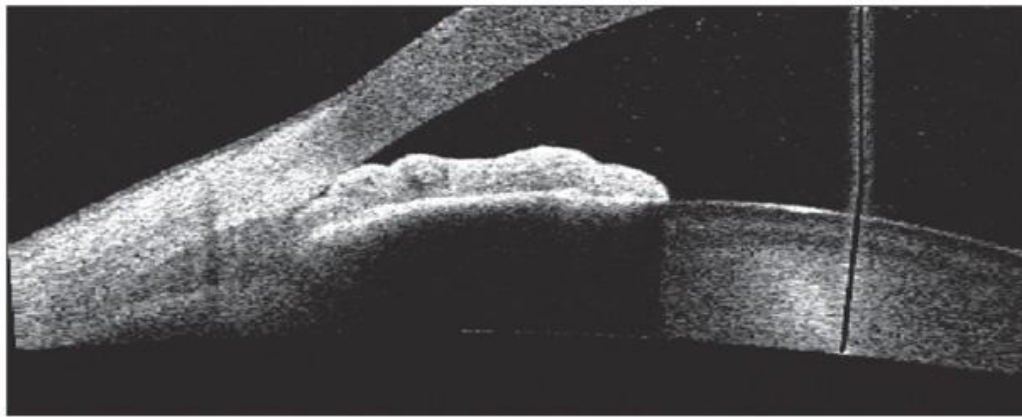
- \*A major cause of blindness.
- \*Often A symptomatic; in early stage.
- \*Damage is irreversible.
- \*Effective treatment is available.



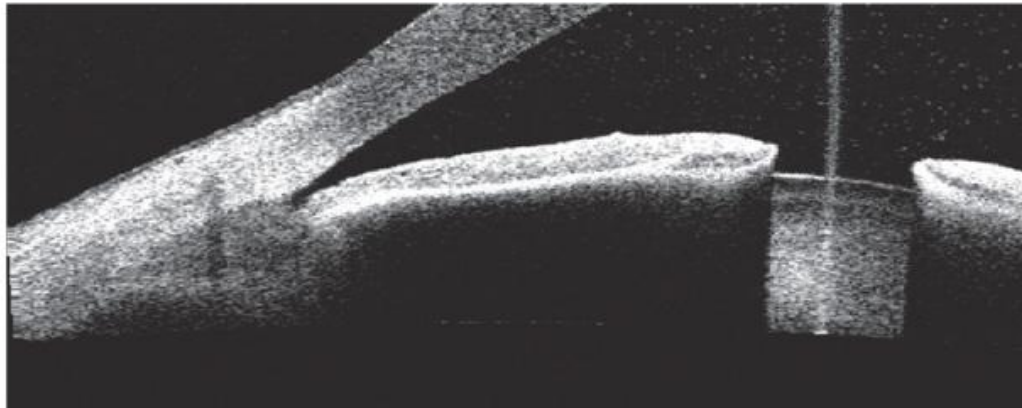
AMERICAN ACADEMY OF OPHTHALMOLOGY



**A**



**B**

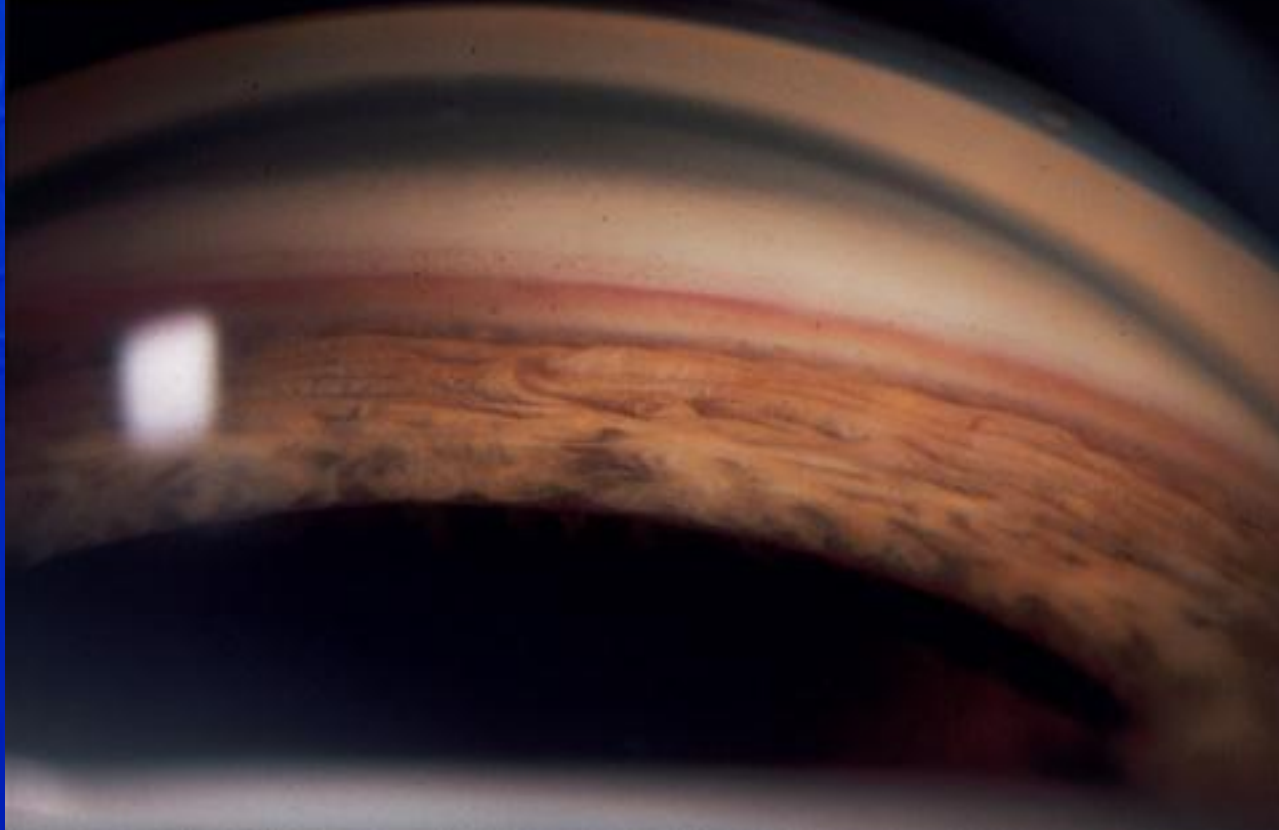


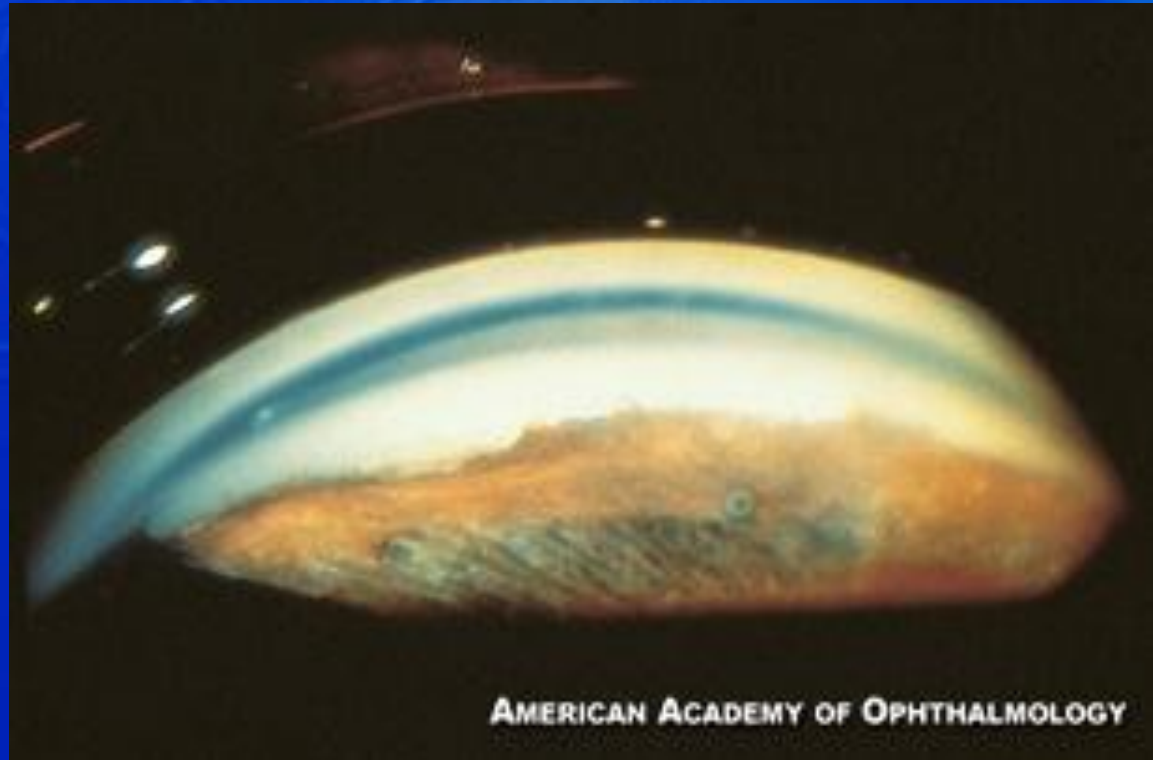
**C**



**AMERICAN ACADEMY OF OPHTHALMOLOGY**

AMERICAN ACADEMY OF OPHTHALMOLOGY





AMERICAN ACADEMY OF OPHTHALMOLOGY

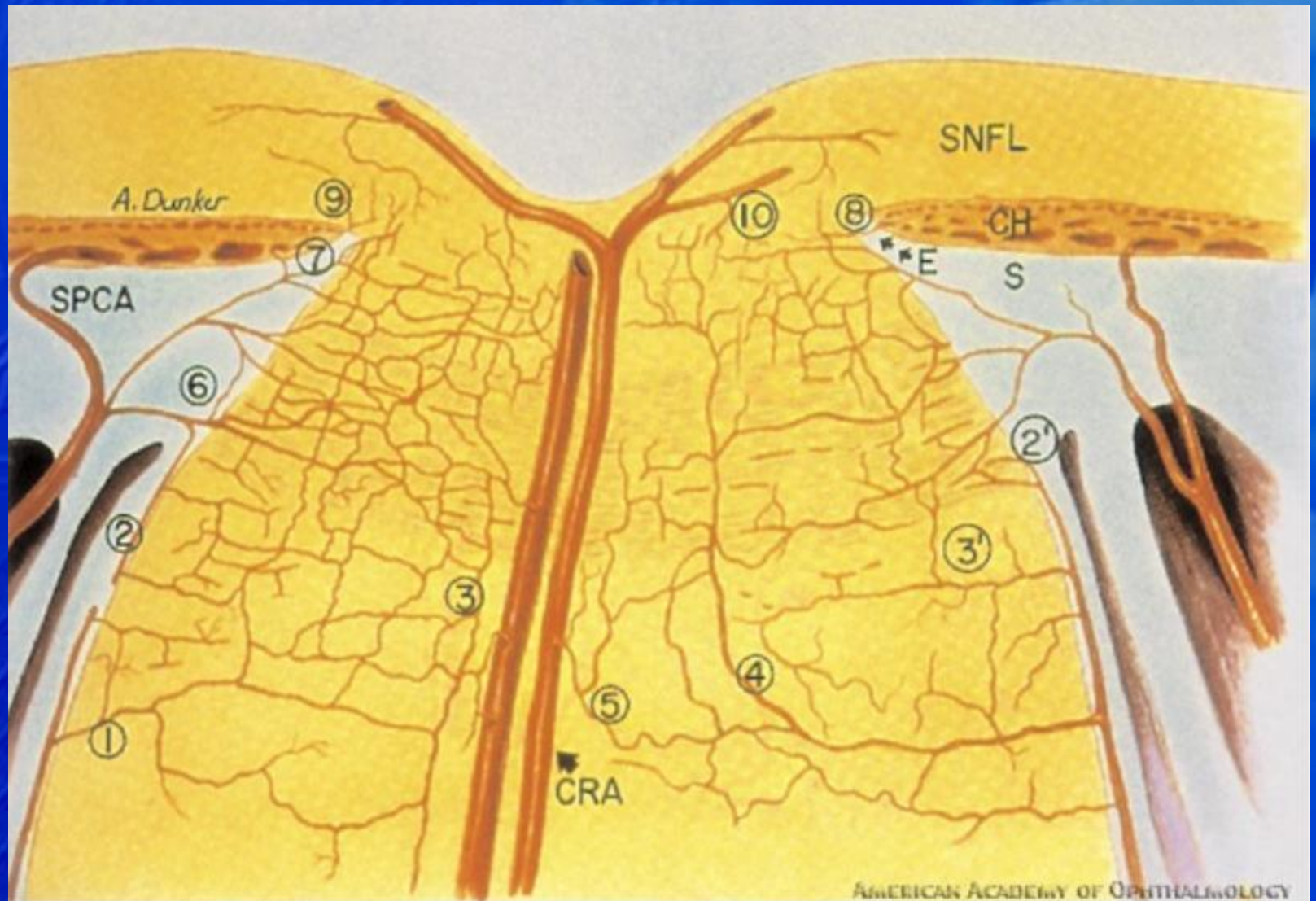
# TYPES OF GLAUCOMA

**Acute glaucoma**

**Chronic glaucoma**

**Congenital glaucoma**





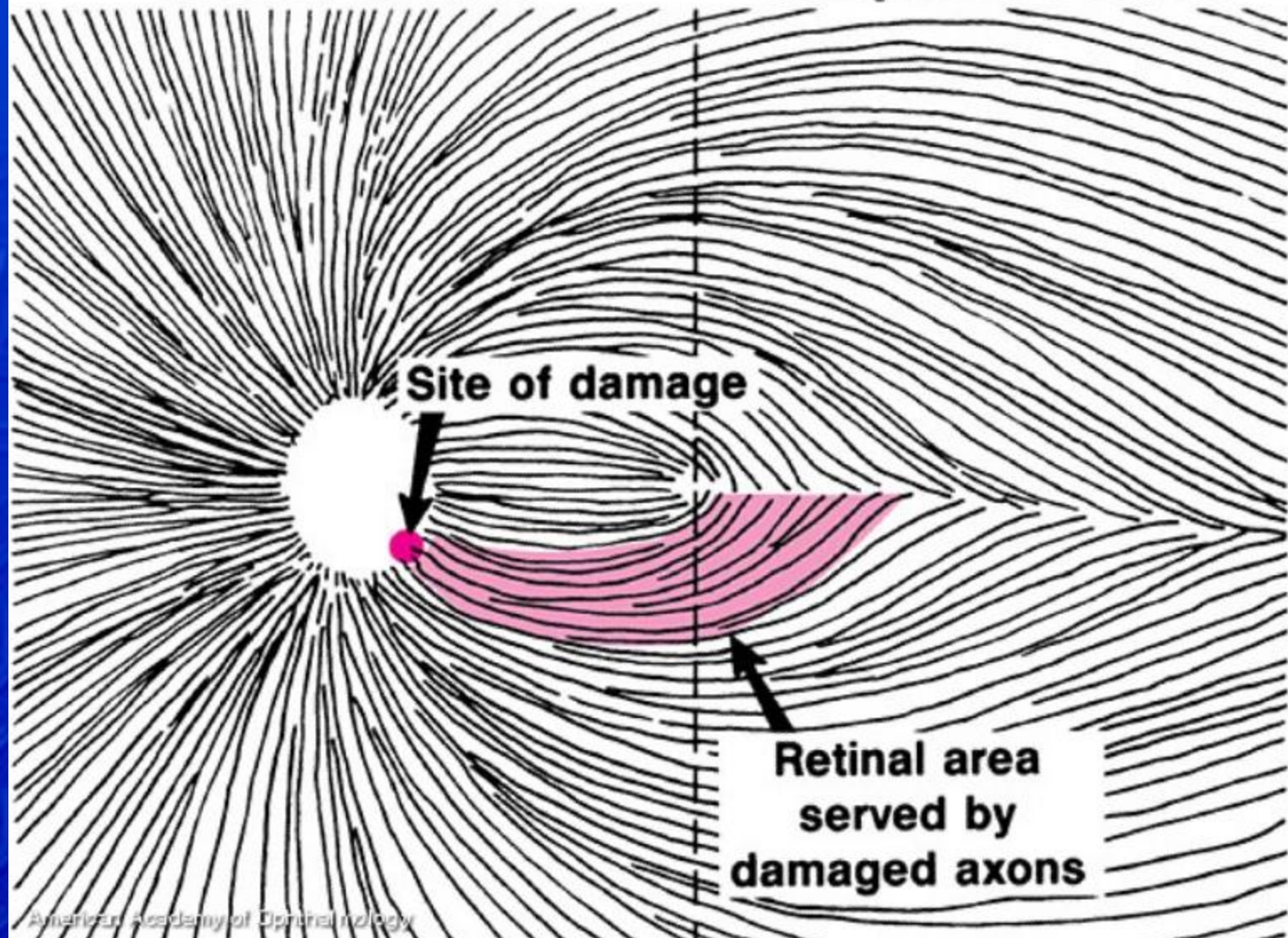


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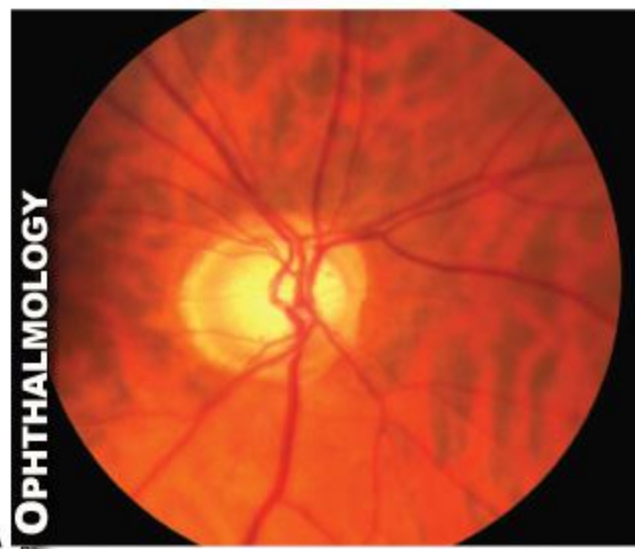


**Nasal retina**

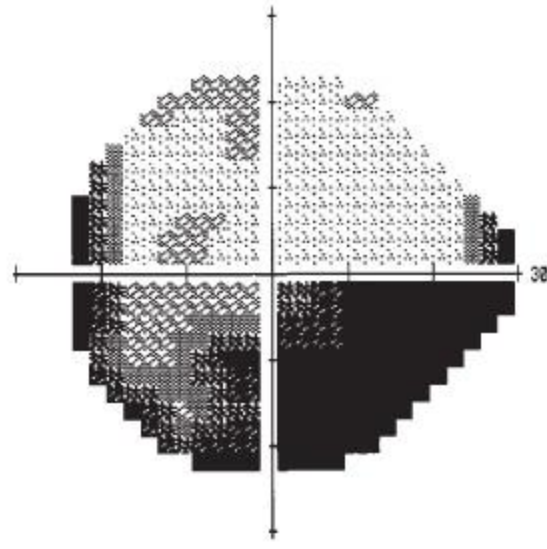
**Temporal retina**



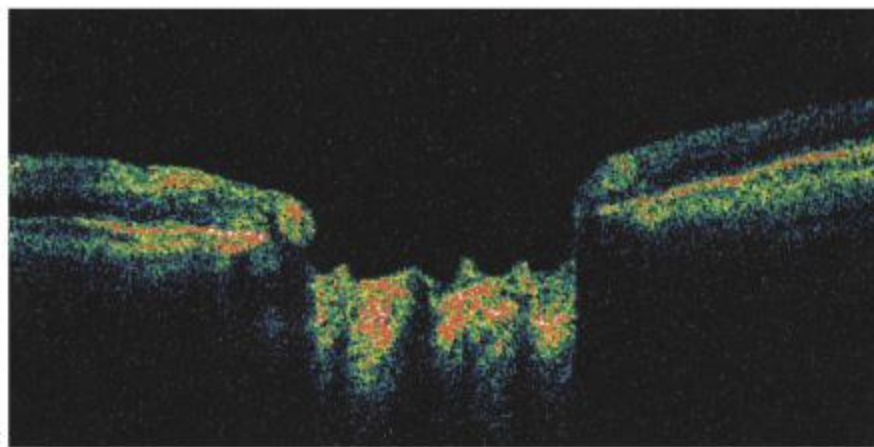
A



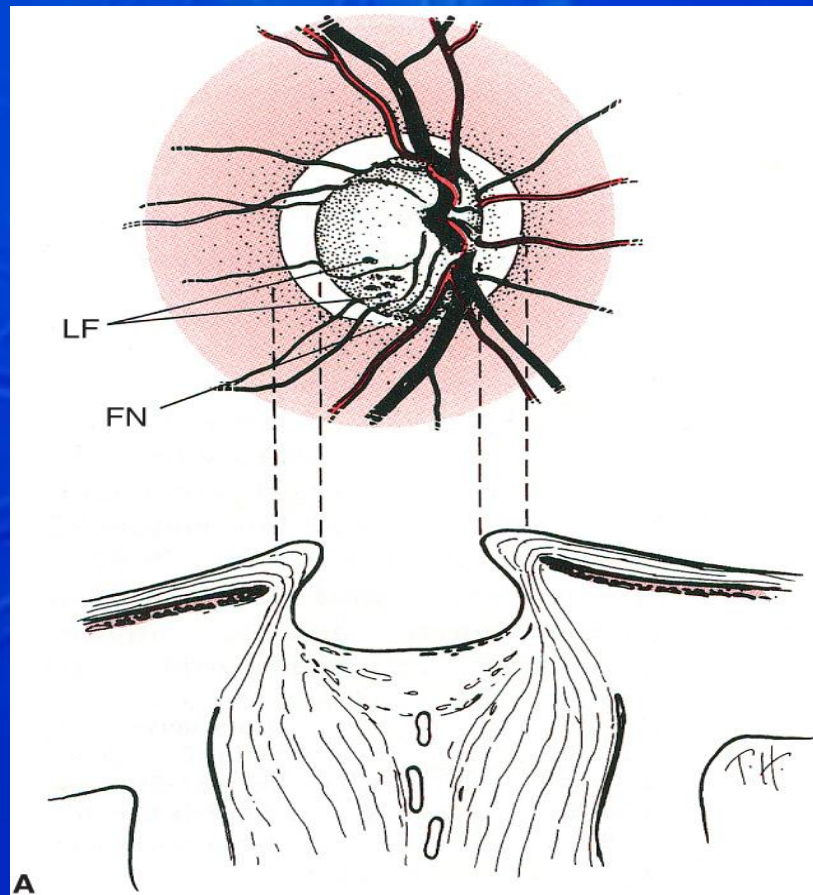
B



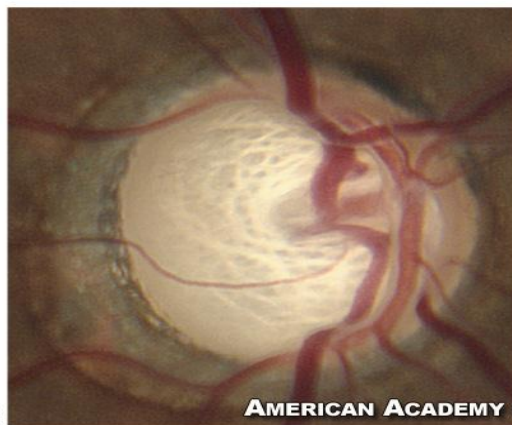
C







A



B

F P 2



E 5

FELOPZD 7

DEPOTEC 8

# GLAUCOMA

*EGS definition:*

**progressive optic neuropathies**, that have in common characteristic morphological changes at the optic nerve head and retinal fiber layer in the absence of other ocular disease or congenital anomalies. Progressive retinal ganglion cell death and visual field loss are associated with these changes.”

— *EGS, Terminology and Guidelines for Glaucoma, 2nd Edition, 2003*



# GLAUCOMA

## RELEVANCE

- Glaucoma is the second most important cause of blindness in the United States and the single most important cause of blindness in African Americans.
- If glaucoma is detected early and treated medically or surgically, blindness can be prevented. Most patients with early glaucoma are asymptomatic.



# GLAUCOMA

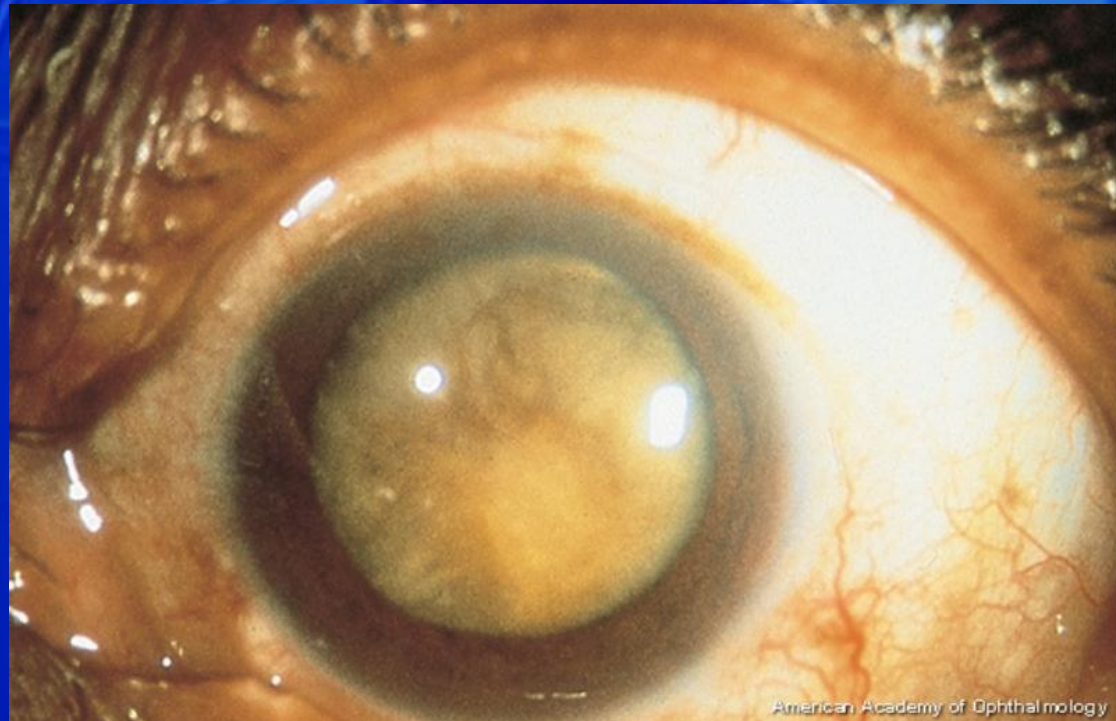
- The great majority of patients lack pain, ocular inflammation.
- Much peripheral vision can be lost before the patient notices **visual** impairment.

# GLAUCOMA

- Because glaucoma involves elevated pressure in the eye, routine measurement of Intraocular pressure is a valuable means of screening for glaucoma.
- elevation of intraocular pressure can lead to optic nerve damage; therefore, examination of the optic nerve is another way to detect glaucoma.

# CATARACT

Opacity of the lens



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# CATARACT

## Causes

Age related

subcapsular

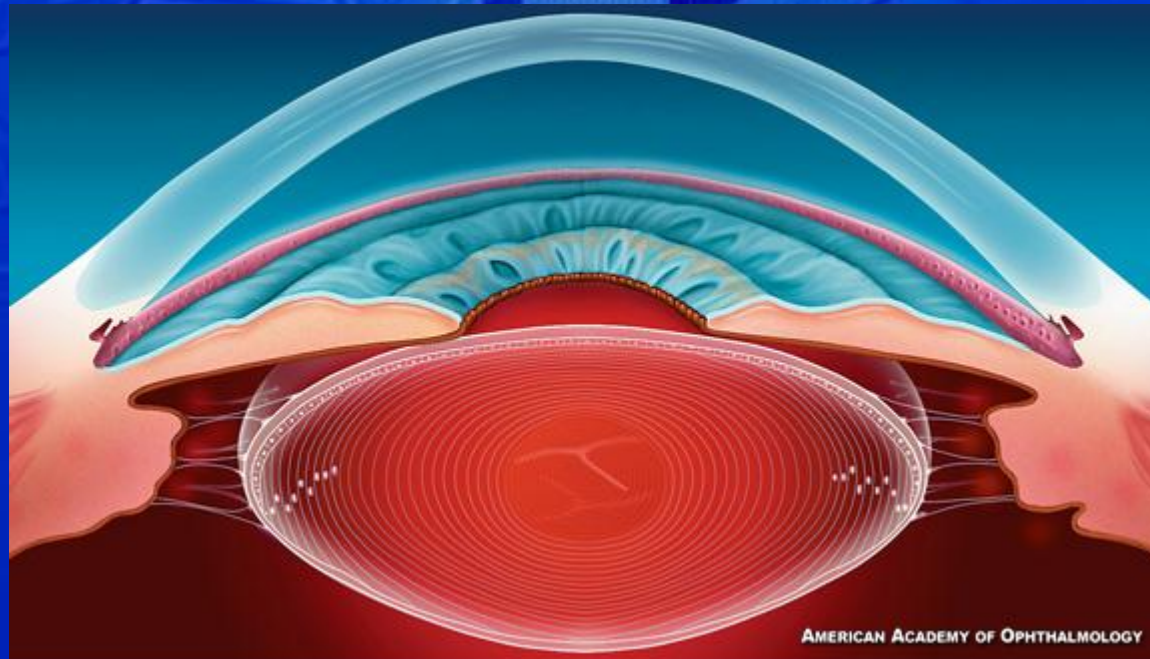
Nuclear

cortical

Traumatic





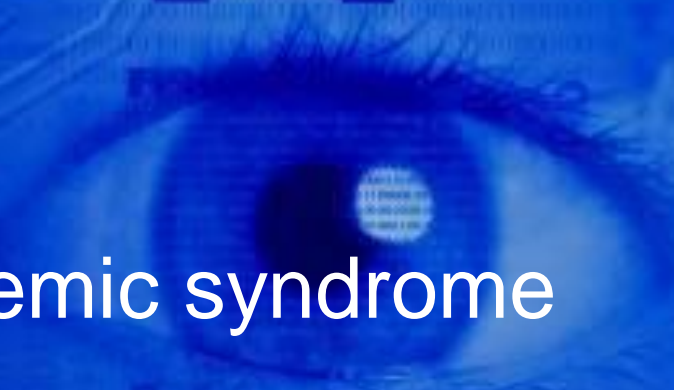


# CATARACT

Metabolic

Diabetic

Hypocalcemic syndrome



# CATARACT

## Cataratogenic drugs

Steroids

Chlorpromazine

Miotics

Amiodarone



# CATARACT

Complicated cataract

Uveitis

Retinal dystrophy, retinitis pigmentosa

High myopia

Acute glaucoma

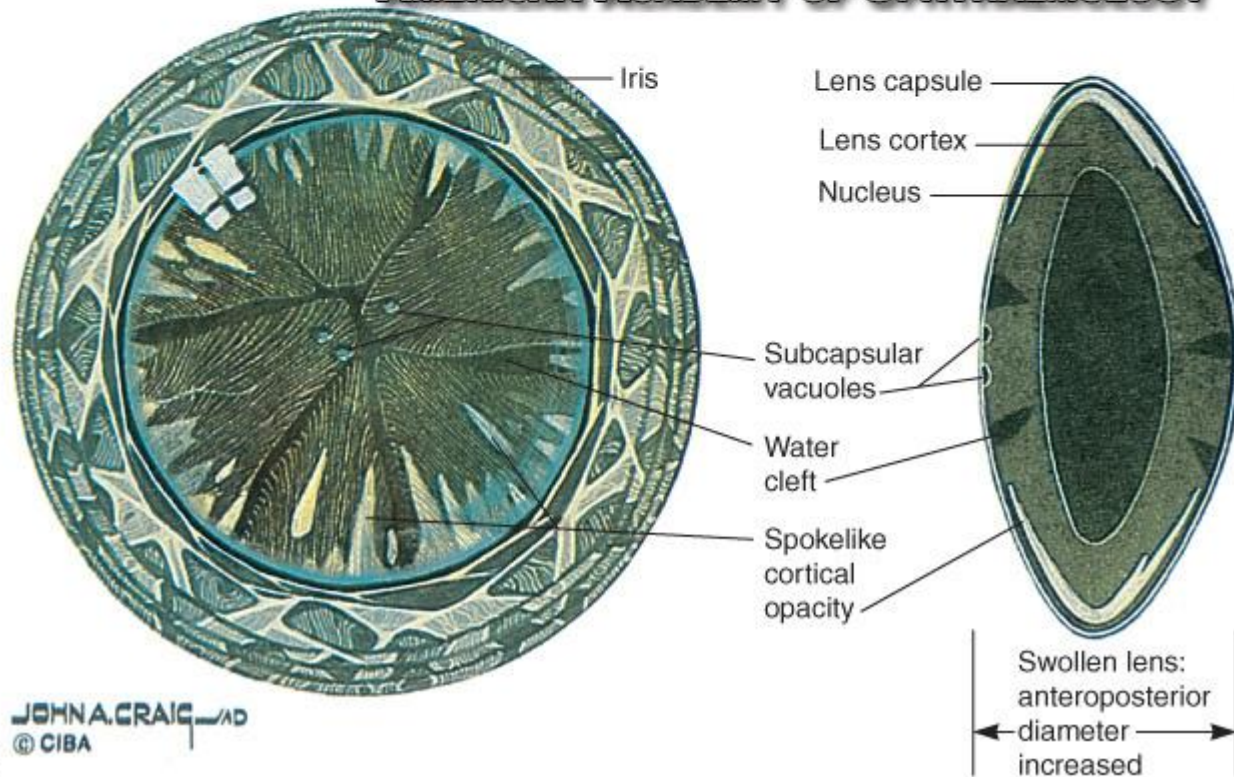




A

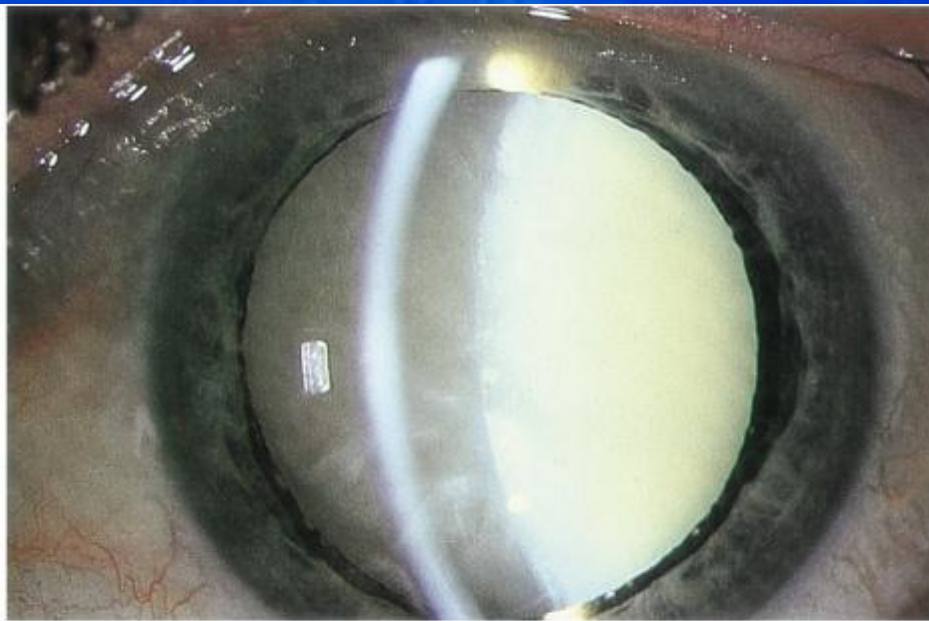


# AMERICAN ACADEMY OF OPHTHALMOLOGY

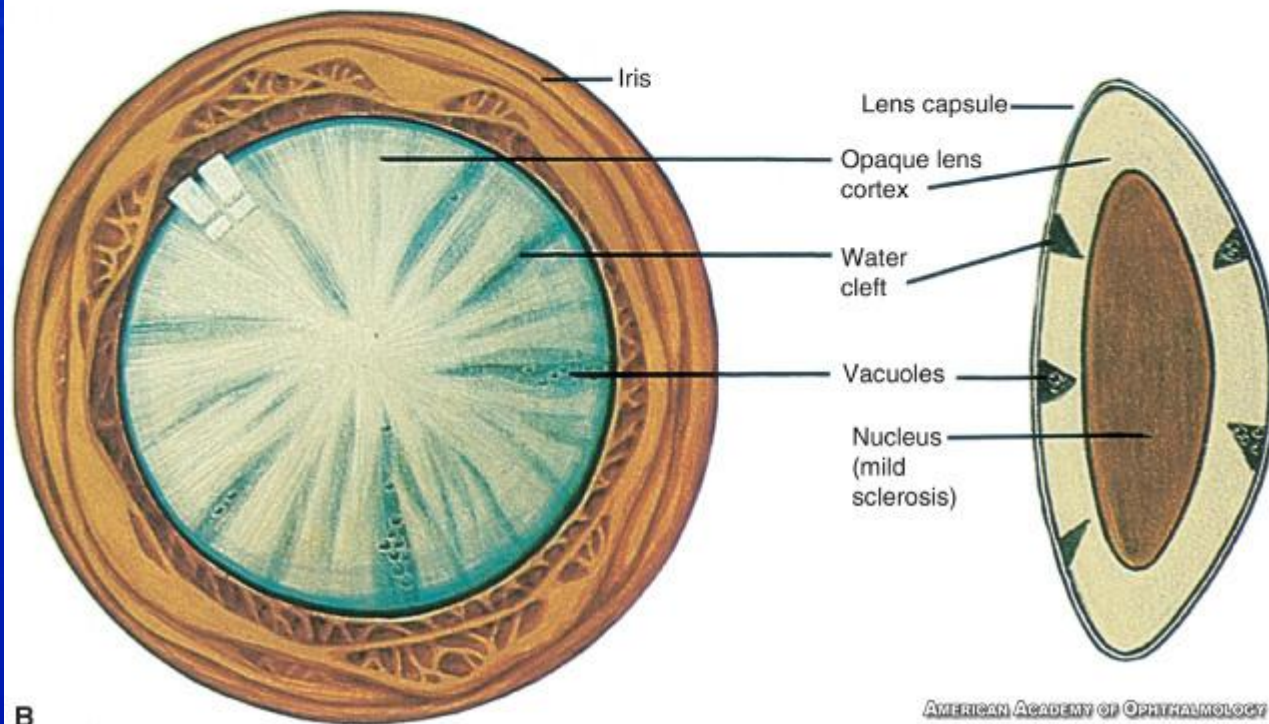


JOHN A. CRAIG, MD  
© CIBA

B



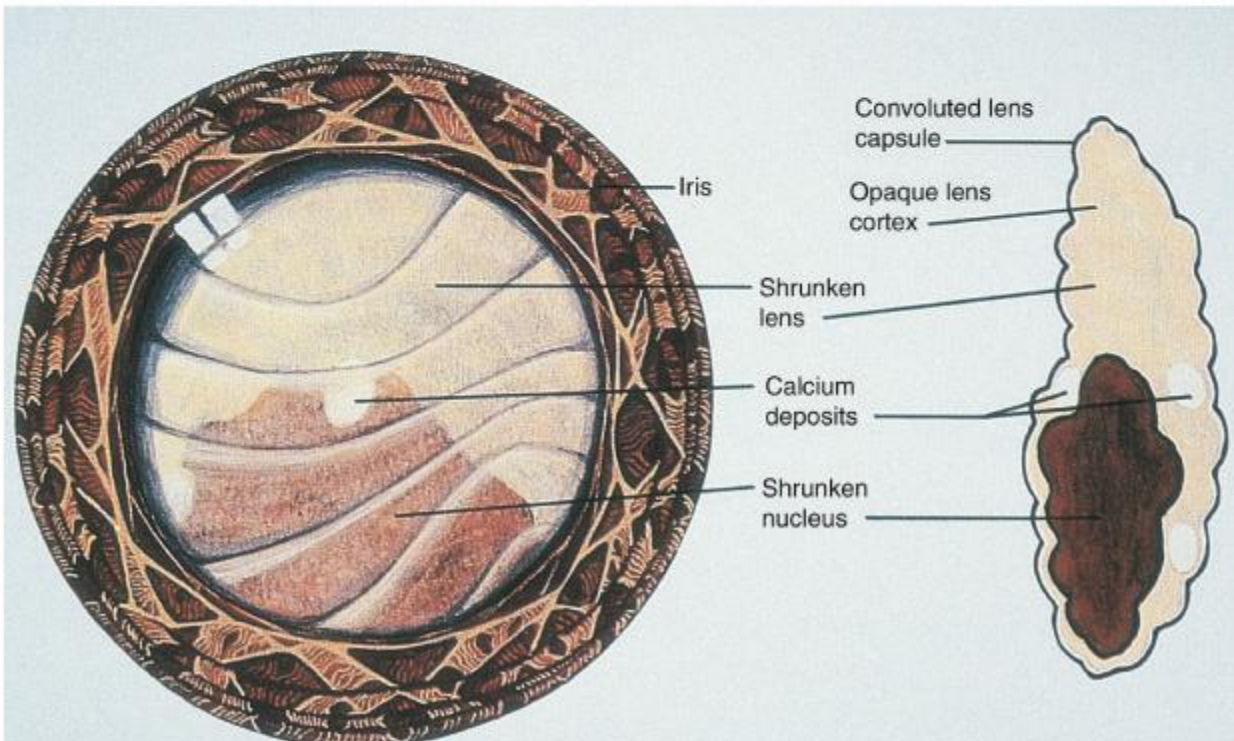
A



B



A





# CATARACT

## Classification

### 1-morphologic

nuclear, subcapsular, cortical

### 2-maturity

immature, mature, intumescent, hypermature

### 3-age of onset

cong, infantile, presenile, senile

# Congenital Cataract

Hereditary 1/3

Metabolic  
Syndroms

dowen syndrome, trisomy 13 & 18

Intrauterine causes

rubellatoxo,cmv



# CATARACT

Management

Congenital lens aspiration  $\pm$  IOL

Acquired

ICCE

ECCE

ECCE IOL

PHACO IOL







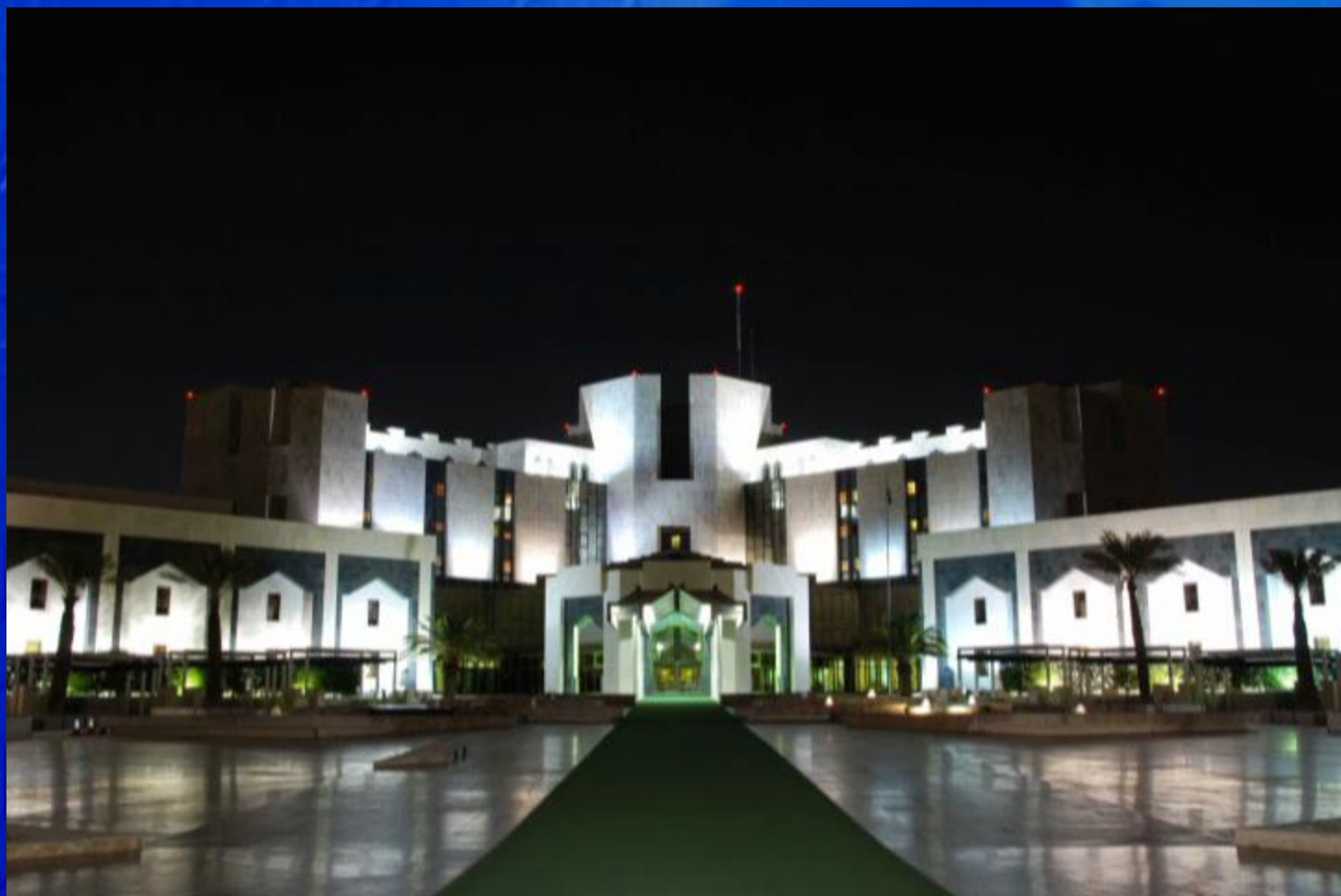
AMERICAN ACADEMY OF OPHTHALMOLOGY



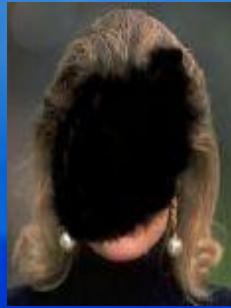








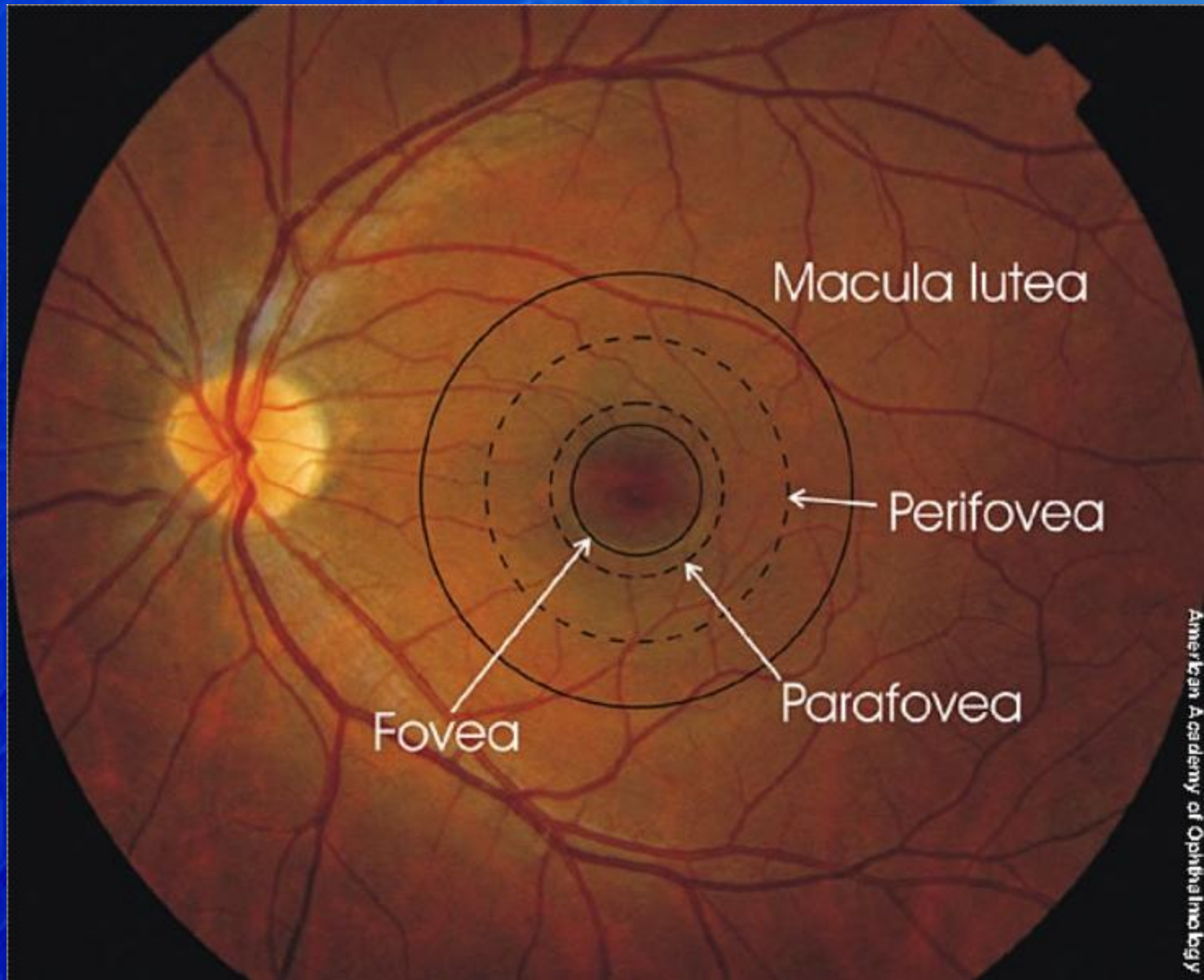
# Macular Degeneration



## RELEVANCE

- In the United States, age-related macular degeneration is the leading cause of irreversible central **visual loss** (20/200 or worse) among people aged 50 or older.
- Because certain types of macular degeneration are treated effectively with laser, it is important to recognize this entity and to refer for appropriate care.
- It is important to distinguish between the possible causes of **visual loss**, whether cataract (surgically correctable), glaucoma (medically or surgically treatable), or macular
- degeneration (potentially laser treatable).





# Macular degeneration



## Macular Anatomy

The macula is an oval area situated about 2 disc diameters temporal to the optic disc. The macula is composed of both rods and cones and is the area responsible for detailed, fine central vision.

The central macula is a vascular and appears darker than the surrounding retina. The fovea is an oval depression in the center of the macula. There is a high density of cones but no rods are present.

The central depression of the fovea may act like a concave mirror during ophthalmoscopy, producing a light reflection (i.e., foveal reflex).

# Macular degeneration

Test for macular function

V/A

Ophthalmoscopy

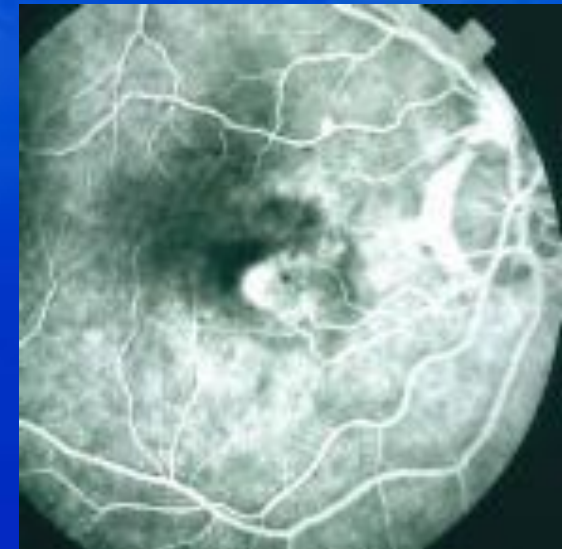
Amsilar grid

OCT

Flourescine angiography

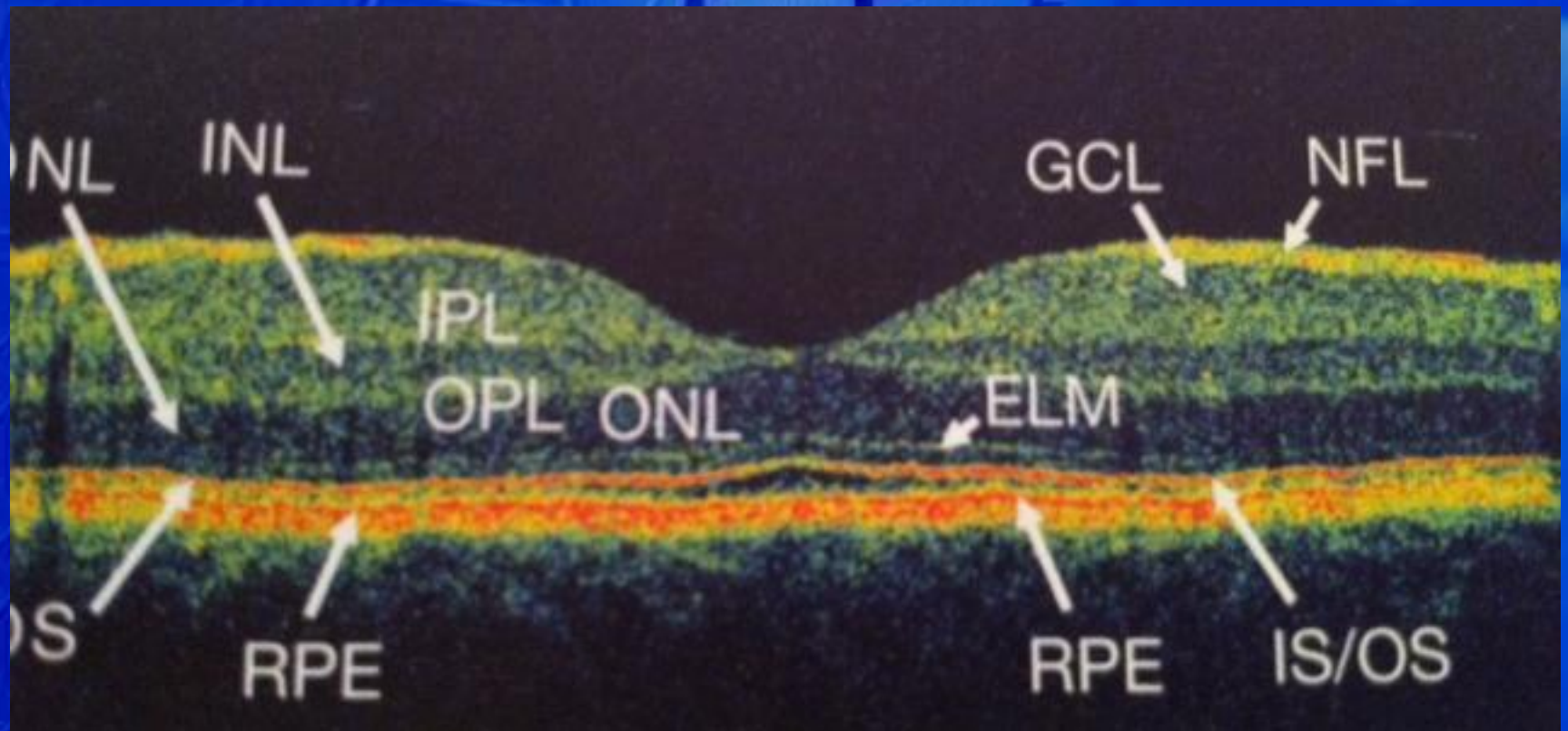


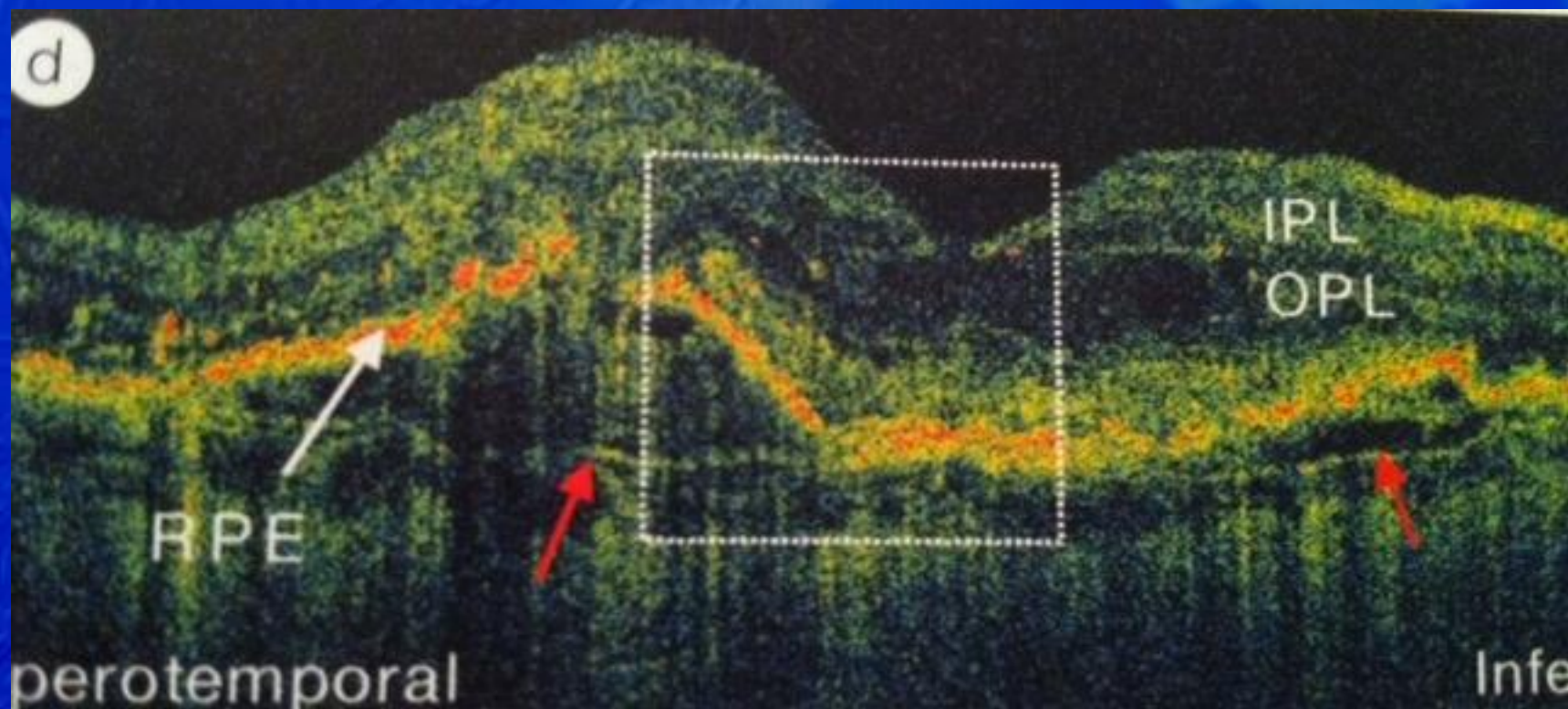
CMS in early phase fluorescein angiography





# F P 2





# Macular degeneration

## Age related

Some degree of visual loss  
associated with drusen & atrophy of  
RPE  
subretinal neovascularization

## Types

Dry type slow progressive atrophy of RPE  
and photoreceptors

Wet type RPE detachment and choroidal  
neovas.





**A**



Photoreceptor  
layer

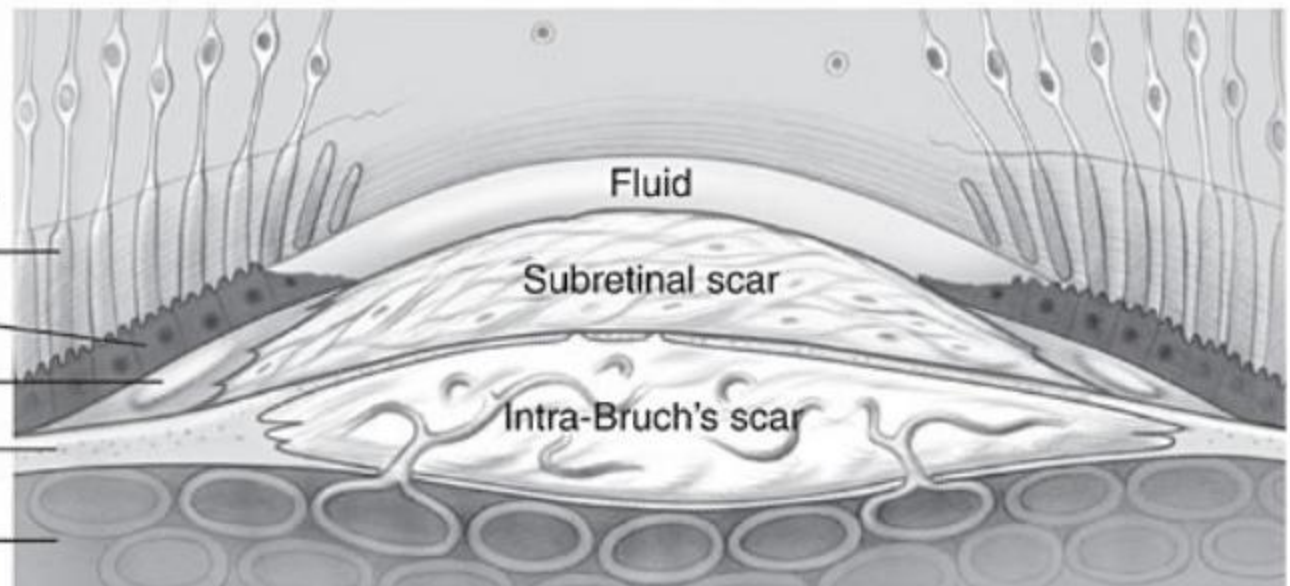
RPE

Fluid

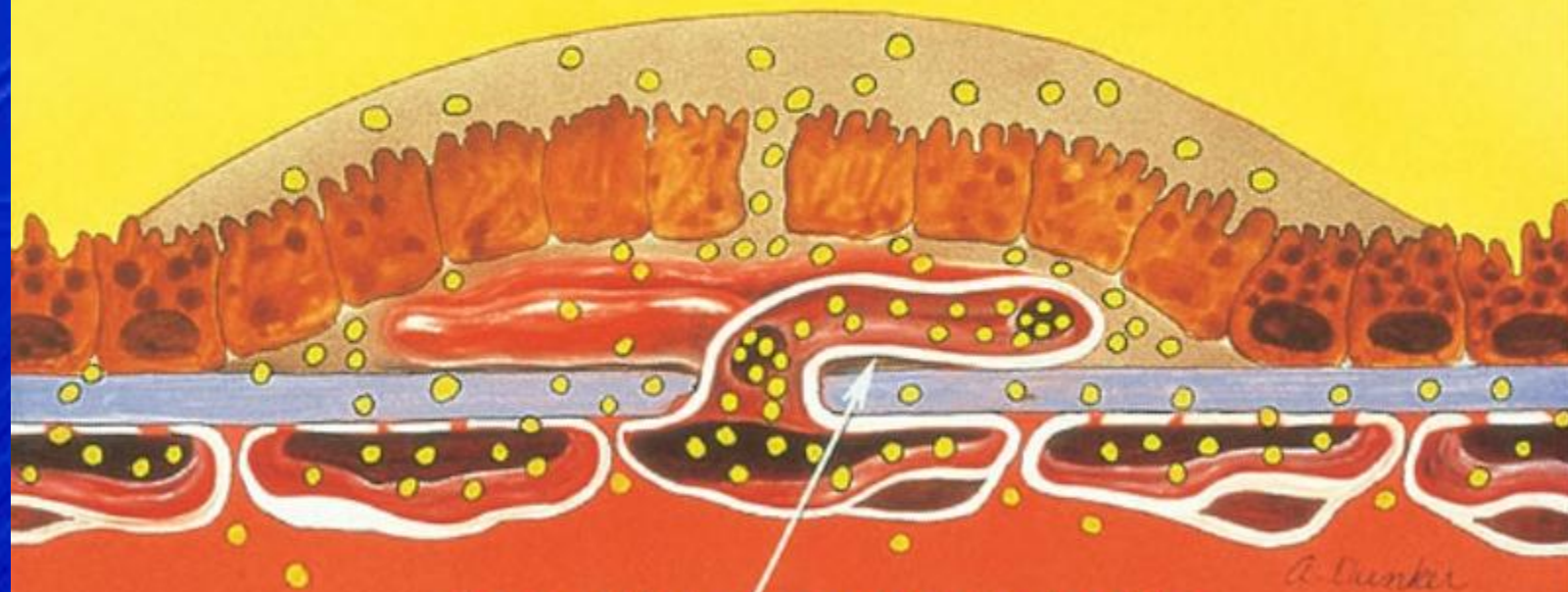
Bruch's  
membrane

Choroid

**B**



sensory retina



**choroidal neovascularization**

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F P 2



E 5 12 7 2

FELOPZD 7

DEPOTEC 8



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# Macular Degeneration



- Drusen are hyaline nodules (or colloid bodies) deposited in Bruch's membrane, which separates the inner choroidal vessels from the retinal pigment epithelium. Drusen may be small and discrete or larger, with irregular shapes and indistinct edges. Patients with drusen alone tend to have normal or near normal **visual acuity**, with minimal metamorphopsia



# Macular degeneration

As the most common cause of vision loss among people over the age of 60, macular degeneration impacts millions of older adults every year. The disease affects central vision and can sometimes make it difficult to read, drive or perform other activities requiring fine, detailed vision.

# Macular Degeneration

- **What Risk Factors You Can't Control**
- **Age**
- **Race**
- **Gender**
- **Genetics**



# Macular Degeneration

- **Risk Factors You Can Control**
- **Smoking**
- **High Blood Pressure**
- **High Cholesterol**
- **Poor Nutrition**
- **Unprotected Exposure to Sunlight**
- **Ultraviolet (UV) light has been**
- **Excessive Sugar Intake**
- **Obesity**
- **Sedentary Lifestyle**



# Diabeetic Retinopathy

Diabetic retinopathy is commoner in type 1 •  
(40%) than in type 2 (20%), and is the  
most prevalent cause of legal blindness  
between the ages of 20 & 65 years.

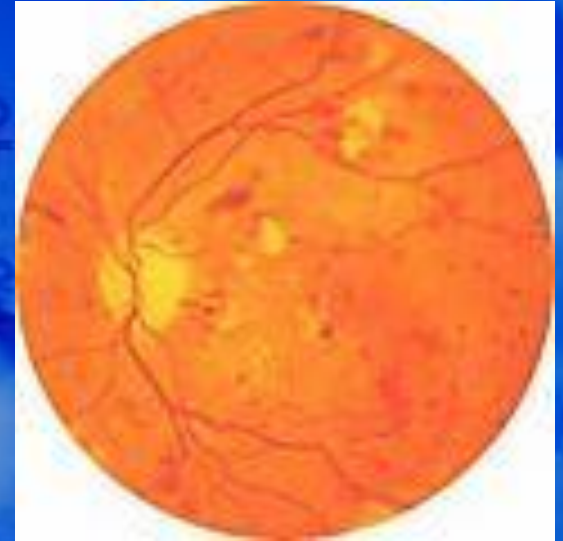
# Diabetic retinopathy

- Risk factors

Duration of the disease

Good metabolic control

Pregnancy, hypertension, renal disease, anaemia



# Diabetic retinopathy

- Pathogenesis
- Microvascular occlusion
- Microvascular leakage





# Diabetic retinopathy

## Microvascular occlusion

Thickened capillary basement membrane

Capillary endothelial cell damage

Changes in RBC

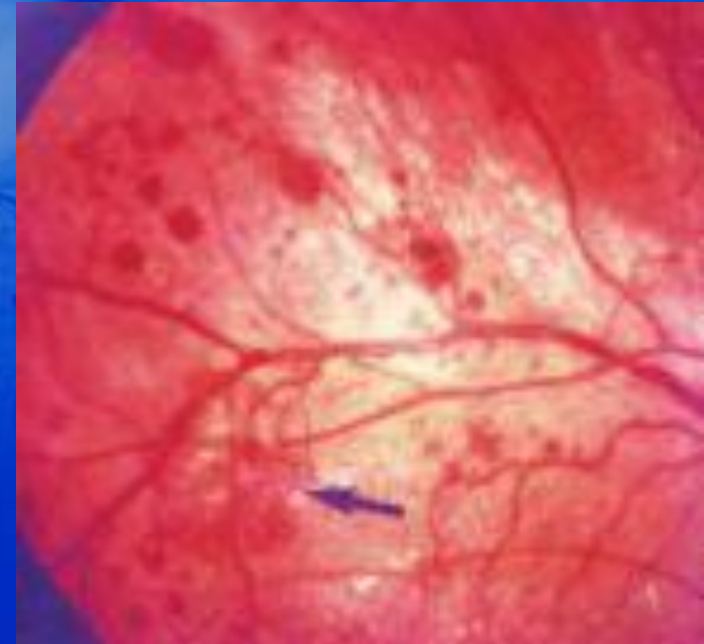


Retinal ischemia



AV SHUNT

NEOVASCULARIZATION



# Diabetic retinopathy

## Microvascular leakage

Loss of pericyte cells between endothelial cells

Leakage of plasma constituents in the retina(exudate)



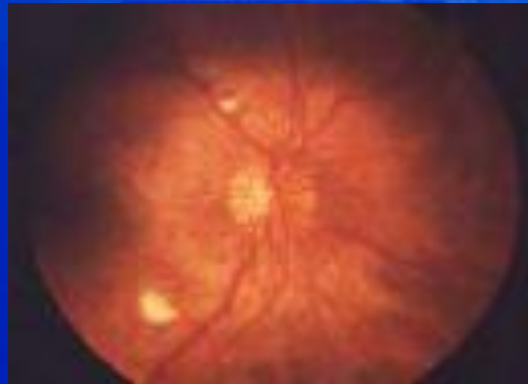
# Diabetic retinopathy

- Types

Non proliferative

Proliferative

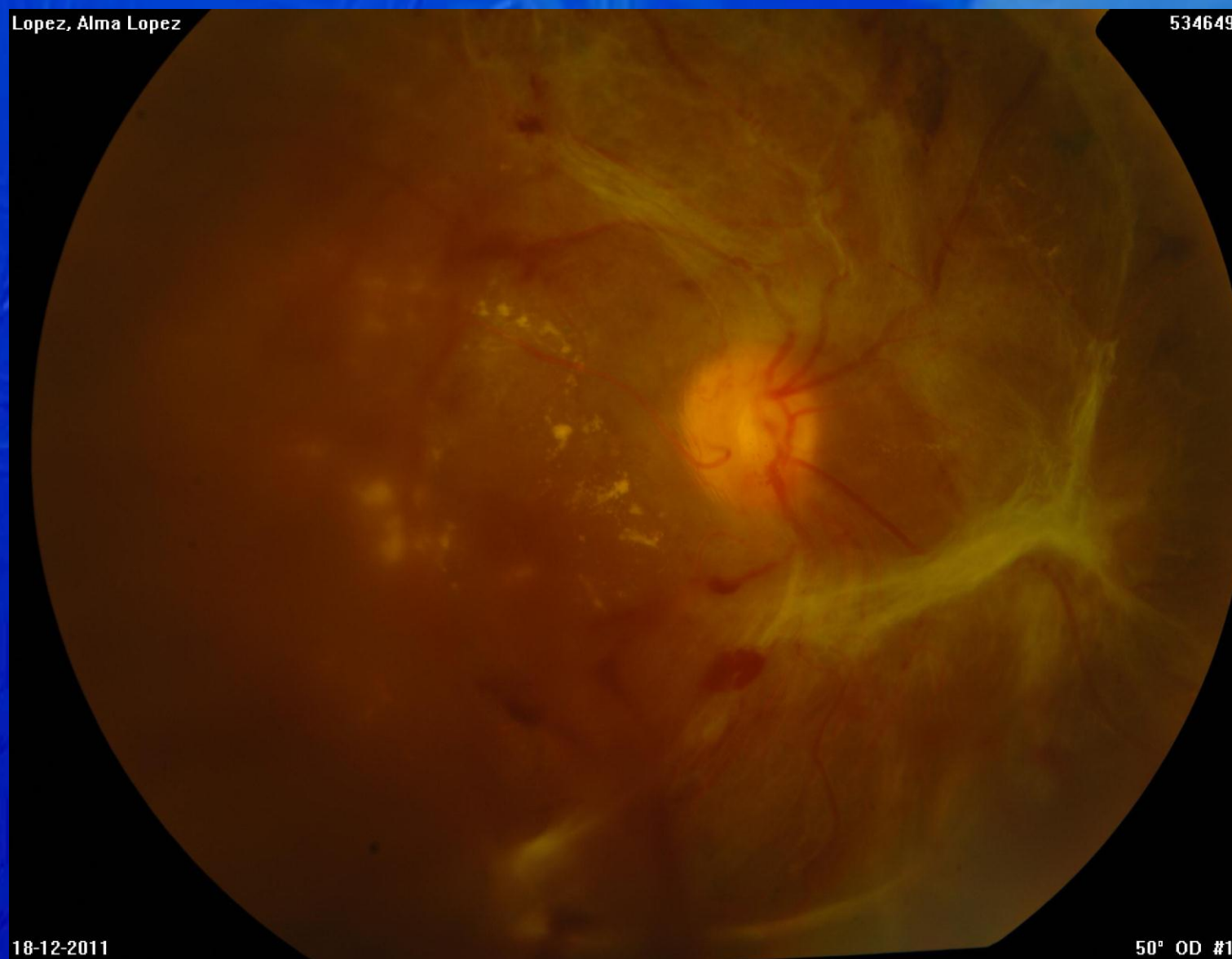
Macular oedema





Lopez, Alma Lopez

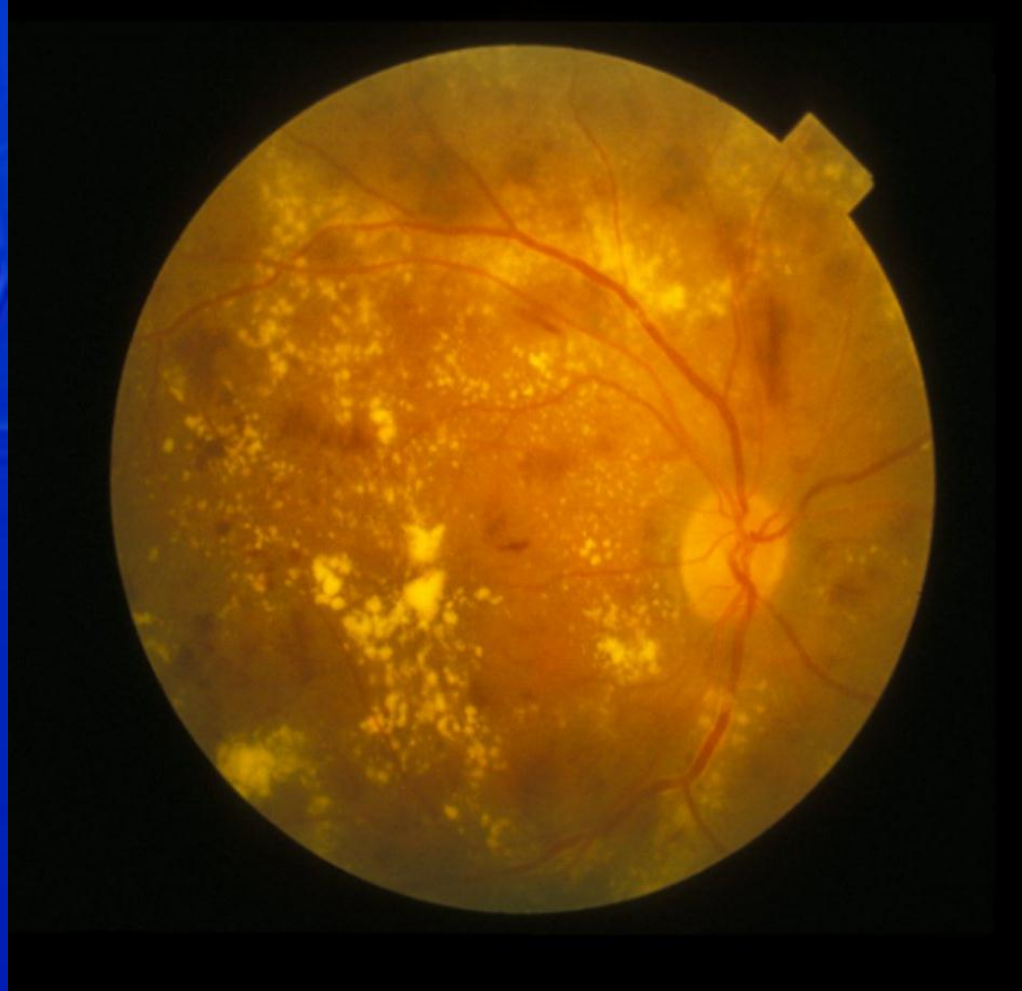
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50° OD #1







# Diabetic retinopathy

- Management

NPDR

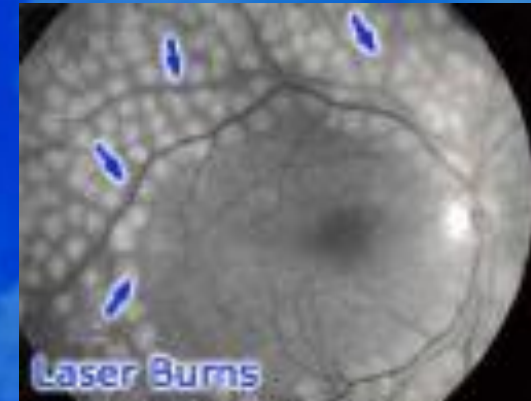
OBSERVATION

PDR

PRP

MACULAR OEDEMA

FOCAL & GRID LASER





*Thank You*



FELOPZD

7

DEFFOTEC

8