



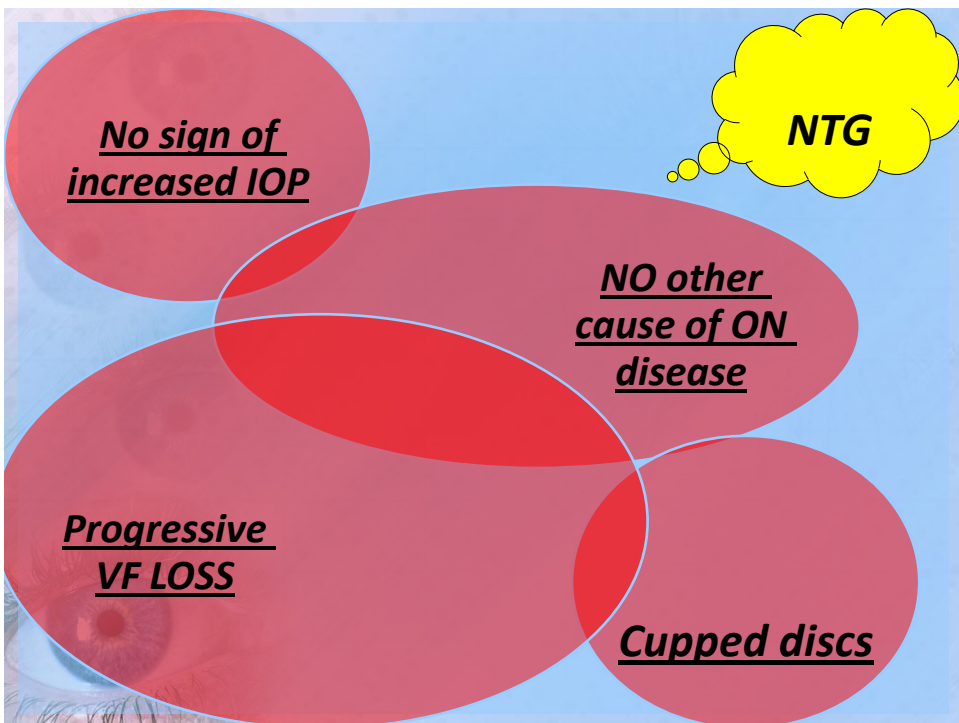
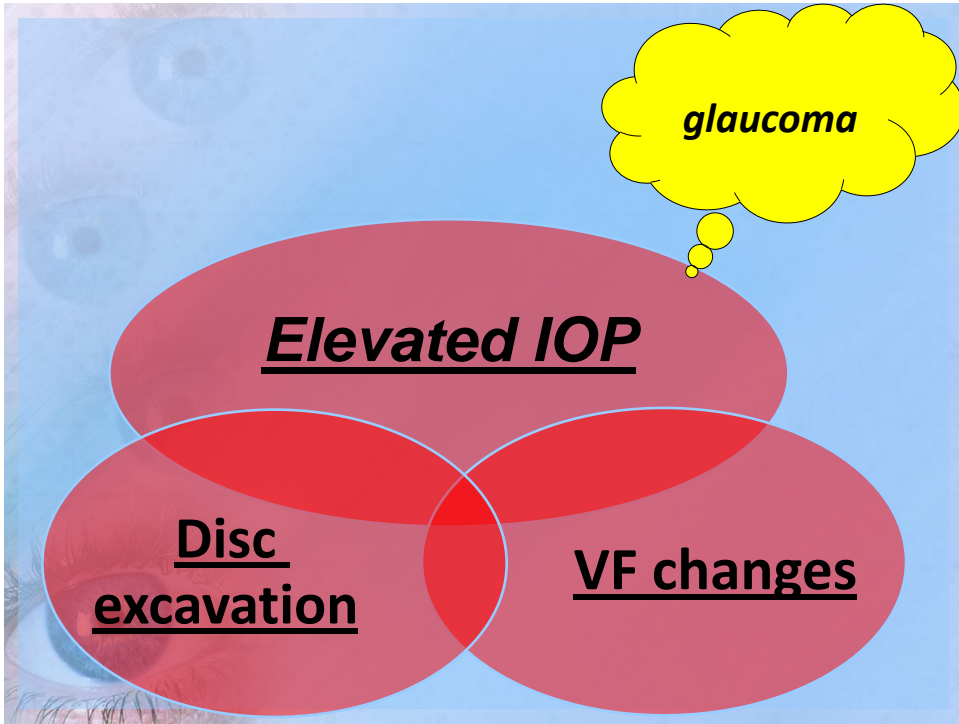
# **PSEUDOGLAUCOMATOUS** **OPTIC DISC**

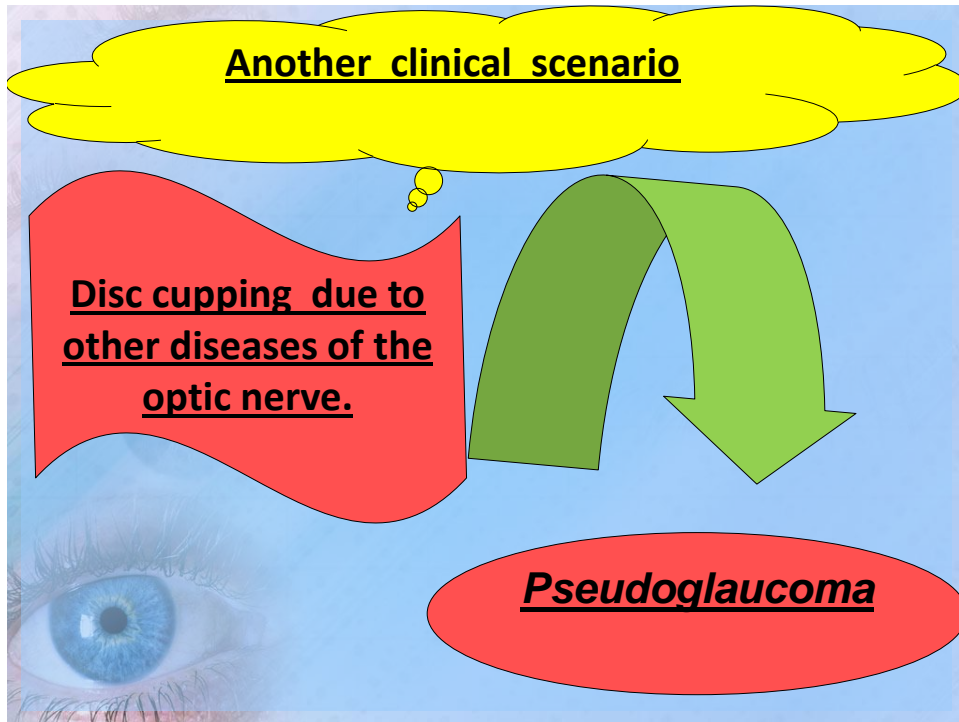
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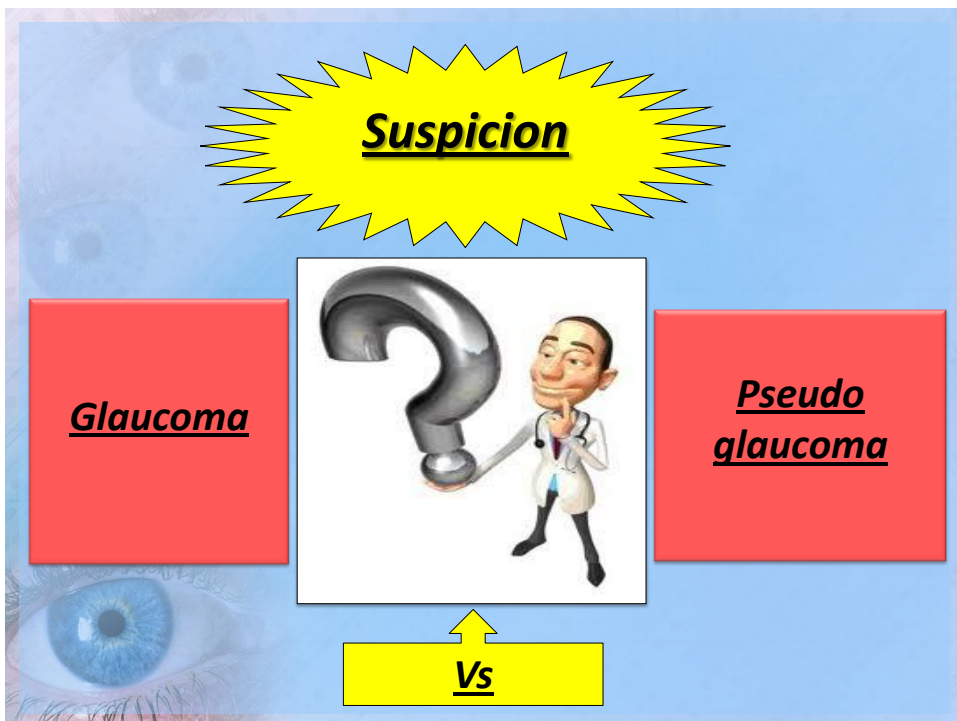


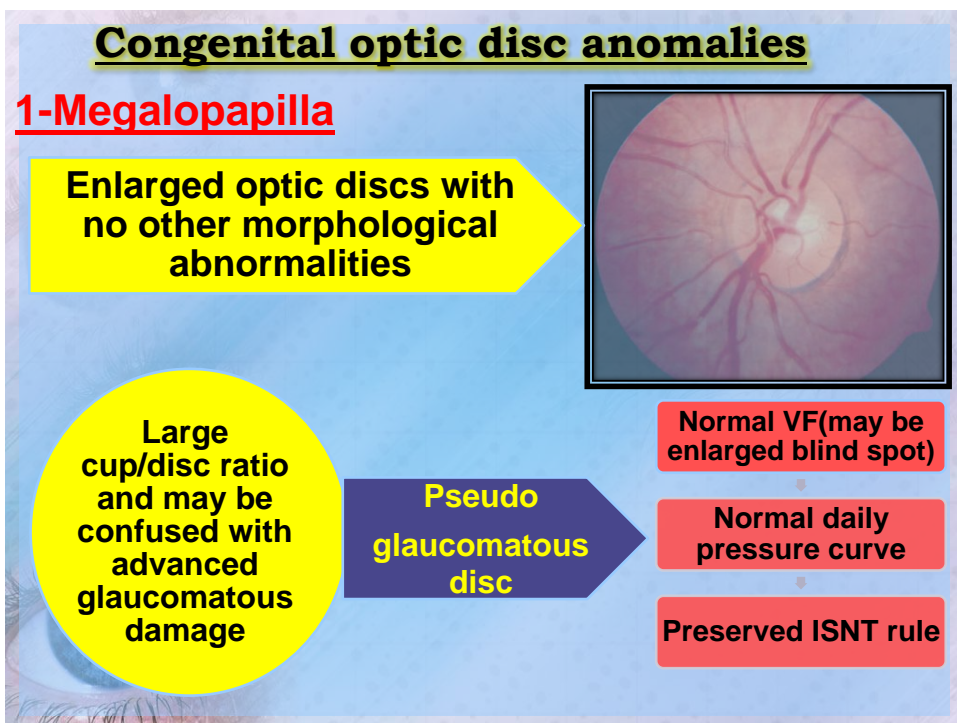
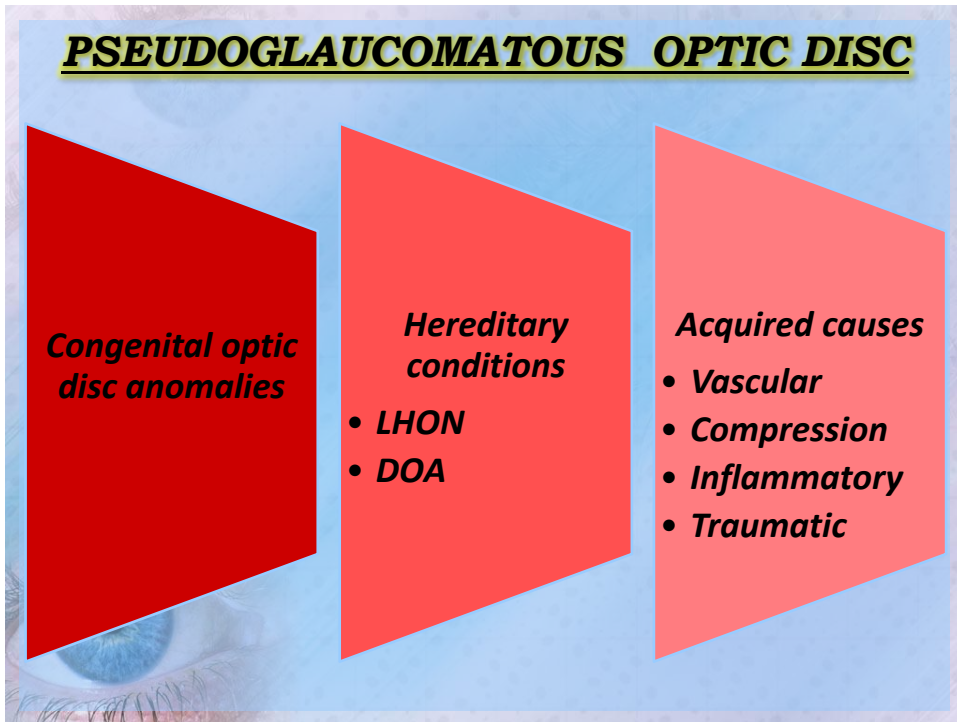


- Pseudoglaucoma is defined as false or deceptive glaucoma with or without ocular damage (Birge, 1962).***
- Multiple entities can produce "pseudoglaucomatous optic disc" and should have a special attention to differentiate from glaucomatous eyes that behave, at least for a time, as though it did not have glaucoma .***

**Up to 20%**

of patients may be misdiagnosed and treated for glaucoma due to misinterpretation of the optic-disc cupping (Piette and Sergott, 2006).







## 2-perivenicular leucomalacia(PVL)

A unique form of bilateral optic nerve hypoplasia

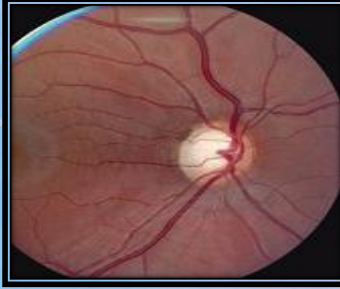


- Large cup
- Thin NRR
- Normal disc size

Large cups can simulate glaucoma

Normal IOP

History of prematurity

Symmetric inferior VF defect

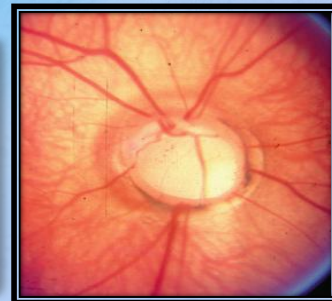
## 3-Morning glory disc anomaly(MGDA)

- ❑ *Congenital, funnel-shaped excavation of the posterior fundus that incorporates the optic disc.*
- ❑ *Large anomalous tortuous blood vessels with S-loops.*



## 4-Optic disc coloboma

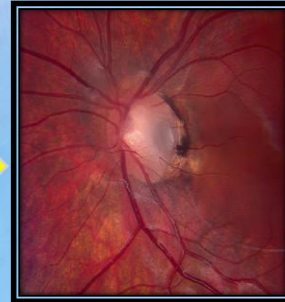
- ❑ *appear as an enlarged, excavated, and sharply demarcated defect with normal retinal vessels appearing at the margin of the excavation.*



## 5-Congenital optic disc pit

**Congenital excavation of the optic nerve head**

- Do not change appearance with time
- Poor disc field correlation
- Serous RD



## 6-Congenital tilted disc

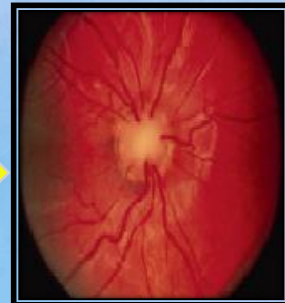
- Oblique insertion of the optic nerve into the globe.
- The relative prominence of one pole give the appearance of rim thinning and raise the suspicion of glaucoma.
- Superior bitemporal visual field defect not respecting vertical meridian.



## 7-Papillorenal syndrome

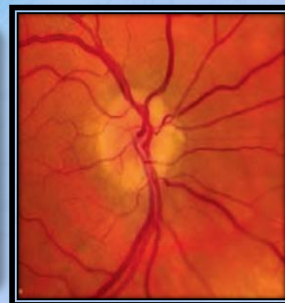
**Bilateral anomalous optic disc associated with hypoplastic kidneys**

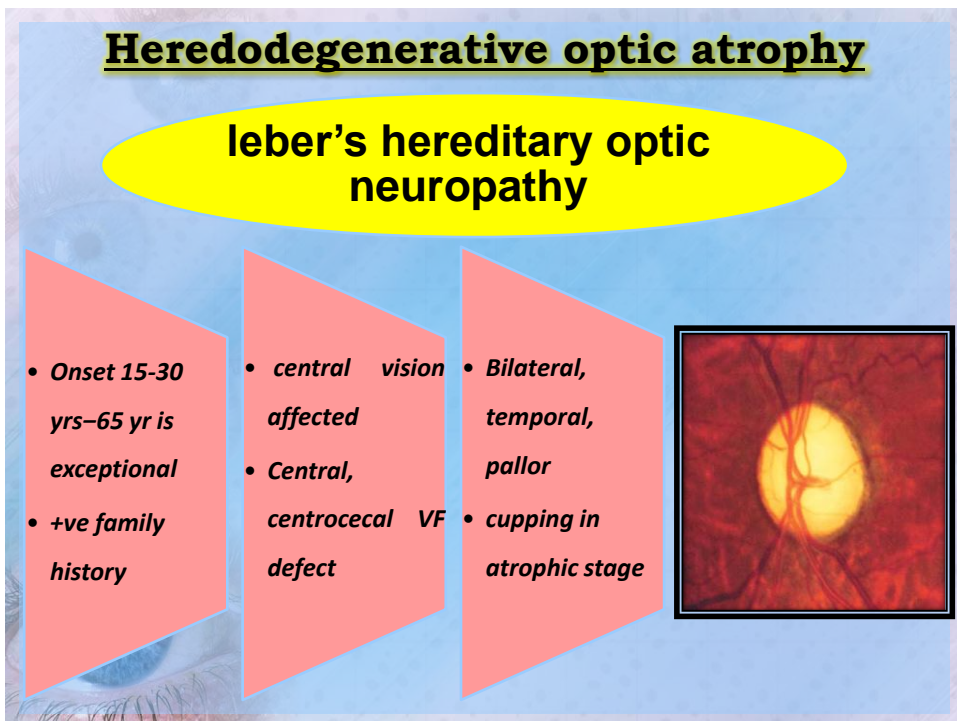
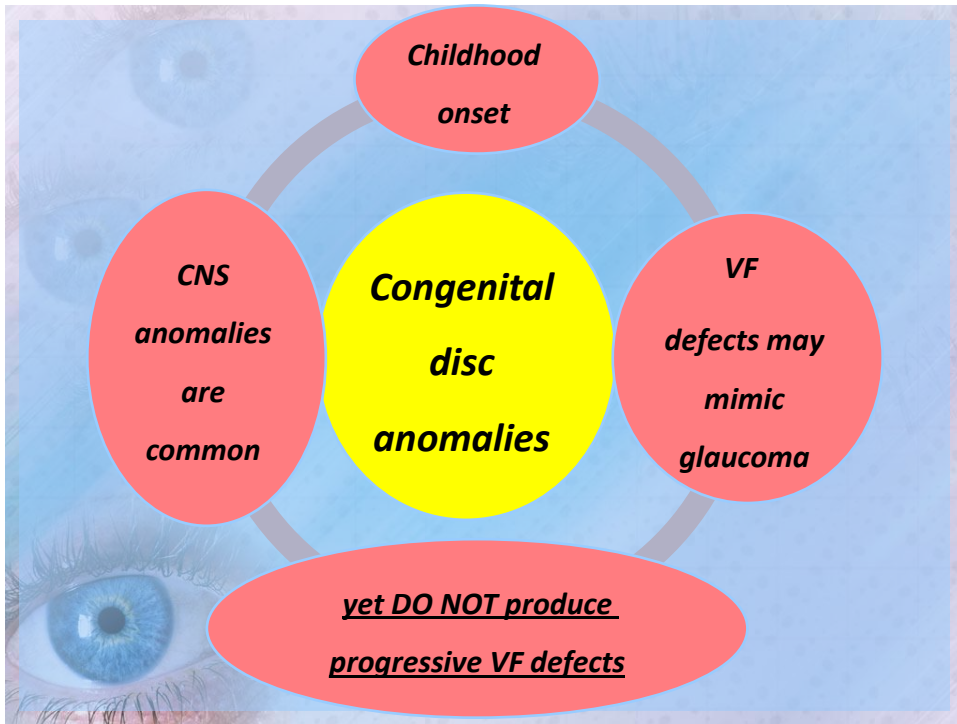
- Normal sized excavated disc
- Cilioretinal vessels emanate from disc periphery
- Absent central retinal circulation



## 8-Optic disc drusen(ODD)

- Deflection of the blood vessels, causing an irregular branching pattern .
- RNFL loss and VF defect resembles glaucoma.
- No correlation between disc drusen and VF loss







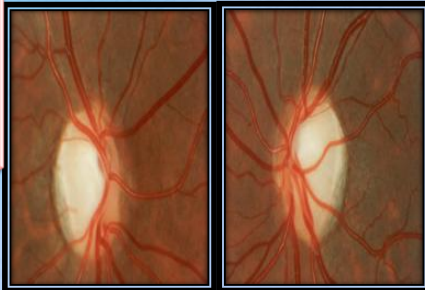
## Dominant optic atrophy

- onset 4-6 yrs
- +ve family history

- central vision affected
- Central, centrocecal VF defect

- Bilateral temporal, pallor
- Deep disc cupping

The most common hereditary optic neuropathy



## Acquired causes

Vascular

**Ischemic optic neuropathy**

**Anterior ischemic optic neuropathy (AION)**



Cupping is a common end stage

Pale NRR, inferior altitudinal field

**Posterior ischemic optic neuropathy (PION)**

Diagnosis of exclusion

Temporal pallor and cupping

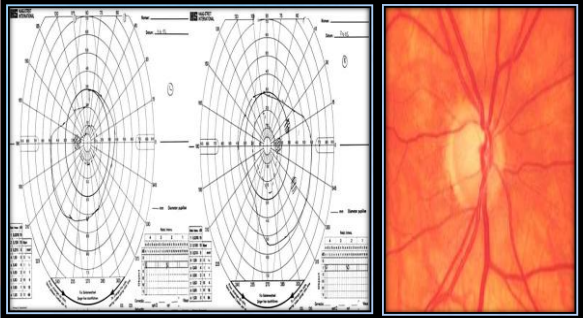
**compression**

**Compressive lesions**

- Pituitary adenoma
- Suprasellar meningioma
- Craniopharyngioma
- Carotid-ophthalmic A aneurysm
- ICA dilatation
- Graves' disease

**Pallor  
&  
excavation**


- Age <50 yrs
- Central vision affected
- VF respecting vertical line
- ± bitemporal field defect



**Inflammatory**

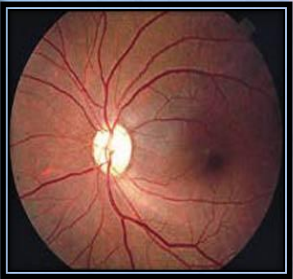
**Demyelinating optic neuritis (MS)**

- History of acute optic neuritis
- Segmental disc pallor and excavation
- Band disc atrophy



**traumatic**

- Traumatic optic neuropathy
- Radiation induced neuropathy
- Methanol induced excavation



Pallor & excavation

## **DIAGNOSIS OF PSEUDOGLAUCOMATOUS OPTIC DISC**

**The primary distinction between physiologic cupping and pathologic cupping, and the accurate subclassification of eyes with pathologic cupping is Of paramount importance (Greenfield, 1999).**

### **History**

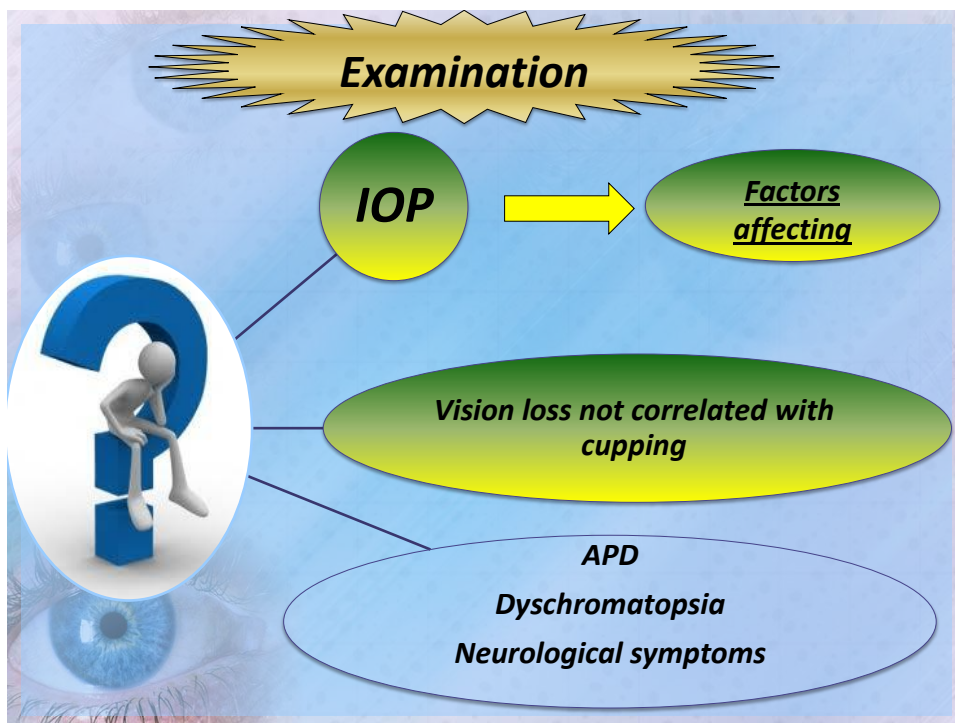
- Rapid onset ,progression
- Other neurological symptoms
- Insignificant family history of glaucoma

### **Demographic data**

- Age under 50 years

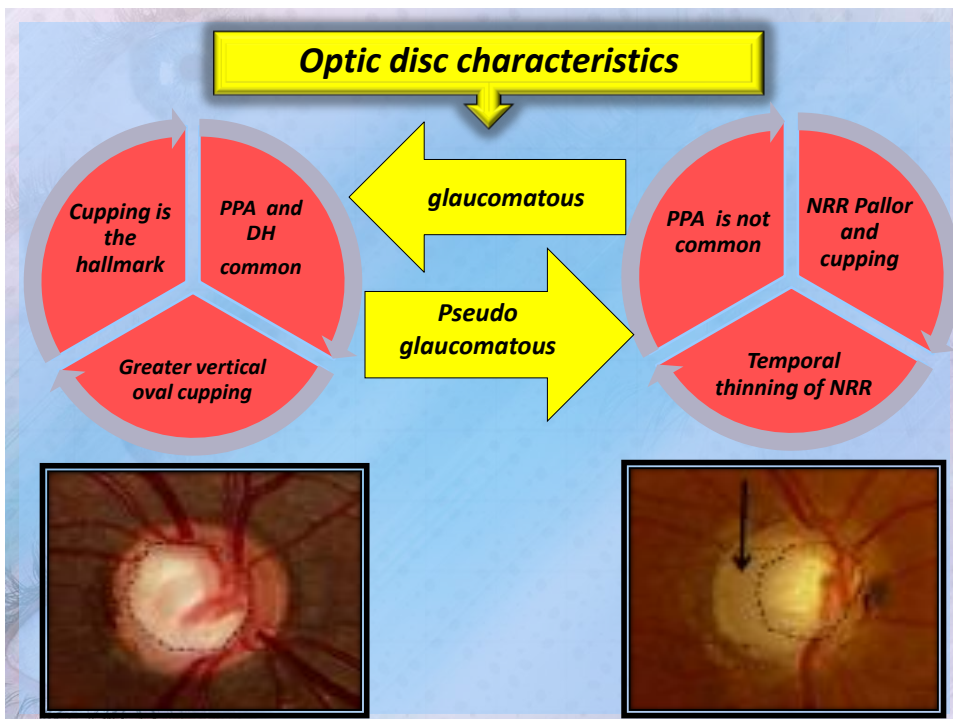
### **Ocular laterality**

- Suggested unilateral damage

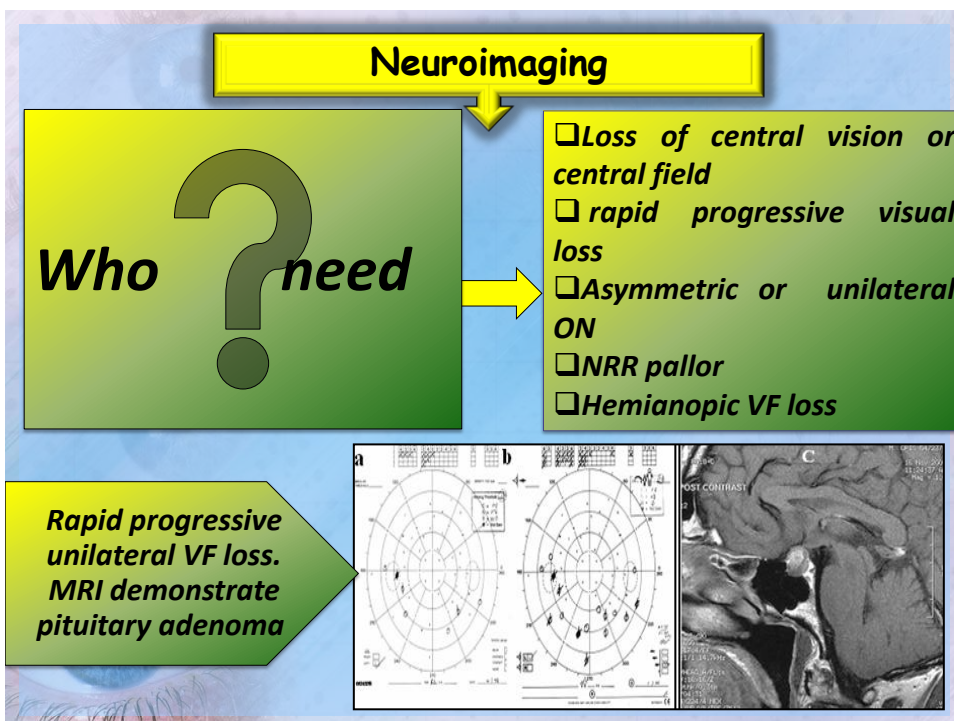
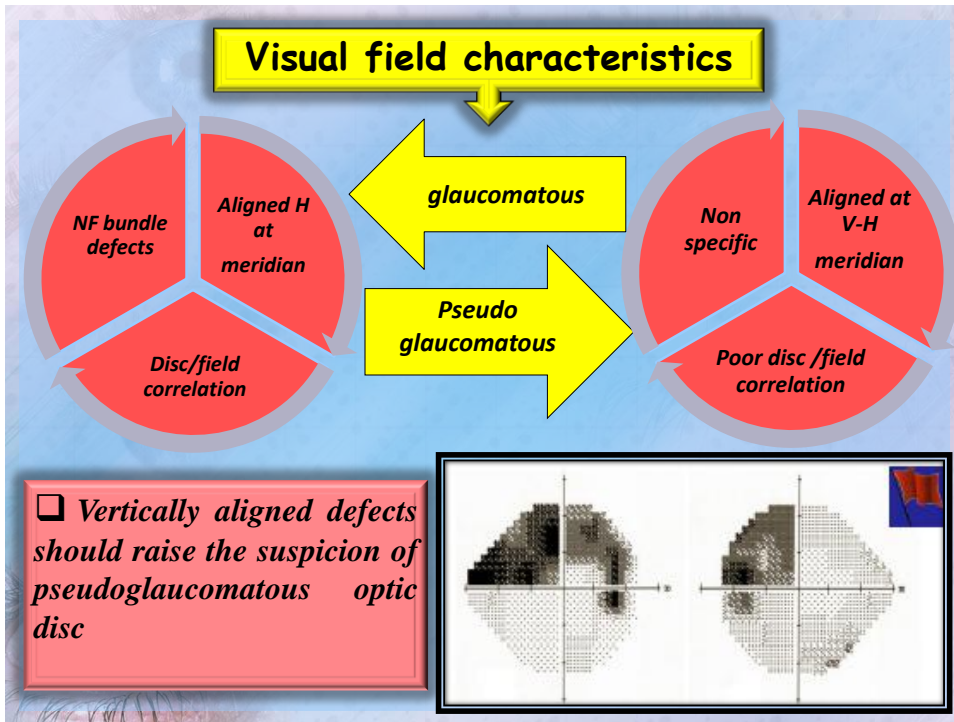


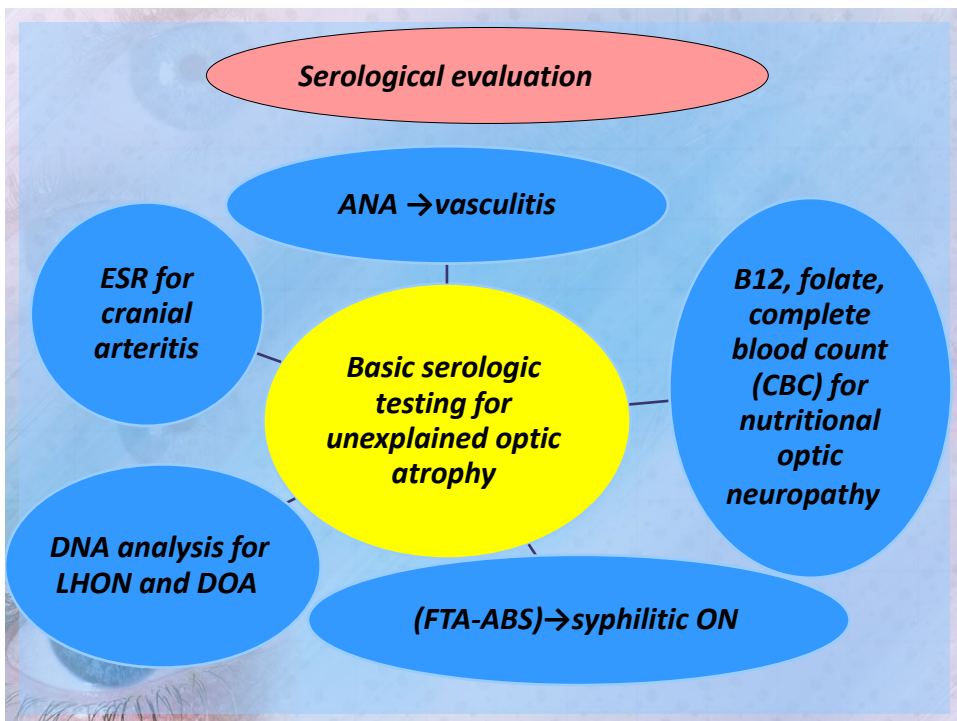
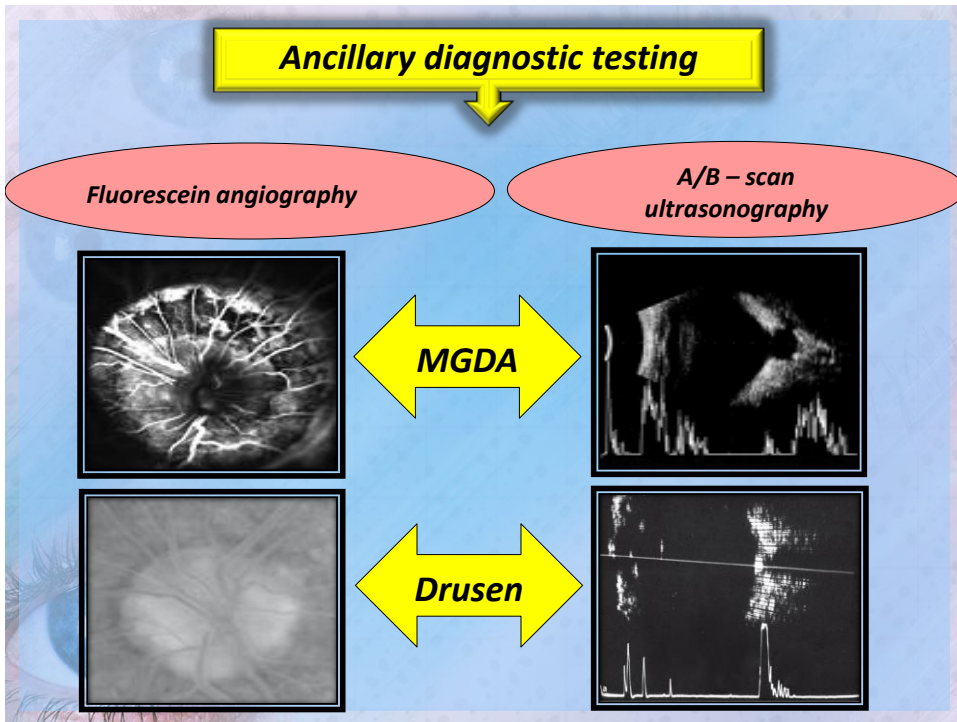
**Optic disc evaluation - Five rules(5RS)**

- ❑ Sclera **R**ing to identify the limits of the optic disc and its size.
- ❑ Size of the **R**im.
- ❑ **R**etinal nerve fiber layer.
- ❑ **R**egion outside the optic disc for parapapillary atrophy.
- ❑ **R**etinal and optic disc hemorrhages





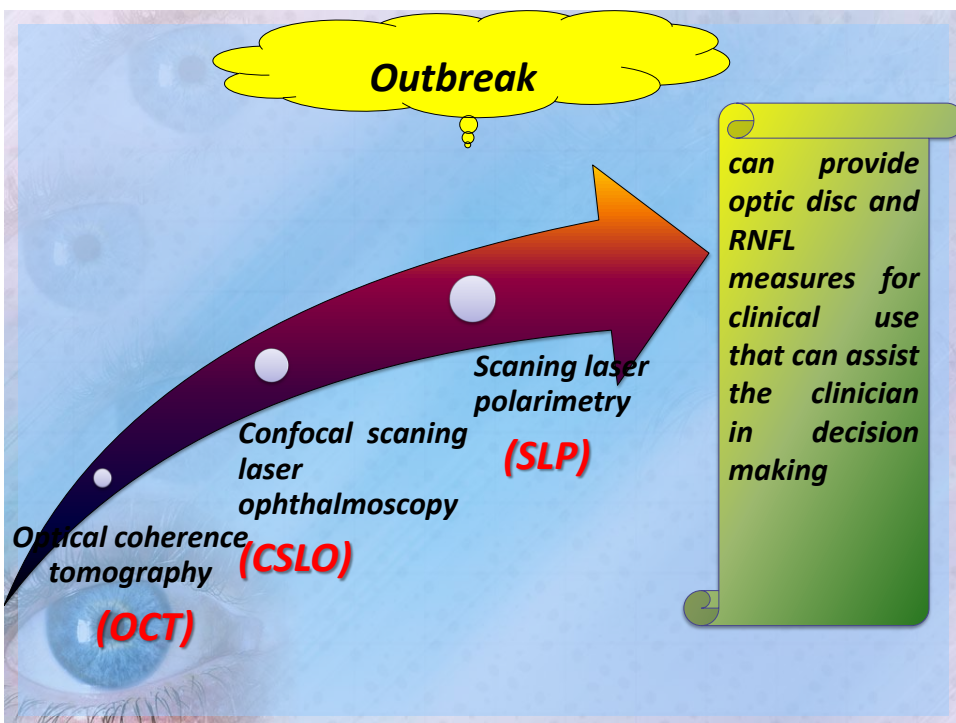




## Recent modalities

Currently, an **outbreak** of recent evaluation and imaging techniques has developed and always has recent modalities to abolish that zone of confusion in diagnosis of **pseudoglaucomatous optic disc**.

## Outbreak



**OCT**

**Gupta et al. study  
2011**

**Glaucomatous Vs non glaucomatous cupping by**

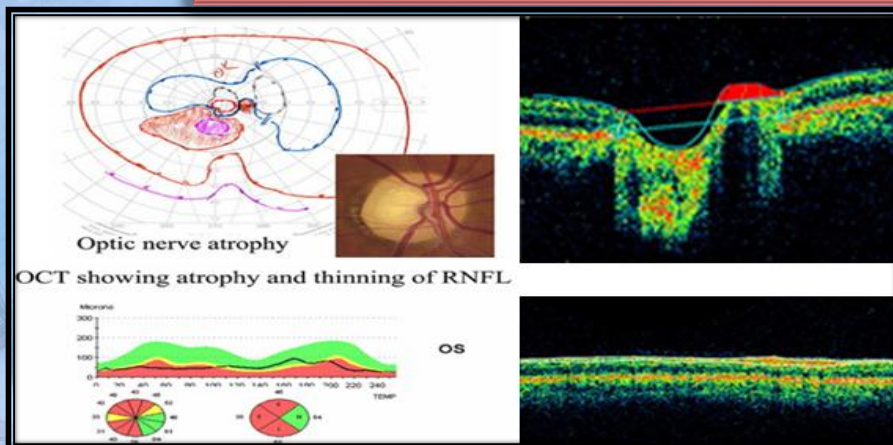
**OCT**

**Conclusion**

**Oct may have the potential to help in decision making (glaucomatous vs nonglaucomatous cupping) When VF is not definitive with progressive cupping and normal IOP.**

**Old  
AION**

**A pale nerve, inferior altitudinal visual field loss, and acquired cupping of the nerve head on OCT and thinning of the retinal nerve fiber layer (Randy and Susan,2004).**





## Confocal scanning laser ophthalmoscopy(CSLO)

### Heidelberg retina tomography (HRT)



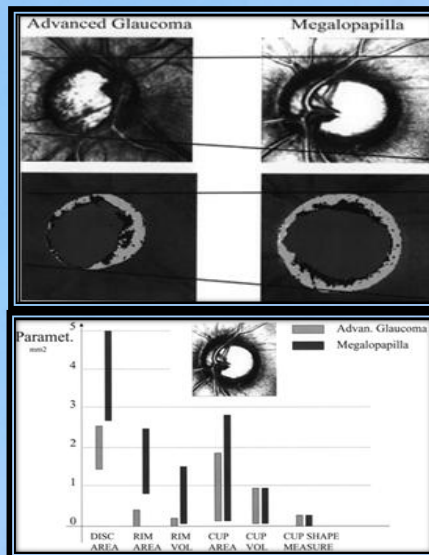
- ❑ CSLO is the imaging technology and HRT is the major commercially available instrument that utilizes this imaging system to study the eye.
- ❑ CSLO is capable of obtaining three-dimensional images of the optic disc by acquiring high resolution images.

## HRT

Sampaolesi and Sampaolesi 2001

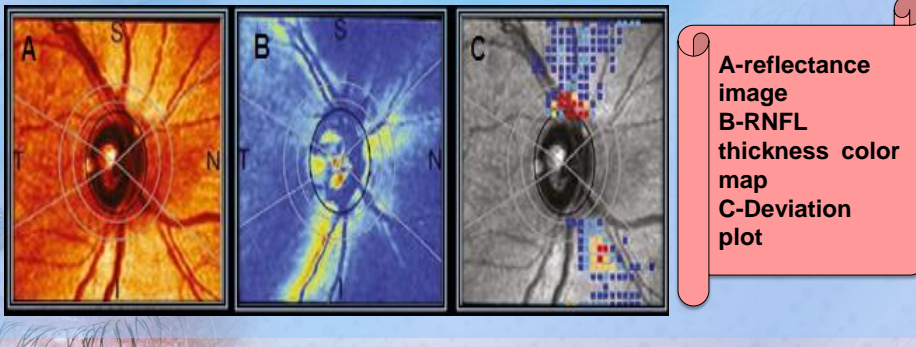
### ONH Megalopapilla Vs Glaucoma By HRT parameters

- ❑ there was a statistically highly significant difference in terms of disc area, rim area and rim volume, while the difference is less significant in terms of cup area and cup volume and there is no significant difference as regards cup shape measure



## Scanning laser polarimetry (SLP)

❑ **SLP** provides objective measures of the RNFL by measuring the change in polarization (retardation) that occurs when light illuminates birefringent tissue, such as the RNFL.



## Conclusion

❑ *Mind association between increased cupping and glaucoma should be changed.*

❑ *A special attention should be given to pseudoglaucomatous optic disc cupping that may produce a zone of confusion, and is considered as a daily challenging diagnostic dilemma for glaucoma specialist because of optic disc appearance without an elevated IOP.*

