



Uses of visual field

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Definition

- Island of vision in sea of blindness.
- The peak of the island represents the point of highest acuity, the fovea
- while the “bottom less pit” represents the blind spot, the optic disc.

Normal Monocular & Binocular Field

- Monocular ;
 - Nasal side -50° to 60°
 - Superior side - 60° to 70°
 - Inferior side - 70° to 80°
 - Temporal side - 100°to110°
- Binocular:
 - Vertical field -110 °
 - Horizontal field - 200 °

Visual Field Testing

- 1. Stimuli: Testing the island of vision at various levels requires targets that vary in
 - (a) Size
 - (b) Intensity
 - (c) Colour
- 2. Field Test Methods:
 - Kinetic; Mapping the contours of the island at different levels, resulting in one Isopter for each level tested.
 - Static; Vertical contours of the island along a selected meridian.

Clinical testing methods

- Central fields - Below 30°
- Peripheral fields – Above 30° to 360°
- **Central Fields:**
 - *Confrontation method*
 - *Amsler's grid*
 - *Bjerrum's screen*
- **Peripheral Fields:**
 - *Listen perimeter*
 - *Goldmann perimeter*



Uses of visual field

- Uses of visual field in Retina
- Uses of visual field in Glaucoma
- Uses of visual field in Neuro

Visual Field defect

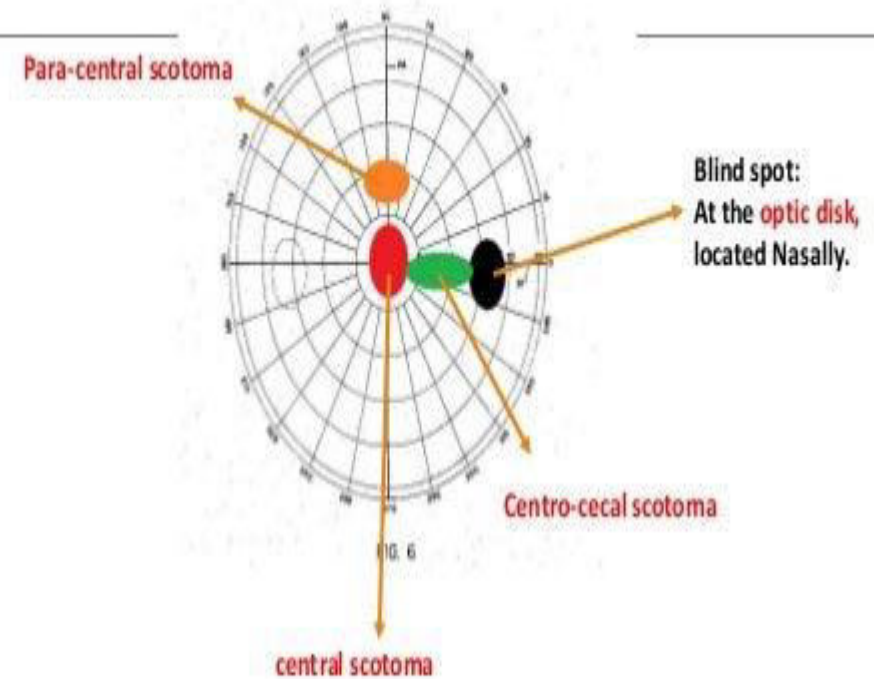
- **Central Scotoma:**

- *Central serious Retinopathy*
- *Macula Degeneration*
- *Macular Oedema (any macular disease)*

- **Centro-cecal scotoma**

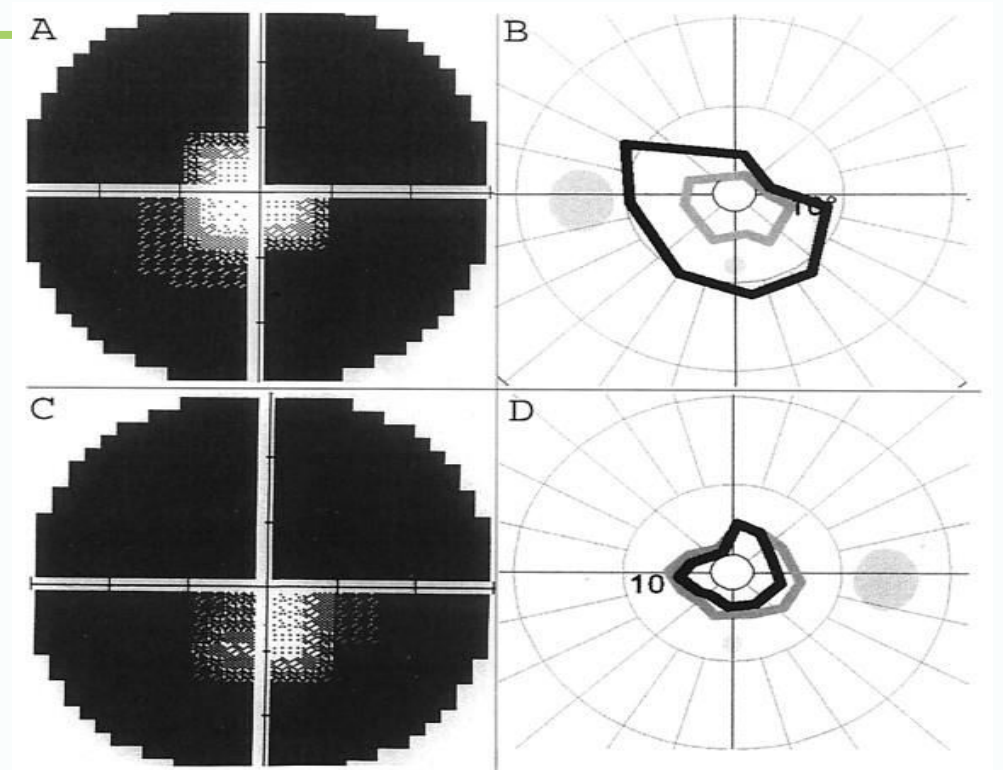
- *Toxic Amblyopia*
- *Stargadits*

- Central Scotoma
- & Centro-cecal



– **Contraction & Tubler field defect**

- Retinitis pigmentosa
- High myopia
- CRAO with Sparing of cilioretinal artery



- **Altitudinal defect:**

- *AION Depression:*

- **Depression;**

- *Retinal Detachment*

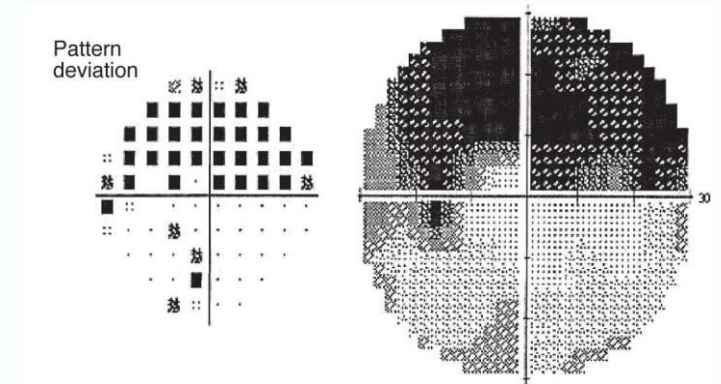
- **Ring Scotoma:**

- *High myopia*

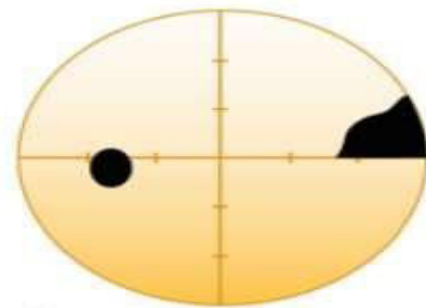
- *Aphakic spectacle correction*

- *Retinitis pigmentosa*

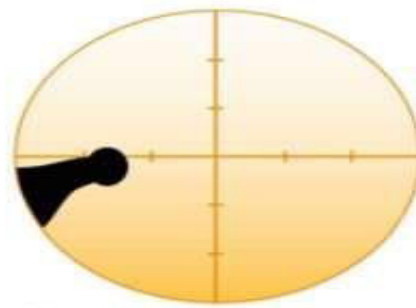
- *Pan retinal photocoagulation*



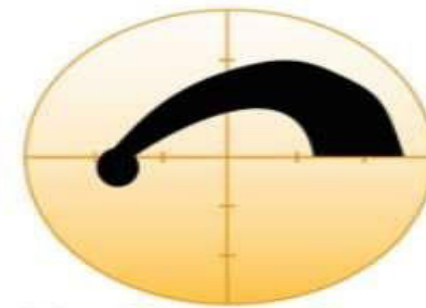
Visual Field Defects in glaucoma



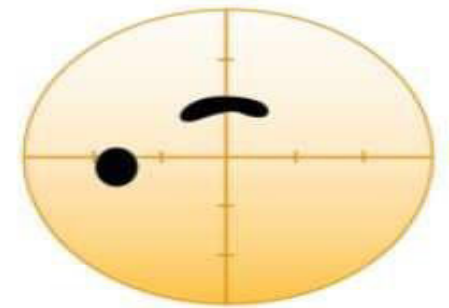
(a) nasal step



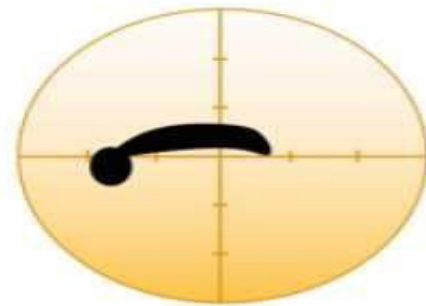
(b) temporal wedge



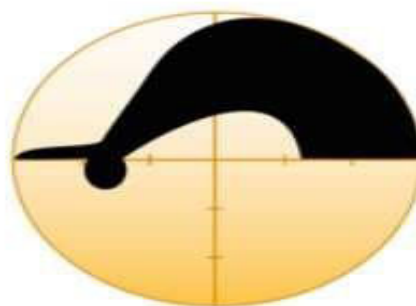
(c) established superior arcuate defect



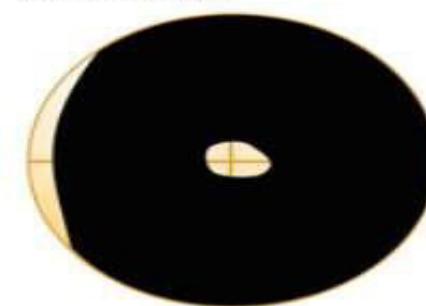
(d) early superior paracentral defect at 10°



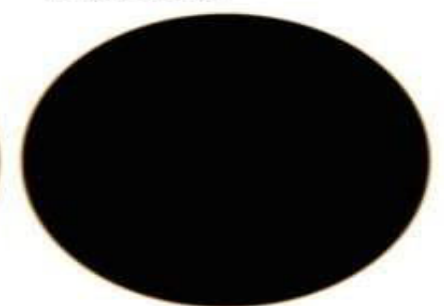
(e) superior, fixation-threatening paracentral defect



(f) superior arcuate with peripheral breakthrough and early inferior defect

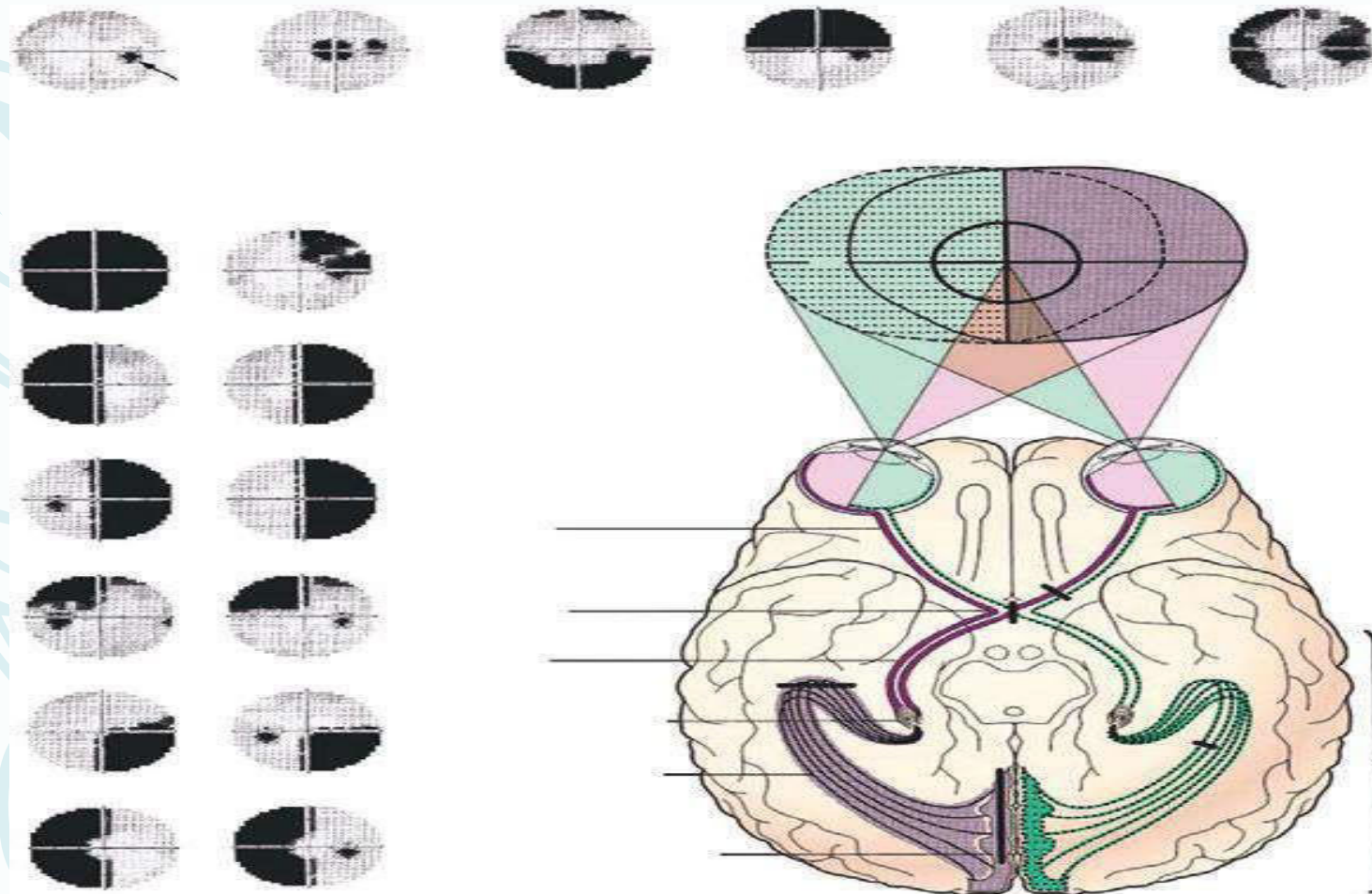


(g) tunnel vision defect with temporal crescent sparing



(h) end stage, complete field loss

Neurological Visual Field Defects



Diseases of the Optic nerve

- Congenital &
- Hereditary
- Traumatic
- Tumour
- Inflammatory
- Toxic
- Vascular Lesion

Congenital optic nerve defect

- Myelinated nerve fiber defect
- Coloboma
- Hypoplasia
- Drusen
- Optic nerve pits
- Tilted disc



- **Myelinated nerve fiber defect**

- *Blind spot enlargement*

- *Paracecal scotoma*

- *Ring scotoma*

- *Central scotoma*

- **Coloboma**

- *Superior nasal depression*

- *Contraction*

- *Superior altitudinal hemianopia*



– **Hypoplasia:**

- *Central Scotoma*
- *Binasal & Bitemporal hemianopia*
- *Bilateral inferior extension of blind spot*

– **Drusen:**

- *Blind spot enlargement*
- *Irregular nerve fiber bundle scotoma*



- **Optic nerve pits:**

- *Blind spot enlargement with or without macula involvement.*
- *Central scotoma*
- *Altitudinal hemianopia*
- *Upper temporal field defect*

- **Tilted disc:**

- *Upper temporal defect which may be mistaken for chiasmal compression.*

Hereditary Field defect

Optic atrophy ;

Contraction

Tubler Field

Retinitis Pigmentosa

contraction

Ring scotoma

Tubler field

Traumatic Field defect

- **Traumatic optic neuropathy:**
 - *Superior altitudinal defect*
 - *Total Blind*

Optic nerve tumour

- **Glioma:**

- *Blind spot enlargement*
- *Contraction*
- *Tubler field*

- **Meningioma:**

- *Junctional scotoma*
- *Central scotoma*
- *Upper temporal field defect*

Inflammatory Field defect

- **Papillitis:**

- *Central scotoma*
- *Centro-cecal scotoma*
- *Para central scotoma*
- *Blind spot enlargement*

- **Retro bulbar neuritis:**

- *Sectoral scotoma*
- *Ring scotoma*

- **Neuro retinitis:**

- *Central Scotoma*
- *Centro- cecal scotoma*

Toxic Field defect

- **Mild Toxic :**

- *Central scotoma*
- *Centro- cecal scotoma (BE)*

- **Severe Toxic :**

- *Peripheral contraction*
- *Total blind*

Vascular lesion Field defect

- Anterior Ischemic optic neuropathy:
- Altitudinal hemianopia(mainly involving the inferior half)

Lesion due to pressure

- **Papilloedema:**

- *Blind spot enlargement*
- *Peripheral contraction*
- *Total loss of visual field*

Chiasma Field defect

- **Infra chiasmatic lesion:**

- *Bitemporal hemianopia*

- **Supra chiasmatic lesion:**

- *Central hemianopic scotoma*
- *Junctional scotoma*
- *One eye is more field defect and other is less field defect (inferior temporal)*



– **Posterior side:**

- Infra Temporal field defect
- Bilateral inferior quadrant scotoma (near fixation point)
- Bitemporal hemianopia



- **Optic Tract Field defect**

- Part I: Homonymous hemianopia

- Part II: Incongruous hemianopia

- **LGB Field defect**

- Congruous Homonymous lower Quadrantopia

- Congruous Homonymous upper Quadrantopia

- **Optic radiation Field defect**

- Pie in the Sky (superior homonymous quadrantropia)

- Pie in the floor (Inferior homonymous quadrantropia)

Visual Cortex Field defect

- Congruous homonymous hemianopia
- Congruous quadrantopia
- Homonymous hemianopia with macula sparring
- Homonymous hemianopia with macula splitting
- Altitudinal hemianopia
- Tubler field



thanks