Chapter 9
Skills 65-75

- Vitreous
- Retina

Slides edited by Argyrios Tzamalis, MD, PhD, MA, FEO
Floaters = Movable Vitreous condensations

Flashes: Due to posterior vitreous traction

Caution: Traction can lead to RD!
TS 66 : Vitreous blurring

• **Causes:**
  
i. Posterior vitreous detachment

ii. Vitreous hemorrhage

iii. Synchisis scintillans

• Lesions moving along with head movement
TS 67: Retinal physiology

- Photoreceptors
- Bipolar cells
- Gangliar cell

Receptive Field
Retinal physiology

- **Macula area**: offers maximal resolution due to:
  - Maximal cones density
  - Photoreceptor : Ganglion cells ratio = 1:1 (undisturbed signal)
Vascular disorders - Atherosclerosis

- Vascular sheathing (loss of wall transparency)
- Changes in light reflex. Increase in brightness and width. “Copper wire” arteries and “Silver wire” arteries
- Arterial stenosis
- Arterio-venous crossings (Salus & Gunn)
TS 68: Vascular disorders

- **B.P.**
  - Tortuosity of vessels, more evident near macula

- **Venous stasis**
  - Engorged veins, dot and flame-shaped haemorrhages
Endothelial damage
Loss of pericytes
Thickening of basal membrane

Findings
• Non-perfusion-Chronic ischaemia
• Microaneurysms
• Exudates
• Oedema
• Haemorrhages
TS 69 : Hard exudates

- Solid, yellowish residues formed by lipoproteins and lipids after initial oedema is absorbed

- At the edges of previous retinal oedema

- They form the so-called macular star around the macular area due to their radial orientation
TS 69: Retinal hemorrhages

- Increased vascular permeability

  - **Vitreous haemorrhage**
    - Proliferative diabetic retinopathy
    - Retinal tears

  - **Retinal**
    - Flame-shaped, Dot & blot haem.
    - Roth’s spots in anaemia, blood dyscrasias

  - **Subretinal**
    - Age Related Macular Degeneration
    - Choroidal rapture
## TS 70: Vascular Occlusions

<table>
<thead>
<tr>
<th>CRAO</th>
<th>CRVO</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sudden, painless, dramatic drop of VA</td>
<td>Sudden, painless, decrease in VA</td>
</tr>
<tr>
<td>VA: CF to PL</td>
<td>VA $\rightarrow$ 1/10 to CF</td>
</tr>
<tr>
<td>Unfavourable prognosis</td>
<td>Prognosis depends on severity</td>
</tr>
</tbody>
</table>
TS 70: Vascular occlusions

**CRAO**
- Ischaemia (cherry-red spot)
- Retinal oedema
- Art. Stenosis-Emboli

**CRVO**
- Optic disk congestion
- Retinal oedema
- Flame-shaped haemorrhages
- Cotton-wool spots
TS 71: Diabetic retinopathy

### Background
- No NV
  - Mild/Moderate/Severe
  - Micro-aneurysms
  - Micro-haemorrhages
  - Hard exudates/cotton wool spots
  - Oedema
  - Capillary ischaemia
  - IRMA

### Proliferative
- NV
- Diabetes II
  - Early/High risk/Advanced
  - NV
  - Fibrosis
  - Haemorrhages
  - Traction retinal detachments
TS 71: Diabetic retinopathy

Background

Proliferative
## TS 71: Diabetic retinopathy

### Treatment
- Laser photocoagulation
- anti-VEGF
- Vitrectomy
- Control of diabetes, AH

### Control
- No diabetic retinopathy
  - Every year
- Background retinopathy
  - Every 6-9 months
- Frequently in proliferative retinopathy
TS 72 : Age-related Macula Degeneration (AMD)

- Most common cause of central visual loss in developed world
- Mid and peripheral vision is usually spared
- In Greece, more than 60000/year are affected
- Due to senile changes in Bruch’s membrane and RPE
TS 72 : Dry AMD

- Slow, progressive
- Metamorphopsias – central scotoma
- Hyaline accumulations beneath RPE
- No efficient treatment
- Low vision aids are used in advanced cases
TS 72 : Wet AMD

- Sudden visual loss
- Rapid and devastating
- Metamorphopsias-Scotoma
- In late stages: Subretinal fibrosis, permanent loss of vision (<1/10)
- New trends: Anti-VEGF agents
TS 73 : Retinal detachment

- Separation between retina and RPE layer
  - **Emergency** before the macula becomes detached

**Types**
- Rhegmatogenous
- Tractional
  - Diabetic retinopathy
- Exudative
  - Inflammation, tumors
TS 73: Rhegmatogenous RD

- Due to **tears or holes** of retina
- **Fundoscopy**
  - Bulging of tear edges
  - Wrinkling of retina
  - Whitening
  - Moveable retina
- **Predisposing factors**
  - Myopia
  - Aphakia - Pseudophakia
  - Trauma
  - Fam. History
TS 74: D/D RD - Vascular occlusion

Retinal Detachment

Branch vascular occlusion
TS 75 : Retinoblastoma

- Most common malignant ocular tumor in newborns and babies
- 1:15000 newborns
- Early management saves lives and sight (90-95%)
- Bilateral in 25-35%
- Sporadic or inherited (15-25%)
- Leukokoria and strabismus in advanced cases
- Leukokoria must be referred to ophthalm. ASAP
Electronic Referrals – 9th Chapter