RETINAL DISEASES

ASSOC. PROF. İREM ERGİN

Tunica nervosa bulbi

The retina has 10 layers

1. Retinal pigment epithelium
2. Photoreceptor layer (composed of the rods and cones)
3. External limiting membrane
4. Outer nuclear layer
5. Outher plexiform layer
6. Inner nuclear layer
    - bipolar cells
    - Müller’s cells
    - horizontal cells
    - amacrine cells
7. Inner plexiform layer
8. Ganglion cell layer
9. Optic nerve fiber layer
10. Internal limiting membrane

Photochemistry

- Rods and cones
- Photopigments (molecules that absorb light)
- Visual photopigment molecules consist of chromophore (vitamin A derivation)
- opsin (a protein)
- Phototransduction

the chromophore is the part of the molecule that transduces the energy of the light photon into a chemical reaction. So that, this reaction generates a neuronal signal. This process is called as phototransduction mechanism.

- Dark adaptation is the transition of the retina from the light adapted to the dark adapted.

FUNDUS APPEARANCE

- Tapetum
- Nontapetum
- Optic disc
- Blood vessels

Retinal Dysplasia

- Hereditary
- Developmental abnormality of the retina
- Blindness and retinal hemorrhage
- It occurs in three forms:
    - complete retinal dysplasia with detachment
    - geographic retinal dysplasia
    - focal or multifocal retinal dysplasic
- Animals with retinal dysplasia should not be bred

Retinopathy

- Inherited dystrophies, degenerations and atrophies

  eg. Progressive rod-cone degeneration

- Acquired retinopathies

  secondary to systemic diseases (eg. Systemic hypertension, canine distemper, FIP)

- Specific retinopathies

  eg. Uveodermatologic syndrome

- Retinopathies of miscellaneous causes

  eg. Nutritional deficiency (taurin def.), drug or plant toxicity

Inherited Retinopathies

Clinical Signs

- ✓ Progressive loss of vision
- ✓ Tapetal hyperreflectivitiy
- ✓ Pupils are mydriatic
- ✓ Thinning of retinal blood vessels
- ✓ Optic disc becomes pale dark Brown
- ✓ Focal depigmented areas in the nontapetal fundus
- ✓ Cataracts

ERG is used for diagnostic testing

There is no treatment for retinal dystrophy

Retinal Detachment

The separation of the retina from the underlying choroid

Between the photoreceptors and pigment epithelial cells is disrupted

Retina has a high metabolic rate, so that irreversible changes may occur soon after separation.

Etiology

- Congenital disorders (eg. Retinal dysplasia)
- Serous detachments
- Traction detachments
- Vitreous degeneration
- Iatrogenic

Retinal Detachment

Signs

- Acute loss of vision
- Dilated pupil
- The posterior segment of the eye cannot be visualized
- Affearance of a floating sheet may be seen behind the lens

Treatment

- Treat the primary cause
- Medical therapy