



جامعة المستقبل
كلية التقنيات الصحية والطبية
قسم تقنيات البصريات



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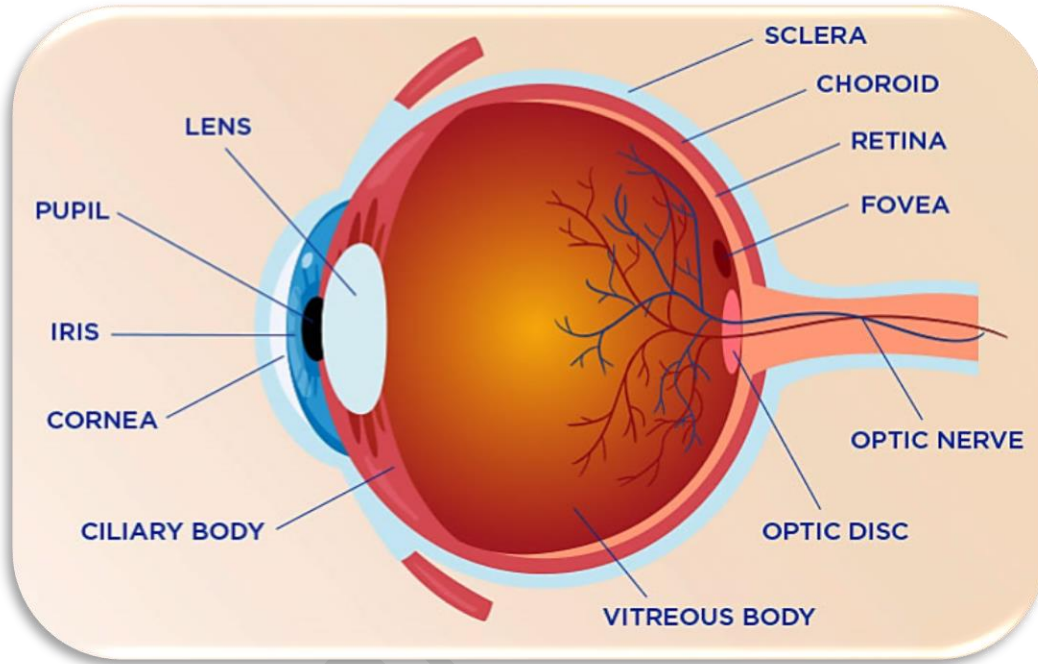
Anatomy of The Eye
Practical Lecture Title
Choroid & Sclera

Lecture Number: 4 / course 2

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مشيمية العين CHOROID

The choroid is a vascular layer of the eye that lies between the retina and the sclera (the white outer layer of the eyeball). It plays a crucial role in providing oxygen and nutrients to the outer layers of the retina.



Structure of Choroid

The choroid is a highly vascularized layer consisting of several layers of blood vessels and connective tissue. It is made up of the following layers:

- Bruch's membrane
- Choriocapillaris
- Sattler's layer
- Haller's layer

Blood Supply

The choroid receives its blood supply from the posterior ciliary arteries, which are branches of the ophthalmic artery. These arteries penetrate the sclera and supply blood to the choroid.

Functions of Choroid

- ✓ **Nourishment:** The choroid's primary function is to provide oxygen and nutrients to the outer layers of the retina, particularly the photoreceptor cells (rods and cones) and the retinal pigment epithelium (RPE).
- ✓ **Temperature regulation:** The blood flow in the choroid helps regulate the temperature of the eye, which is important for maintaining the optimal environment for visual function.
- ✓ **Adjustment of eye focus:** The choroid plays a role in the accommodation process, which allows the eye to focus on objects at different distances. When the eye focuses on a near object, the choroid thickens, pushing the retina forward slightly to adjust the eye's refractive power.

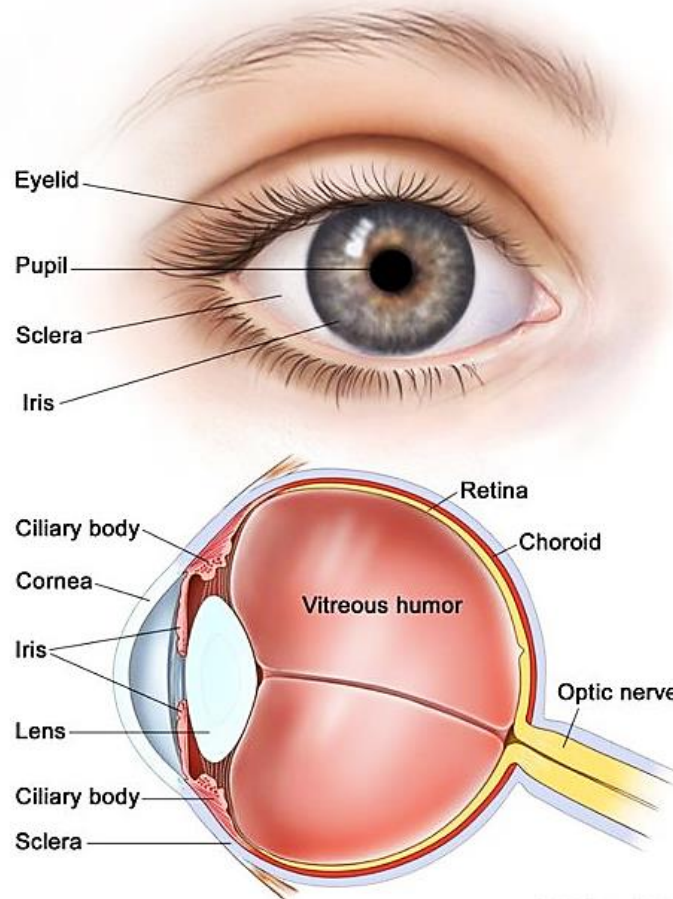
Diseases and Disorders

Several eye diseases and disorders can affect the choroid, including:

- ✓ **Age-related macular degeneration (AMD)**
- ✓ **Choroidal neovascularization:** This is the abnormal growth of new blood vessels from the choroid into the retina, which can lead to vision loss.
- ✓ **Choroidal melanoma:** A rare type of eye cancer that develops in the choroid.

صلبة العين SCLERA

The sclera is the white, protective outer layer of the eye. It is a tough, fibrous tissue that forms the structural foundation of the eyeball.



Structure of Sclera

- The sclera is composed primarily of collagen and elastin fibers, which give it strength and flexibility.
- It extends from the cornea (the clear front part of the eye) to the optic nerve at the back of the eye.
- The sclera is thickest at the back of the eye, near the optic nerve, and gradually becomes thinner towards the front, where it meets the cornea.

Functions of Sclera

- **Protection:** The sclera's primary function is to protect the delicate internal structures of the eye, such as the retina, choroid, and vitreous humor.
- **Maintains eye shape:** The sclera's rigid structure helps maintain the spherical shape of the eyeball, which is essential for proper vision.
- **Attachment for eye muscles:** The sclera provides attachment points for the extraocular muscles that control eye movement.
- **Structural support:** The sclera provides structural support for the eyeball, preventing it from collapsing under the intraocular pressure exerted by the fluids inside the eye.

Openings and attachments

The sclera has several openings and attachments:

- a) **Corneal limbus:** the junction where the sclera meets the cornea.
- b) **Optic nerve opening:** small opening at the back of the eye where the optic nerve exits the eyeball.
- c) **Vascular openings:** small openings that allow blood vessels and nerves to enter and exit the eye.
- d) **Muscle attachments:** areas where the extraocular muscles attach to the sclera, enabling eye movement.

Diseases and disorders

- Scleritis: Inflammation of the sclera, which can cause pain, redness, and potential vision problems.
- Scleral thinning or ectasia: A condition where the sclera becomes abnormally thin or bulges outward, which can occur in certain eye disorders like keratoconus.
- Scleral melanoma: A rare type of eye cancer that develops in the sclera.
- Scleral injury or laceration: Trauma or injury to the sclera can lead to vision-threatening complications if not properly treated.