Histology

1. Accessary glands : apocrine glands of moll, meibomain glands, lacrimal glands all help produce secretions which lubricates the eye

​⁃​Muscles : smooth muscles located around the eye help in movement and protection of the eye

- Eyelid: The eyelid, likewise known as the cover of the eye, a mobile layer made up of skin and also muscular tissue and also covers the eyeball.

Internal structures of the eyes

Outermost part: it consists of the Sclera, Cornea,

The sclera: It is a tough and thick white sheath that protects the inner parts of the eye. We know it as the ‘White of the eye’. It consists of tough, dense connective tissue made up flat collagen bundles intersecting in various directions while remaining parallel to the surface of the organ.

Cornea -The cornea's main function is to refract, or bend, light. The cornea is responsible for focusing most of the light that enters the eye.

Pupil&Iris-The iris contracts and dilates involuntarily and changes the size of the pupil. The whole job of the iris and pupil is to control the amount of light that gets into the eye. It's called a pupillary reflex, and you have probably noticed that a person's pupils are smaller in bright light and bigger in low light.

Retina-The retina is a thin layer of tissue that lines the back of the eye on the inside. It is located near the optic nerve. The purpose of the retina is to receive light that the lens has focused, convert the light into neural signals, and send these signals on to the brain for visual recognition.

Limbus : forms border between transparent cornea & opaque sclera , contains pathway for aqueous humor outflow which helps to nourish the lens and maintain pressure in the eye

Ciliary body: The tissue that divides the posterior chamber and vitreous body. Consists of the ciliary muscle and the ciliary epithelium. The ciliary muscle, via the lens zonules, controls the structure of the lens, which is vital for accommodation. Zonules are connective tissue fibers that connect the ciliary muscle and lens.The ciliary epithelium produces aqueous humor which fills the anterior compartment of the eye.

Choroid: The choroid is comprised of blood vessels, melanocytes, fibroblasts, resident immunocompetent cells and supporting collagenous and elastic connective tissue. This dense network of blood vessels supply nourishment to structures of the eye, housed in loose connective tissues. A choriocapillary layer is located in the innermost part of the choroid and supplies the retina. Along with the ciliary body and iris, the choroid forms the uveal tract.

The innermost part of the eye

Consists of the lens, vitreous and retina

The lens- separates the aqueous and vitreous chambers, consists of an outer capsule, a middle layer called cortex, and an inner layer called the nucleus. The capsule is the basement membrane of the lens epithelium which lies below.

Vitreous- a jelly-like space made of type II collagen separating the retina and the lens. It is normally avascular and does not contain nerves or lymphatics.

2.Layers of the retina

• The inner limiting membrane-The inner limiting membrane is the boundary between the retina and the vitreous body, formed by astrocytes and the end feet of Müller cells.

• The nerve fiber layer-

• The ganglion cells layer-It receives visual information from photoreceptors via two intermediate neuron types: bipolar cells and retina amacrine cells.

• The inner plexiform layer-is the site of complex synaptic processing

• The inner nuclear layer-Inner Nuclear Layer. Perikarya and nuclei of bipolar cells, horizontal cells, amacrine cells, and Müller cells reside in the inner nuclear layer. ... Bipolar cells are typed to rods or cones, and function vertically to modulate brightness and color information.

• The outer plexiform layer-The main function of the horizontal… The plexiform layers are regions in which the neurons make their interconnections. ... In the outer plexiform layer the bipolar cells make their contacts, by way of their dendrites, with the rods and cones, specifically the spherules of the rods

• The outer nuclear layer-The outer nuclear layer contains the cell bodies of the photoreceptor cells. ... These processes synapse with each other and with the photoreceptors. The photoreceptor cell bodies and synaptic terminals show a rapid response to detachment in feline retinas

• The outer limiting membrane-The outer limiting membrane (OLM) is considered to play a role in maintaining the structure of the retina through mechanical strength