

## THE VISUAL APPARATUS OF THE EYE AND ITS HISTOLOGICAL STRUCTURE

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**Abstract.** Nowadays, the histological study of the eye is gaining importance. One of the reasons is due to the development of science and technology (computer, telephone, television), various types of eye diseases are causing diseases such as glaucoma, cataract, myopia, hypermetropia, astigmatism. Due to the age of XXI century computer technologies, eye problems are occurring in the world. In order to prevent such diseases, we should pay attention to the structure of the eyes.

**Keywords:** optical system, Cornea, Schlemm's canals, Sinn's ligaments, Pearl eye, Accommodation, vitreous body, photoreceptors (tubular and rod-shaped), Macula (visual center), blind spot, retina curtain, light rays.

### Introduction

A person consciously receives information from the environment, and 90% of this information is provided by the eye. One of the important functions of the eye is the visual function of the eye, it maintains intraocular pressure, it has the function of refracting light, the perception of receiving information, and the functions of transmission.

### The main part

The eye is the peripheral part of the visual analyzer, and the eye is the only sense organ in direct contact with the brain. The eye is a pair of organs. It consists of two parts: the auxiliary part and the optical system of the eye. The auxiliary part of the eye consists of eyelashes, eyelids, muscles that move the eyeball, tear apparatus. It consists of the pearl, the vitreous body, the fluid of the anterior and posterior chambers of the eye. Plates of collagen fibrils are arranged in a straight line on the component of the cornea.

When viewed through a microscope, it is possible to distinguish 5 layers of the cornea. 1) anterior or external epithelium; 2) anterior or external limiting membrane; 3) special substance of the cornea; 4) posterior or internal limiting membrane; 5) posterior or internal epithelium. Because the cornea is rich in nerve endings, the long ciliary nerves, which are branches of the nasociliary nerve from the first branch of the trigeminal nerve, enter it from the periphery of the cornea. The cornea is clear and transparent due to the presence of keratin sulfate. Limb is located at the junction of the sclera with the cornea. There are channels in the limb, through which the fluid of the anterior chamber of the eye passes into the venous sinuses or Schlemm's canal. The inner side of Schlemm's canal is covered with endothelium, and on the outside, wide varicose veins form a complex anastomotic network. as a result of rubbing, the intraocular fluid is not replaced, which leads to an increase in intraocular pressure - Glaucoma disease.

The gem of the eye. Being transparent, it also has a high refractive index. It can change its shape and provide accommodation. There are 3 parts of the pearl: capsule, subcapsular epithelium and pearl fibers. The capsule covers the pearl from the outside or is very rich in carbohydrates. The subcapsular epithelium consists of a single layer of cuboidal epithelium, it is present only on the

front surface of the pearl, the epithelial cells play an important role in the renewal of the pearl fibers, they grow and form the growth zone of the pearl. A group of twisted fibers is held together by a ciliated girdle or Sinn cord.

They are attached to the pearl capsule with one end, and with the ciliary body with the other end. This system plays an important role in the accommodation process. By changing the convexity of the gem, it ensures the formation of a clear image of near and far objects. When we look at objects in the distance, due to the pull of the ciliated fibers on both sides, the gem is stretched and stretched. When we look at the near objects, the tension of the fibers decreases and the gem thickens. This process is related to the process of accommodation that takes place throughout a person's life. With age, the elasticity of the eyeball decreases, which makes it difficult to accommodate near objects. This is a natural process in the elderly - presbyopia. But among young people, it is becoming a disease, and as a result, it causes myopia and hypermetropia. In order to prevent these diseases, the ophthalmologist prescribes wearing glasses with convex and concave lenses.

### **The vitreous body**

It is a transparent translucent substance that fills the space between the gemstone and the retina. The vitreous body has a mesh structure.

### **The receptor apparatus of the eye**

The receptor apparatus of the eye consists of the visual part of the retina. The inner sensory membrane of the eyeball 1) retina; 2) external pigment; 3) internal light-refracting layers are formed. In terms of activity, the visual and blind parts of the retina differ. There are 10 layers of cells in the retina in a certain order. 1) pigmented layer or pigmented layer epithelium- this layer contains pigment cell bodies and nuclei; 2) The layer of rods and cones consists of outgrowths of photoreceptor neurons and pigment epithelial cells; 3) It is composed of tumors of outer limiting membrane-Muller cells; 4) Outer granular or nuclear layer - in this layer are the bodies and nuclei of photoreceptor neurons; 5) The outer reticular or reticular layer consists of axons of photoreceptor neurons and dendrites of bipolar and horizontal neurons, where they form mutual synapses; 6) Internal granular or nuclear layer - bodies and nuclei of bipolar horizontal neurons are located in this layer; 7) The inner reticular or reticular layer is made up of axons of bipolar and horizontal neurons and dendrites of ganglion neurons, where they form mutual synapses; 8) Ganglionic layer - here are the bodies and nuclei of ganglionic and amacrine neurons; 9) The layer of nerve fibers consists of axons of ganglion neurons, they gather in one place of the retina and form the optic nerve, leaving the eyeball; 10) The internal limiting membrane or Babukhin's membrane is composed of legs of Müller's fibers and separates the retina from the vitreous body.

Light rays are reflected on the retina behind the vitreous body. When the light rays fall on the macula, photoreceptor membranes begin to absorb light and generate nerve impulses. The macula has a large number of photoreceptor cells, so it is considered the best center of vision. Therefore, light suddenly falls on the macula and is connected to the nervous system, and a clear image is formed. The blind spot is the exit of the optic nerve. All the layers of the retina except for the layer of thick nerve fibers disappear here. These fibers turn from the fibrous layer of the retina and pass to the optic nerve and the central It forms a bulbous circular height that wraps the fovea. The vessels feeding the retina come with the optic nerve and leave the fovea of the blind spot. The bulbous hill is called the optic nerve sucker.

### **Conclusion**

The main conclusion from the topic is that as a result of the above functions of the eye, a person exchanges information with the external environment. As a result of a violation of the

function of the eye, a person is cut off from the external environment and cannot receive information. As a result, he cannot receive information from the external environment. Therefore, it is better to pay more attention to our members who connect us with the virtual world.

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