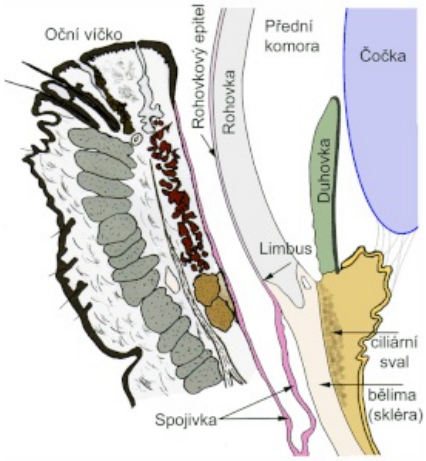
Cornea

Anatomy

The cornea *(Cornea)* is the front, transparent and more curved part of the tunica fibrosa bulbi, corresponding to the spherical dome, which occupies about 20% of the surface of the eyeball. It is colorless, completely transparent and avascular.



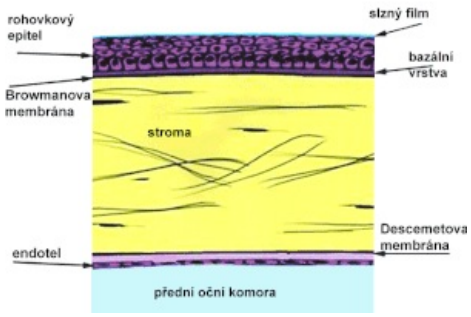
scheme of the conjunctiva

- The limbus corneae is its outer edge, which passes into the sclera.
- *Facies anterior corneae - the front surface of the cornea* - has a radius of curvature of 7.7 mm.
- *Facies posterior corneae - the back surface of the cornea* - has a radius of curvature of 6.6 mm; therefore, the cornea is thicker at the edges (1 mm) than at the center (0.8 mm).
- *Angulus sclerocornealis* – an angle, a shallow groove, enlarged by the conjunctiva attached to the sclera on the front surface of the eye, at the point of the sclerocorneal transition around the cornea.
- *Sinus venosus sclerae (canalis Schlemmi)* – a circular venous canal inside the sclera, sometimes incomplete, sometimes divided into several sections.
- *Angulus iridocornealis* - the angle between the cornea and the iris, which is filled with a fibrous trabecular, called the *reticulum trabeculare*, and between the trabeculars are the so-called *Fontan spaces*.[1]

Histology

Section through a human cornea

The cornea consists of five layers:



incision through the cornea

1. **The anterior corneal epithelium** is a *multi-layered squamous non-*corneal. It consists of 5 to 6 layers of cells. Cells located in the surface layer have numerous microvilli formed apically. The epithelium is externally covered with a protective layer about 7 µm thick, which is made up of lipids and glycoproteins.
2. **Bowman's membrane** is a homogeneous layer 7–12 µm thick. It is made up of *collagen fibers* that cross irregularly and are embedded in a condensed intercellular mass. Bowman's membrane contributes to the stability and durability of the cornea.
3. **The substantia propria corneae** is made up of many layers of *bundles* of parallel arranged *collagen fibrils* that cross each other at approximately right angles. Between the individual lamellae we find significantly *flattened fibroblasts* with long projections that penetrate between bundles of fibrils. The substantia propria corneae is avascular, but we find quite often migrating lymphocytes here.
4. **Descemet's membrane** is a 5–10 µm thick homogeneous structure that has the character of a *basal lamina*.
5. **The posterior corneal epithelium** is *single-layered flat*. In the cells of this epithelium, we find organelles necessary for proteosynthesis. The cells of the posterior corneal epithelium are involved in the synthesis of Descemet's membrane.

The cells of the anterior and posterior corneal epithelium are capable of transporting ions. The substantia propria corneae is thereby kept in a relatively dehydrated state. The small fluid content together with the regular arrangement of collagen fibrils ensure the *transparency* of the cornea.[2]

Links

related articles

- Eye (histology)
- Defects of the eye
- Biochemistry of the vision process
- Optical apparatus of the eye, oculomotor muscles, eye movements
- Line of sight

Reference

- ČIHÁK, Radomír – GRIM, Miloš. *Anatomie 3.* 2., upr. a dopl edition. Grada, 2004. 673 pp. ISBN 80-247-1132-X.

KONRÁDOVÁ, Václava – UHLÍK, Jiří – VAJNER, Luděk. *Funkční histologie.* 2. edition. H & H, 2000. 291 pp. ISBN 80-86022-80-3.

1. ČIHÁK, Radomír – GRIM, Miloš. *Anatomie 3.* 2., upr. a dopl edition. Grada, 2004. 673 pp. ISBN 80-247-1132-X.
2. KONRÁDOVÁ, Václava – UHLÍK, Jiří – VAJNER, Luděk. *Funkční histologie.* 2. edition. H & H, 2000. 291 pp. ISBN 80-86022-80-3.