

Ocular Pathology
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Learning Objectives:

1. Understand the reaction the eyes to various types of disease processes.
2. Learn the basic structural and functional changes related ocular pathology.
3. Appreciate the rather limited and stereotypical response the eye undergoes to multiple disease processes.
4. Realize how multiple disease process the eye often result in the same clinical signs.

The eye has several characteristics that make it a unique tissue with its response to multiple disease process and their clinical manifestation:

1. Blood-Eye barrier
2. Strong sclera and cornea keep things out and in (such as inflammation, infectious organisms, etc.)
3. Fluid media leads to diffusion (such as inflammation, infectious organisms, etc.)
4. Vision requirements (transparency and precise anatomic relationships)
5. Negligible regenerative capacity
6. No reserved capacity

The cornea has a limited and stereotypical response to insult.

1. Adaptive epithelial metaplasia to persistent irritation
2. Ulceration with extent of disease highly dependent on the depth of the ulcer
3. Keratitis
4. Edema

The uvea is the vascular tunic of the eye, and includes the iris, ciliary body and choroid. The term uveitis in the clinical setting is different from pathologic ter. In pathology reports, uveitis only indicates inflammation affecting the uveal tract. The clinical term of uveitis is used more “loosely” to describe multiple disease processes. The possible consequences of uveitis are paramount, are often more hazardous that the initial cause, and include:

1. Fibrovascular proliferation
2. Synechia (anterior, posterior, iris bombe)
3. Cataract
4. Retinal detachment
5. Glaucoma (secondary)

The retina has a limited response to injury:

1. Inflammation
2. Retinal detachment (exudative, hemorrhagic, tractional).

The lens is an avascular tissue that refracts and focuses light and is dependent on normal aqueous humor for health. It responds to numerous disease process with the following:

1. Cataract (primary, secondary)
2. Lens capsule ruptured (trauma, diabetes)
3. Luxation (primary, secondary)

Glaucoma can be primary, but is often the “final pathway” of many disease processes. The clinical signs of glaucoma are often diagnosed before the initial cause is. Glaucoma is the most common reason for enucleation, which helps diagnosis the initial cause (inflammation, infection, neoplasia, etc.).

1. Primary glaucoma (goniodysgenesis)
2. Secondary glaucoma (uveitis, lens luxation, neoplasia)
3. Consequences of glaucoma
 - Buphthalmos
 - Corneal edema
 - Chronic keratitis
 - Cataract
 - Retinal atrophy
 - Optic disc cupping