

## Chapter-2 (k)| Ophthalmology

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### (k) Ophthalmology

- Conjunctivitis (bacterial and viral)
- Glaucoma

### Ophthalmology

### Conjunctivitis (bacterial and viral)

#### Introduction.

- The conjunctiva lining the interior of the eyelid, the palpebral conjunctiva, is tightly tethered to the tarsus and may respond to inflammation by being thrown into minute papillary folds as may occur in allergic conjunctivitis and bacterial conjunctivitis. The conjunctiva in the fornix is a pseudostratified columnar epithelium rich in goblet cells. The fornix also contains accessory lacrimal tissue, and the ductules of the main lacrimal gland pierce through the conjunctiva in the fornix superiorly and laterally.
- Many cases of bacterial or viral conjunctivitis cause redness and itching, but most heal without sequelae.

#### Etiopathogenesis.

- Conjunctivitis can be caused by a variety of factors including bacterial or viral infections, allergic reactions, and irritants such as smoke, dust, or chemicals.
- Bacterial conjunctivitis—It is a common eye infection that can occur in people of all ages, but it is most common in children. Bacterial conjunctivitis can be caused by various bacteria such as *Staphylococcus aureus*, *Streptococcus pneumoniae*, *Haemophilus influenzae*, and others.
- Viral conjunctivitis—Viral conjunctivitis is typically caused by a group of viruses known as adenoviruses. Other viruses that can cause viral conjunctivitis include herpes *simplex virus*, *varicella-zoster virus*, and *picornaviruses*. The infection can spread through direct contact with contaminated surfaces, such as towels, doorknobs, or shared makeup.

#### Clinical manifestations.

- Redness of the eye.
- Itching or burning sensation.



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- Excessive tearing.
- Discharge from the eye, which may be clear, yellow, or greenish.

## Pharmacological managements.

- Antibiotics— Tobramycin, cotrimoxazole, sulfacetamide, bacitracin, erythromycin, ciprofloxacin, moxifloxacin, ofloxacin, gentamycin.
- Anti-allergic drugs— Chloropyramine, naphazoline, bepotastine.
- Antiviral— Ganciclovir, Acyclovir.
- Analgesic— flurbiprofen, ketorolac, fluorometholone.
- Others— dexamethasone, prednisolone

## Non-pharmacological managements.

- It is important to practice good hygiene, such as washing hands frequently, avoiding touching the eyes with hands, and avoiding sharing personal items such as towels or cosmetics.
- People who are infected with bacterial conjunctivitis should avoid touching their eyes and wash their hands frequently to prevent spreading the infection to others.
- Avoid the allergic causing place (dust or smoke).
- Clear airway of secretion and allows for allergen removal.

## Glaucoma

### Introduction.

The term glaucoma refers to a collection of diseases characterized by distinctive changes in the visual field and in the cup of the optic nerve. Most of the glaucoma are associated with elevated intraocular pressure, although some individuals with normal intraocular pressure may develop characteristic optic nerve and visual field changes (normal or low-tension glaucoma).

**Etiopathogenesis**—Pathophysiology of glaucoma is understood by the, formation and drainage of aqueous humor. It is two type-

1. Open-angle glaucoma— In open-angle glaucoma aqueous humor has complete physical access to the trabecular meshwork, and the elevation in intraocular pressure results from an increased resistance to aqueous outflow. It further classified as-
  - Primary open-angle glaucoma— Mutations in the myocilin (MYOC) gene have been associated with a subset of individuals with juvenile and adult primary open-angle glaucoma and mutations in optineurin



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(OPTN) may also be responsible for a subset of adult patients with open angle glaucoma. Primary open-angle is most common form of glaucoma.

- Secondary open-angle glaucoma— Pseudoexfoliation glaucoma, perhaps the most common form of secondary open angle glaucoma, is associated with the deposition of fibrillar material of varying composition throughout the anterior segment.
2. Angle-closure glaucoma—In angle-closure, the peripheral zone of the iris adheres to the trabecular meshwork and physically impedes the egress of aqueous humor from the eye. It further classified as-
- Primary angle-closure glaucoma— Primary angle-closure glaucoma typically develops in eyes with shallow anterior chambers, often found in individuals with hyperopia.
  - Secondary angle-closure glaucoma— Contraction of various types of pathologic membranes that form over the surface of the iris can draw the iris over the trabecular meshwork, occluding aqueous outflow. For example, chronic retinal ischemia.

## Clinical manifestations.

- Blurred vision.
- Redness of the eye.
- Pain in the eyes and the eyebrows.
- High intraocular pressure.
- Headache, vomiting nausea.

## Pharmacological managements.

- Beta- adrenergic blockers— timolol, betaxolol, levobunolol.
- Alpha-adrenergic agonists— dipivefrine, apraclonidine, brimonidine.
- Prostaglandin analogues— latanoprost, travoprost, bimatoprost.
- Carbonic anhydrase— acetazolamide, dorzolamide.
- Miotics— pilocarpine, physostigmine.

## Non-pharmacological managements.

- Take the wholesome food/diet.
- Practice the exercise and yoga because it also helps in reducing the eye pressure.
- Avoid the polluted area because pollutants cause the irritation in eye.

