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Topic

Visual Loss and Intraocular Pressure (IOP)

Learning Objectives

Classify	Visual Loss associated with Anterior segment Visual Loss associated with Posterior segment
Enumerate	Causes of gradual & sudden visual loss
Discuss	Aqueous humor dynamics and its role in IOP
Define and Classify	Glaucoma

Learning Objectives

Classify

Visual Loss associated with Anterior segment

Visual Loss associated with Posterior segment

Visual loss

Anterior segment

Conjunctiva

Cornea

Lens

Visual loss

Posterior segment

Uveal
tract

Vitreous

Retina

Optic
nerve

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Learning Objectives

Enumerate

Causes of gradual & sudden visual loss

Gradual Visual Loss

Refractive Errors

Cataracts

Primary Open Angle Glaucoma

Age Related Macular Degeneration

Diabetic Retinopathy

Cornea (Ectasia, Dystrophy)

Optic Neuropathies (Compression, Toxic, Drugs, Nutritional deficiency)

Choroid and Retina (Inflammations, Tumors, Dystrophies)

Papilledema

Sudden Visual Loss

Retinal Vascular Diseases (CRVO, BRVO, CRAO, BRVO)

Retinal Detachment

Vitreous Hemorrhage

Acute Angle Closure

Optic Neuropathy (Optic Neuritis, AION)

Endophthalmitis

Trauma

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Learning Objectives

Discuss

Aqueous humor dynamics and its role in IOP

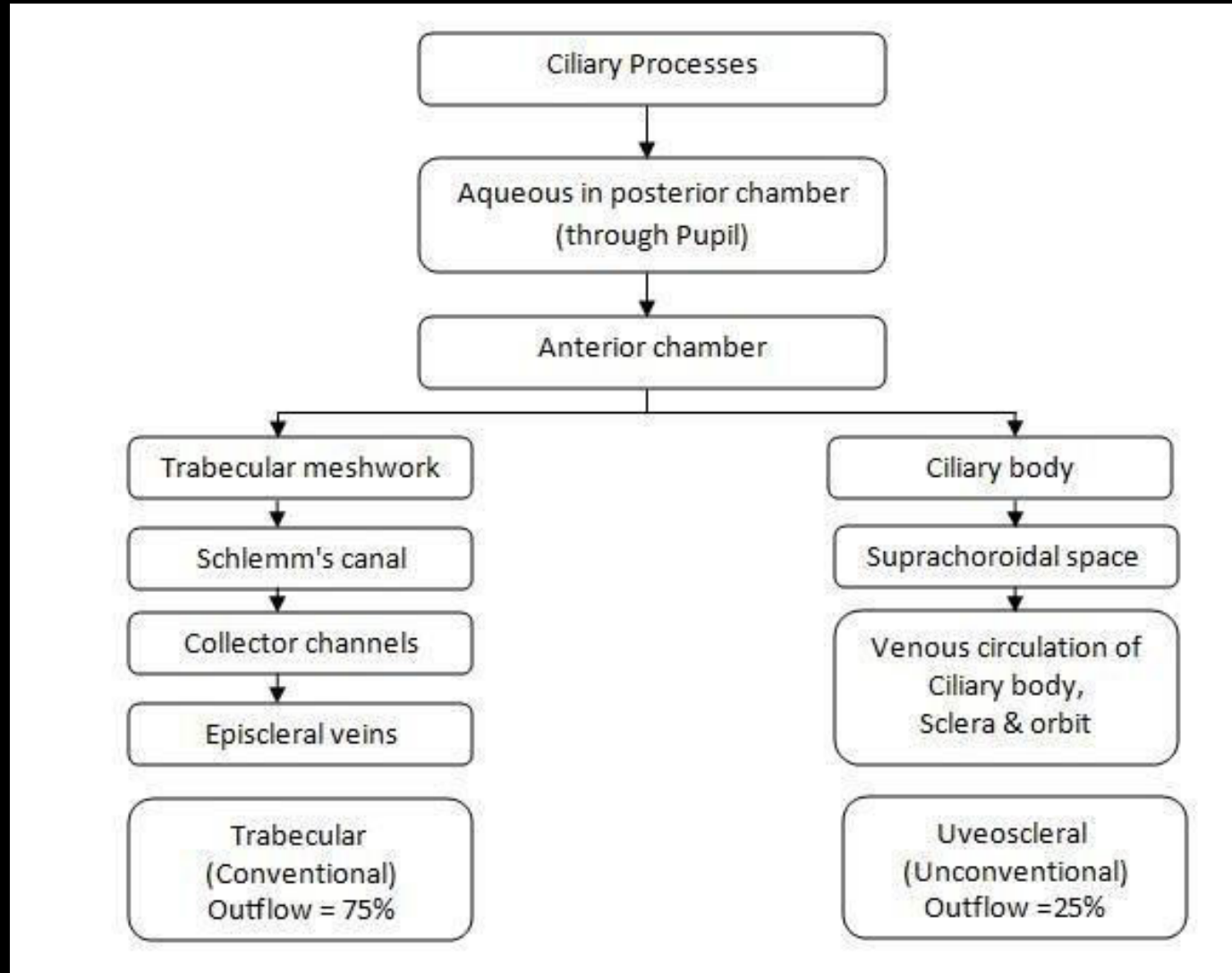
Aqueous Humor (AH)

- Clear fluid that fills and helps form the anterior and posterior chambers of the eye
- Analogous to a blood surrogate for these avascular structures (lens, cornea)
- Equilibrium exists between the production and drainage of AH

AH Formation

- Formed by non-pigmented epithelium of ciliary body
- Three mechanisms are involved in aqueous humor formation:
 1. Diffusion
 2. Ultrafiltration
 3. Active Secretion (80% of contribution)
- The first two processes are passive

AH Outflow



Aqueous Outflow

- Conventional Flow
 - Through TM
 - 75% resistance to aqueous flow by TM

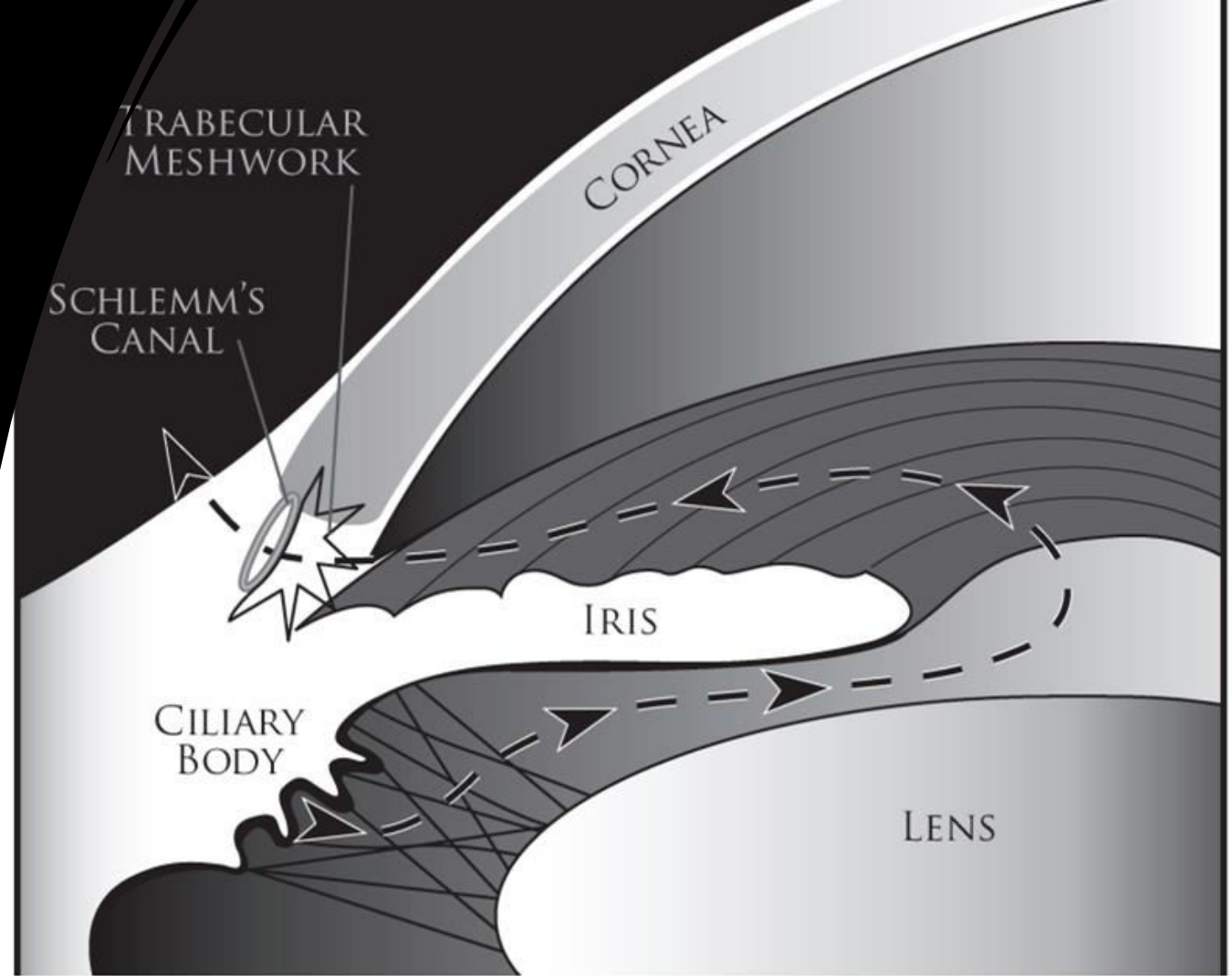


Fig. (1). Schematic diagram illustrating the trabecular meshwork conventional outflow pathway. Aqueous humor is produced by the ciliary body and it flows (dashed line shown with arrowheads) from the posterior chamber through the pupil into the anterior chamber. From there it flows out through the trabecular meshwork into the

Aqueous Outflow

- Uveoscleral Flow

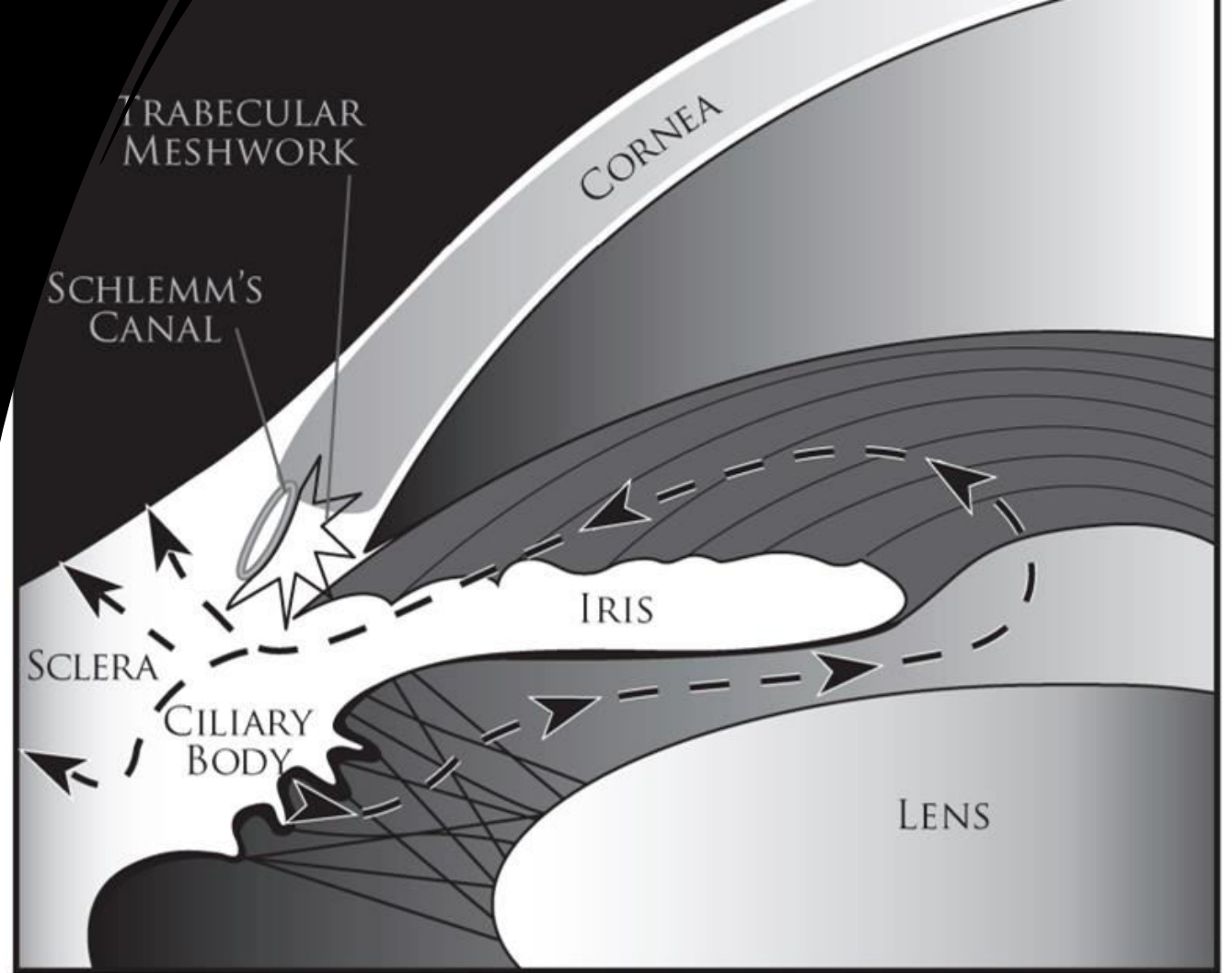


Fig. (2). Schematic diagram illustrating the uveoscleral outflow pathway. Aqueous humor is produced by the ciliary body, in the uveoscleral route, it flows from the posterior chamber through the pupil into the anterior chamber and then (shown by dashed lines and arrowheads) through the face of the ciliary body and iris root to

AH Composition

Amino acids

98% water

Electrolytes (pH = 7.4)

Ascorbic acid

Glutathione

Immunoglobulins

Intraocular Pressure (IOP)

- IOP ranges from 11-21 mmHg (16mmHg average)
- Equilibrium between AH inflow and outflow
- IOP raises with the equilibrium disturbance
- Raised IOP leads to Optic Nerve damage

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Learning Objectives

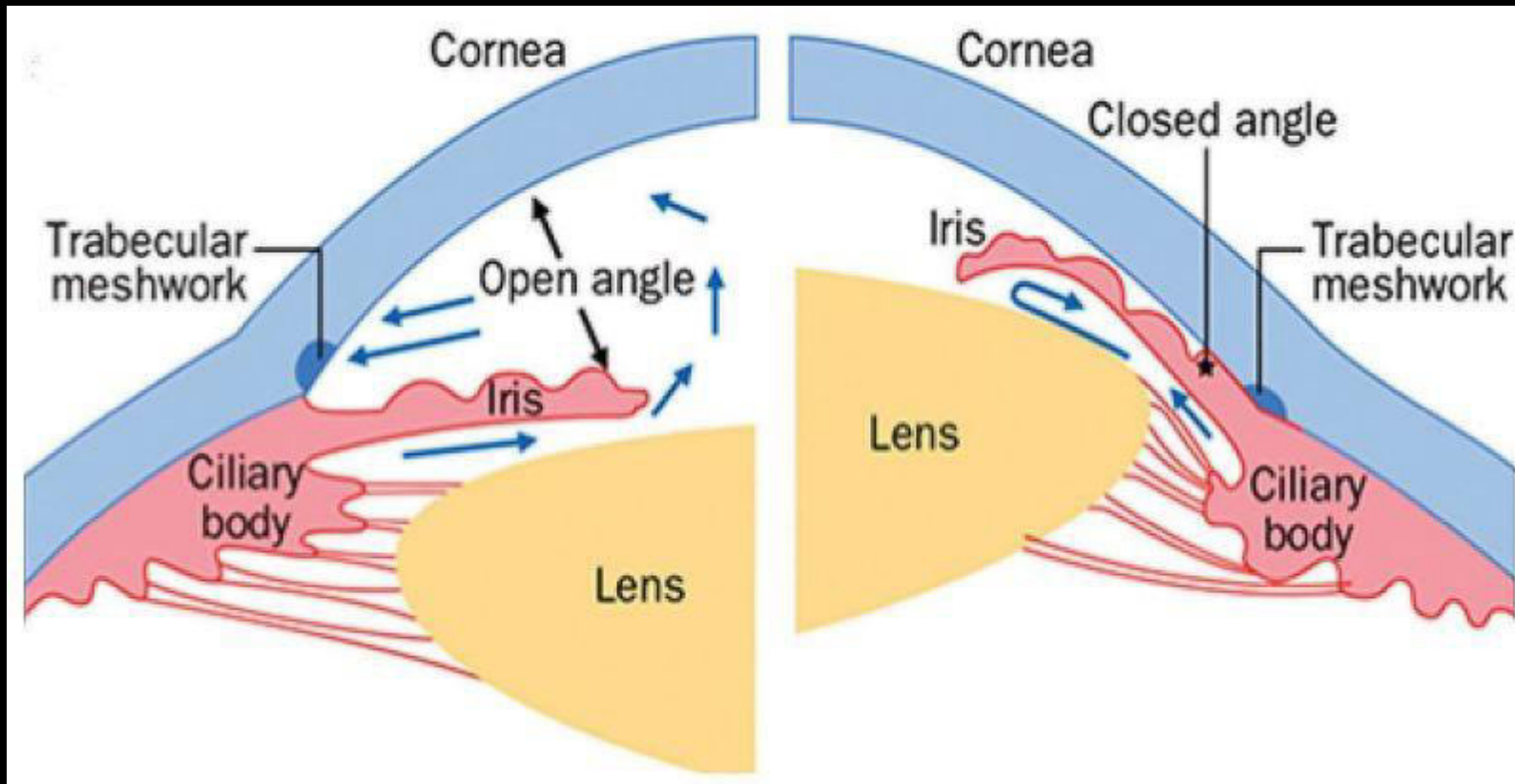
Define and Classify

Glaucoma

Glaucoma

- Complex entity
- Progressive Optic Neuropathy with characteristics visual field loss and optic nerve (RNFL) damage

Classification



Glaucoma Classification

Open Angle Glaucoma

- Primary OAG (POAG)
- NTG
- JOAG
- Secondary OAG
 - PXF-G
 - Pigmentary
 - Steroids Induced
 - Lens Induced
 - Post surgical
 - ARG

Closed Angle Glaucoma

- Primary ACG (PACG)
- Secondary ACG
 - NVG
 - PXF-G
 - Aniridia
- Trauma

Summary

Learning Objectives

- Classify causes of visual loss in following order:
 - Visual Loss associated with Anterior segment.
 - Visual Loss associated with Posterior segment.
- Enumerate causes of gradual & sudden visual loss.
- Discuss Aqueous humor dynamics and its role in IOP.
- Define and Classify Glaucoma.

Thank You All