SAWA UNIVERSITY

CHILDREN EYE DISORDERS EXAMINATION

جامعة ساوة

كلية التقنيات الصحية والطبية

قسم تقنيات البصريات

المرحلة الرابعة

الفصل الأول

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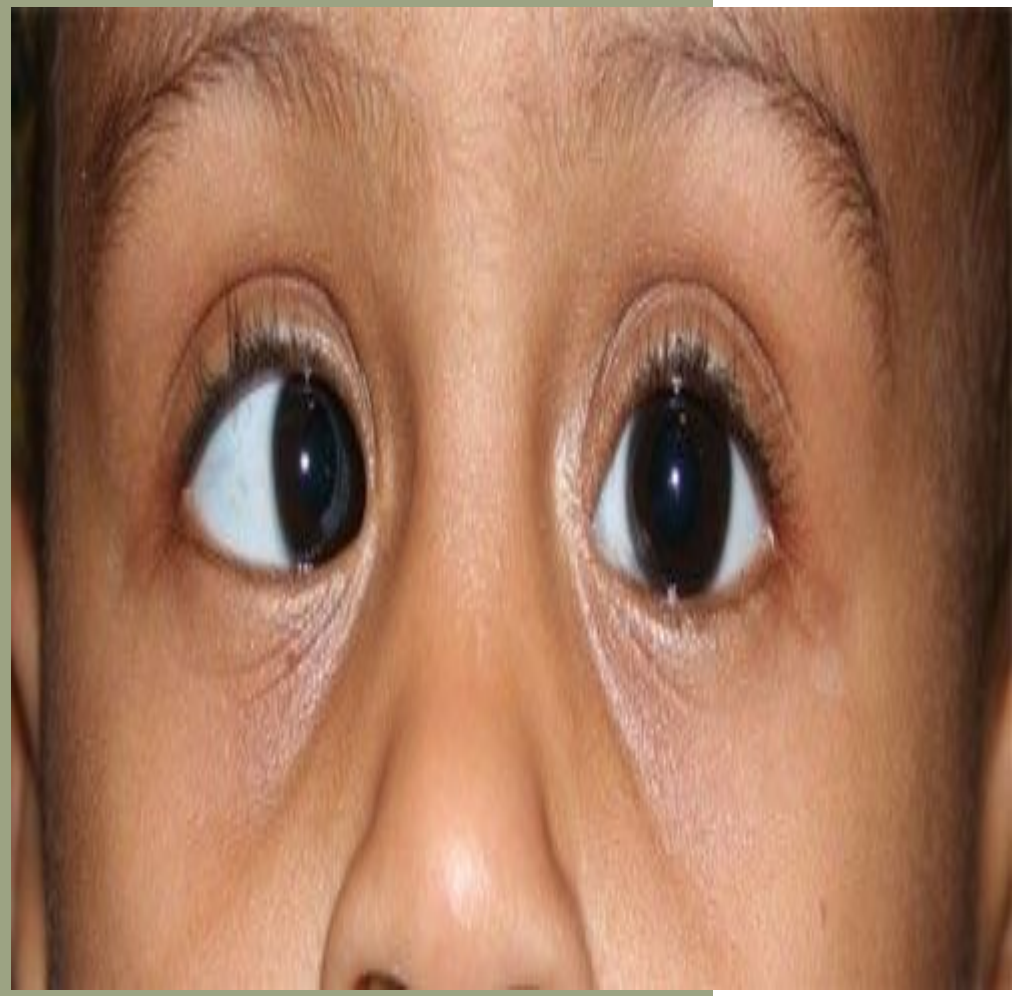
رقم المحاضرة: 9

REFRACTIVE ERRORS

- myopia, hyperopia, and astigmatism
- **Signs/symptoms**
  - Decreased vision
  - eye rubbing
  - Squinting
  - holding objects too close or too far
  - poor school performance
- **Assessment**
  - visual acuity testing
  - cycloplegic retinoscopy

STRABISMUS



- misalignment of the visual axes
- **Assessment** includes
  - VA assessment
  - cycloplegic refraction
  - ocular motility evaluation
  - cover–uncover and alternate cover tests
  - Hirschberg and Krimsky tests for angle estimation
  - full ocular examination
  - binocular vision testing

AMBLYOPIA

- a unilateral or, less commonly, bilateral decrease in best-corrected visual acuity
- without detectable structural (organic) abnormality
- Types:
  - strabismic (most common)
  - refractive
    - ✔ Anisometropia
    - ✔ high bilateral refractive errors
  - visual deprivation (e.g., from cataract or ptosis)

- During the critical period from birth to around 7–8 years of age
- **Assessment** involves
  - measuring best-corrected visual acuity BCVA
    - ranges from 6/9 to counting fingers
    - Less by two or more lines on Snellen chart compared with the better eye
  - cycloplegic refraction
  - evaluating fixation preference
  - ruling out organic causes with a complete ocular examination

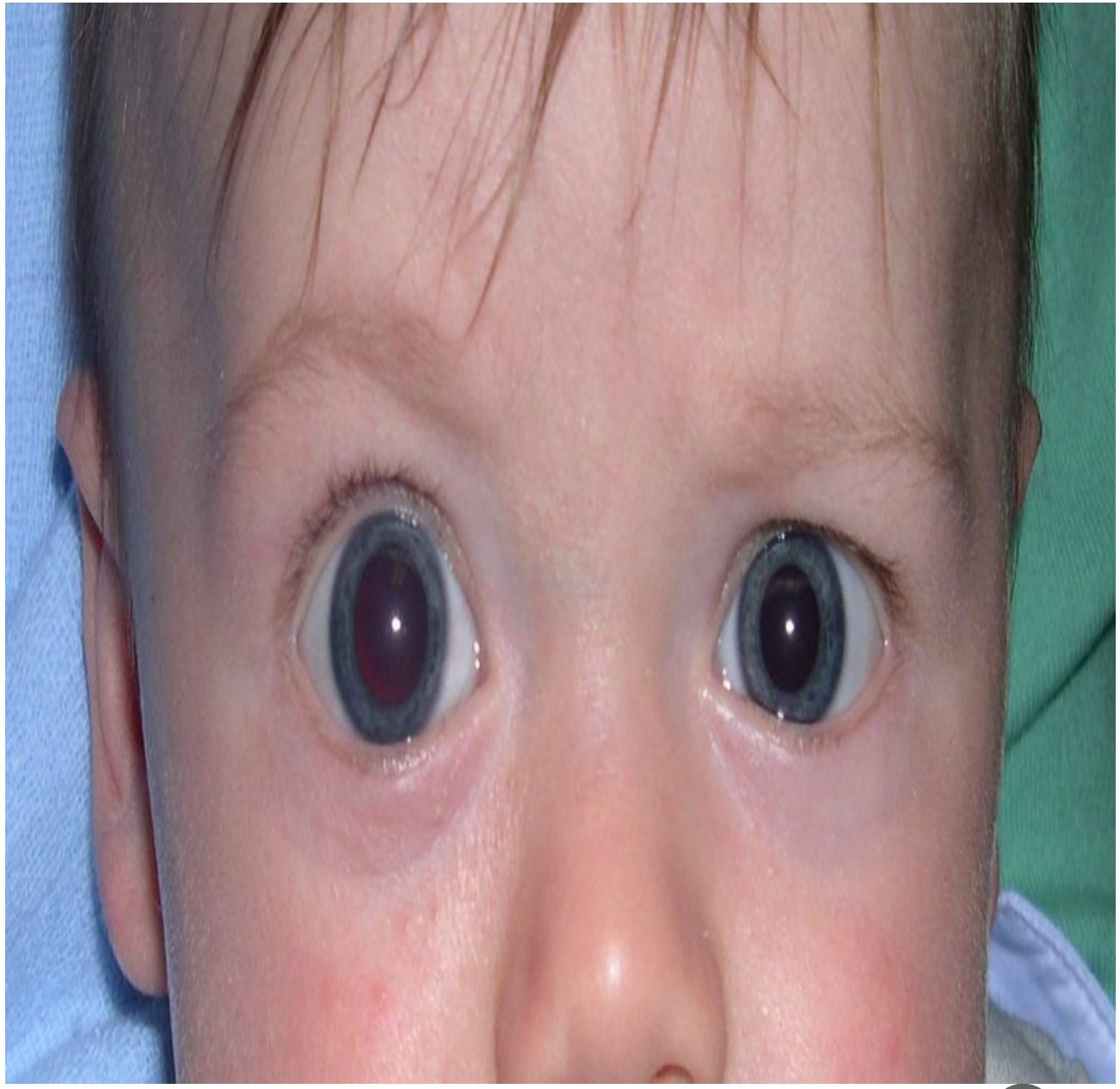
CONGENITAL CATARACT

- a lens opacity present at birth or developing during infancy
- can impair visual development and lead to amblyopia if untreated
- **Signs/ symptoms**
  - leukocoria (white reflex)
  - a noticeable decrease in visual acuity, attention and fixation
  - Nystagmus
  - Strabismus

- **Examination involves**
  - VA assessment
  - Cycloplegic retinoscopy?? If possible / autorefractometer if possible
  - careful anterior segment evaluation with a slit-lamp (if cooperative) or a direct ophthalmoscope
  - red reflex assessment
  - assessment for associated ocular or systemic anomalies.

CONGENITAL GLAUCOMA

- isolated maldevelopment of the trabecular meshwork and anterior chamber angle
- leading to
  - impaired aqueous outflow
  - increased intraocular pressure (IOP)
  - potential optic nerve damage.



- **Signs/symptoms**
  - enlarged globe (buphthalmos) and cornea
  - corneal edema or haze
  - Haab's striae (breaks in Descemet's membrane)
  - Tearing
  - photophobia

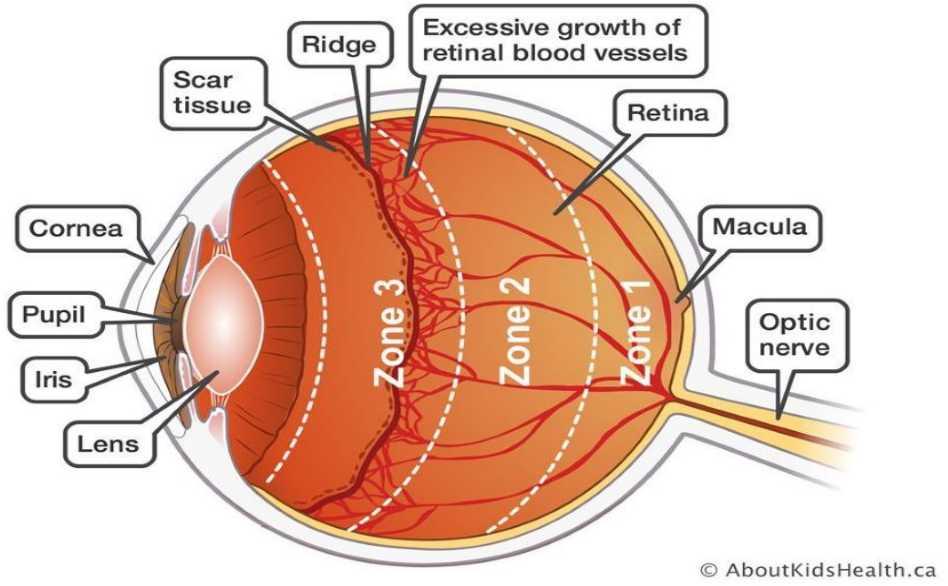
- **Examination** involves
  - measuring IOP (tonometry)
  - assessing corneal diameter and clarity
  - evaluating the anterior chamber angle (gonioscopy)
  - optic nerve head evaluation
  - often under anesthesia in uncooperative children.

CONGENITAL NASOLACRIMAL DUCT OBSTRUCTION (CNLDO)

- the persistence of a thin membrane (Valve of Hasner) at the distal end of the nasolacrimal duct
- **Signs/symptoms**
  - persistent epiphora (watering of the eye)
  - mucous discharge
  - Recurrent episodes of bacterial conjunctivitis
- **Examination**
  - checking for tear meniscus
  - performing the fluorescein dye disappearance test
  - gentle pressure over the lacrimal sac to assess reflux of tears or mucous

RETINOPATHY OF PREMATURITY (ROP)

- a vasoproliferative disorder of the retina
- unique to premature and low-birth-weight infants
- High, unregulated oxygen at birth and/or fluctuations in oxygenation
- early cessation of normal retinal vascularization
- followed by abnormal vessel regrowth (neovascularization)



- **Signs/Symptoms:**
  - largely asymptomatic until late stages
  - demarcation line
  - Ridge
  - extraretinal neovascularization
  - can lead to a visible retinal detachment or severe scarring
- **Examination:** Serial, meticulous dilated indirect ophthalmoscopy on high-risk infants

CONGENITAL PTOSIS (DROOPING EYELID)

- abnormal drooping of the upper eyelid
- can interfere with the visual field or block the visual axis
- caused by a developmental malformation of the levator palpebrae superioris muscle
- **Signs/Symptoms**:
  - A visibly low eyelid margin
  - children may develop a chin-up head posture
- **Examination**: The degree of ptosis is quantified by measuring the Marginal Reflex Distance (MRD) from the corneal reflex to the lid margin

CONJUNCTIVITIS: PINK EYE

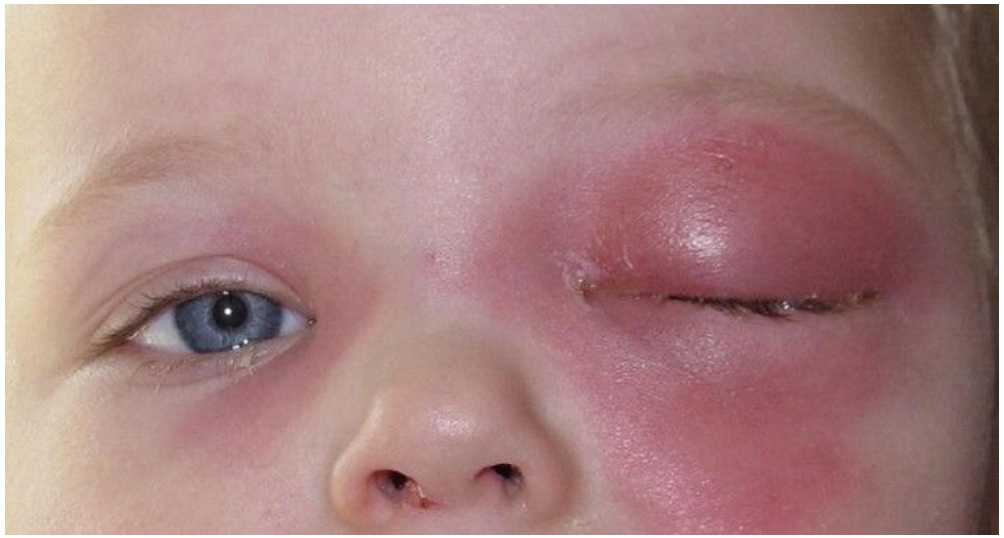
- inflammation of the conjunctiva
- **Causes:**
  - highly contagious viral agents
  - bacterial pathogens
  - environmental allergic triggers
- **Signs/Symptoms:**
  - injection (redness)
  - foreign body sensation
  - discharge that varies by etiology (watery for viral, thick/purulent for bacterial, mucous for allergic)

- **Examination:**
  - Diagnosis is mainly clinical
  - differentiating discharge type
  - noting signs like papillae or follicles and conjunctival injection

PERIORBITAL VS. ORBITAL CELLULITIS

- Periorbital Cellulitis is an infection anterior to the orbital septum
- Orbital Cellulitis is a serious infection posterior to the septum
- **Causes:** a bacterial spread from adjacent structures, such as the ethmoid sinuses

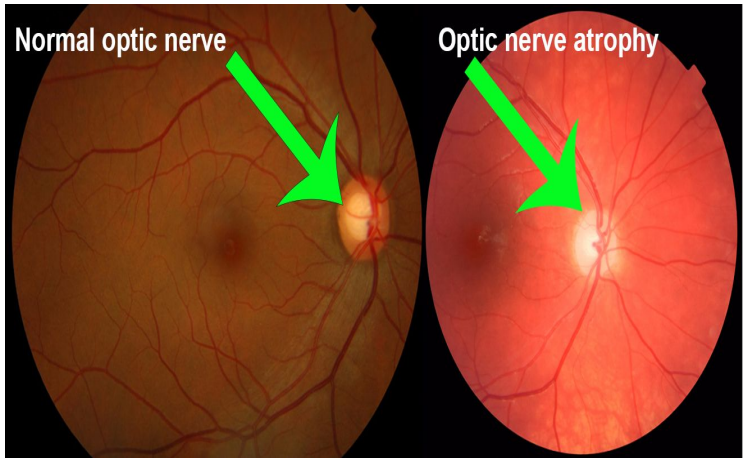
- **Examination:**
  - VA assessment
  - Motility assessment
  - Check for proptosis
  - Anterior segment assessment
  - Optic disc assessement

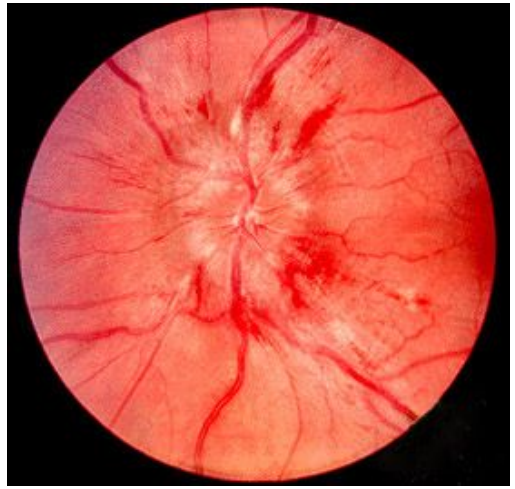


OPTIC NERVE NEUROPATHIES

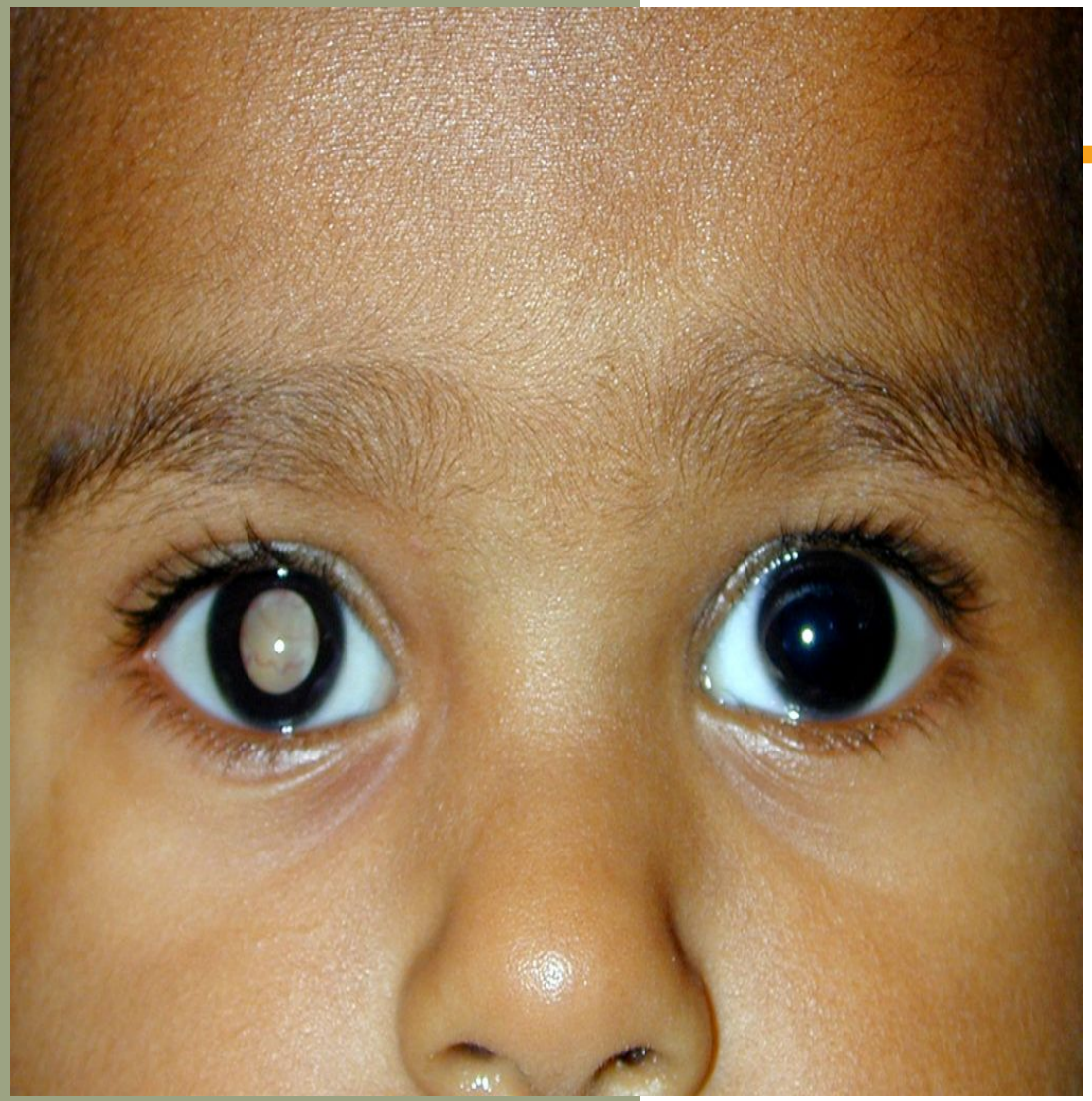
- disorders affecting the optic nerve (cranial nerve II)
- **Include**
  - Optic Atrophy: pale disc, leads to permanent VA loss
  - Papilledema: bilateral swelling of the optic disc
  - Optic disc swelling (edema): unilateral swelling
  - Optic neuritis: acute VA loss and pain with ocular movement

- **Examination**
  - VA assessment
  - color vision assessment
  - fundus examination for disc swelling or paleness
  - Pupillary light reflex
  - RAPD test (swinging flash light): checks for asymmetry in nerve function





RETINOBLASTOMA



- the most common primary intraocular tumor in children, arising from the retina
- **Signs & Symptoms**
  - ✔ Leukocoria
  - ✔ Strabismus
  - ✔ Decreased VA
- **Examination:**
  - often requires an Examination Under Anesthesia (EUA)
  - Assessing the red reflex
  - Dilated Fundus Exam: Visual inspection of the retina to locate and measure the tumor
  - Ocular Ultrasound (B-Scan)
  - MRI of the Brain/Orbits