# Pediatric Eye Care: When to Refer

Ellen Mitchell, MD

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## Financial Diclosure

5 P#EFNFWBOU#GDBODBN#
JOCPSN BUPO#P#EJDNPTF

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# Watery Eyes in Children

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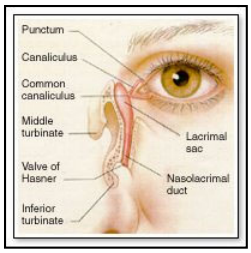
## Nasolacrimal Duct Obstruction

- Delay in maturation of lacrimal system
- Usually resolves by 12 months of age
- Antibiotics avoided unless evidence of conjunctivitis

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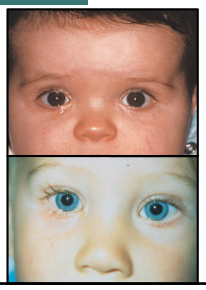
## Nasolacrimal Duct Obstruction

- Increased tear meniscus
- +/- crusting/matting of lashes
- +/- mucopurulent discharge
- Skin around eye may become red and excoriated
- Eye remains white unless complicated by secondary conjunctivitis
- If persistent past 11 months of age, will need probe and irrigation



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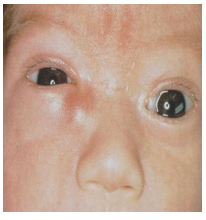
## Dacryocystitis

- Infection or inflammation of nasolacrimal sac
- Presents with swelling, tearing, and discharge
- Swelling is below medial canthal tendon->infected dacryocystocele
- If above, there is concern for encephalocele->neurosurgery referral



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## Dacryocystitis

- Acute Dacryocystitis in children usually presents in neonatal period or as a complication of NLDO
- Treatment involves systemic antibiotics, and once acute infection has cleared, decompression with probe and irrigation
- ENT consult is also recommended due to the fact that dacryocystocele sometimes obstructs nasal passage

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## Cellulitis

- Can occur from extension from paranasal sinuses, face/eyelids, **dacryocystitis**, dental abscess, intracranial abscess
- Can be pre-septal or orbital

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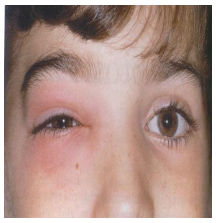
## Pre-septal

- Confined to eyelids and periorbital structures anterior to orbital septum
- 80% of kids less than 10 yrs old
- Periorbital edema, erythema, warmth, tenderness, pain, +/- fever



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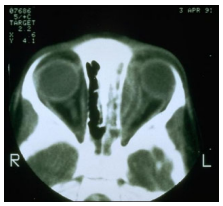
## Orbital

- Infection of orbital tissues posterior to the orbital septum
- Symptoms similar to pre-septal cellulitis with the addition of proptosis, chemosis, EOM restriction, +/- decreased vision, +/- RAPD, +/- optic nerve involvement

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## Iritis

- Presents with pain, photophobia, tearing, redness
- Often secondary to blunt force trauma; however, if no history of trauma, investigation for systemic disease warranted
  - JIA
  - Bechet's
  - IBD
  - Sarcoid

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## Primary Congenital Glaucoma

- Developmental abnormality of the trabecular meshwork characterized by:
  - Presentation within first 2 years of life
  - **Epiphora**
  - Globe enlargement (buphthalmos)
  - Corneal edema or opacification
  - Breaks in Descemet's membrane (Haab striae)
  - Myopia with astigmatism
  - Optic nerve damage

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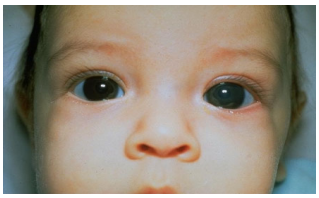
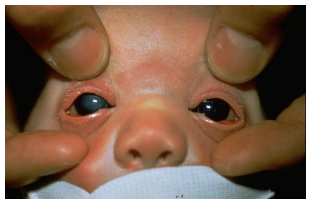
## Primary Congenital Glaucoma

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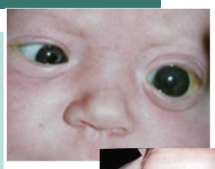
## Congenital Glaucoma

- Can be sporadic or associated with various genetic syndromes
- Occurs approximately 1/10,000 births
- Definitive treatment is always surgical in children

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## Funny Looking Nerves

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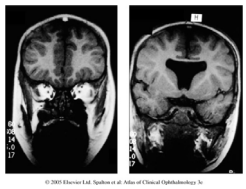
## Optic Nerve Hypoplasia

- Variable visual acuity range
- Unilateral or bilateral
- Work up necessary even if unilateral
- Endocrine referral is a must



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## Glaucoma Suspect

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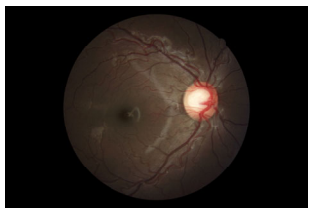
## Glaucoma Suspect

- Check family history
- Check birth history
  - Prematurity
- Check central corneal thickness



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# Morning Glory Disc Anomaly

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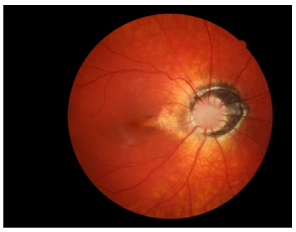
## Morning Glory Disc Anomaly

- Typically unilateral
- Visual acuity can range from 20/30 to light perception
- May be part of other systemic abnormalities and syndromes
- Needs neuroimaging (MRI/MRA)



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# Papilledema

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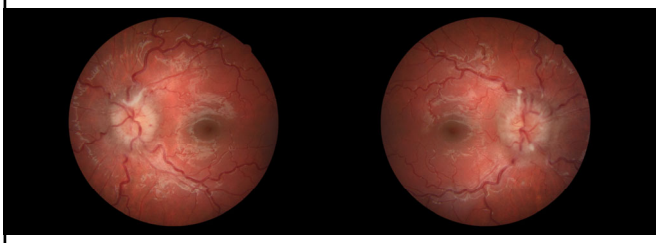
## Pediatric IIH/PTC



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## Pediatric IIH/PTC

- A disorder of elevated intracranial pressure (ICP) without any evidence of infection, vascular abnormality, space occupying lesion, hydrocephalus or alteration of consciousness
- Typically – disease of women of child-bearing age, present in kids
- Increasing incidence in adolescents , uncommon in infancy and very rare in neonates

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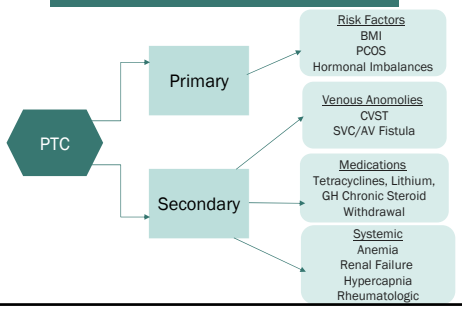
## Classification

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## From Dandy to Friedman: The Update to Diagnostic Criteria

**Diagnostic Criteria for Pseudotumor Cerebri (PTC)**

1. Required for Diagnosis of Pseudotumor Cerebri Syndrome
   a. Papilledema
   b. NI exam except for CN
   c. NI brain MRI/V (i-iv below excluded)
   d. NI CSF
   e. Elevated OP (>25 cm H20 in adults and >28 cm H20 in children)

2. Diagnosis of PTC without papilledema
   B-E fulfilled + CN VI palsy
   or,
   ≥3 of the following imaging criteria:
   i. Empty sella
   ii. Flattening of the posterior aspect of the globe
   iii. Distension of the perioptic subarachnoid space w/wo tortuous ON
   iv. Transverse venous sinus stenosis

**Revised diagnostic criteria for the pseudotumor cerebri syndrome in adults and children**
Deborah I. Friedman, Grant T. Liu, Kathleen B. Digre. Neurology Sep 2013, 81 (13) 1159-1165; DOI: 10.1212/WNL.0b013e3182a55f17

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## Symptoms

- Headache > 80%
  - Worse in the morning
  - Aggravated by Valsalva manuevers
  - Global
  - May or may not improve with OTC
- TVOs
- Visual changes
  - Blurred vision -> hyperopic shift
  - Metamorphosia -> retinal folds
  - Enlarged spot, field loss
- VA and colors preserved until late
- Pulsatile tinnitus
- Diplopia ( Double vision)
- Facial palsy
- 25% asymptomatic

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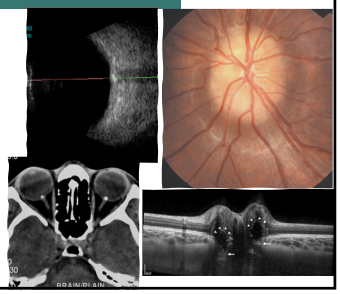
## Beware of imposters!

- Pseudopapilledema
  - Optic nerve head drusen
  - Anomalous optic nerves – tilted nerves, hyperopic small nerves
  - Myelinated nerve fibers
  - Hypoplastic optic nerve



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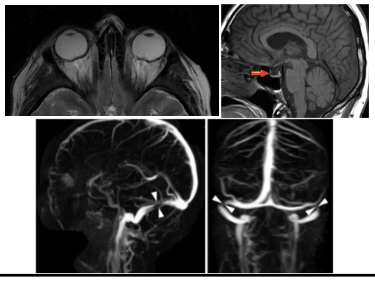
## MRI Findings

- Posterior globe flattening
- Partially empty / Empty sella
- Narrowing of transverse sinus



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## Investigations

- Neuroimaging – MRI Brain + MRV
- Lumbar puncture – Opening pressure, CSF composition
- Blood work – CBC, BMP, Thyroid profile, Lyme titres, Serum Ca
- VF
- OCT
- Fundus photos

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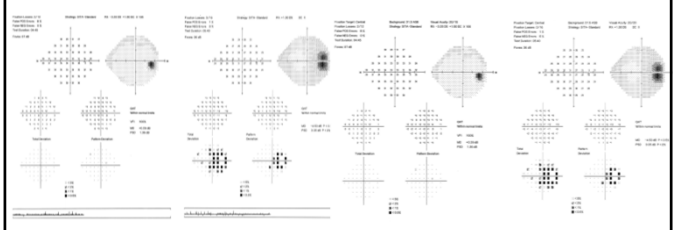
## Typical VF Findings



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## Treatment

- Goals:
  - Preserve vision
  - Symptomatic relief
  - Medical
  - Surgical

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## Take Home Points

- Pediatric IIH – not that uncommon
- Important to rule out pseudopapilledema
- Rule out secondary causes
- VF, OCT aid in diagnosis and management
- Acetazolamide is the mainstay of medical treatment
- Surgical options

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## Child with Abnormal External Appearance

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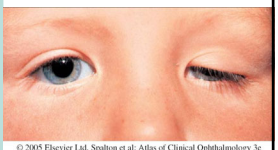
## Ptosis

- Congenital vs Horner's
  - History important
    - Review old pictures
  - Different severity of ptosis
    - Ptosis is often mild in Horner's
  - Pupil abnormalities **should not** be present with congenital ptosis
- Myogenic
  - Autoimmune vs Genetic

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## THANKS

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