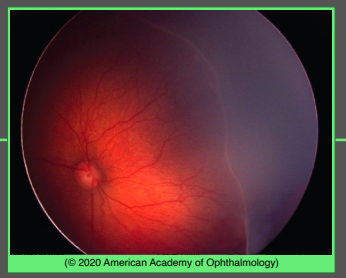
Retinopathy of Prematurity

Case Description
you are asked to examine a premature 4-week-old neonate

Image Description


fundus photograph of the left eye shows extensive peripheral nonperfusion temporally with demarcation ridge and normal retinal vessels posterior to the ridge

Differential Diagnosis
- ROP
  - plus disease: 2 quadrants of engorged & tortuous retinal veins
  - staging
    - stage 1: demarcation line
    - stage 2: demarcation ridge
    - stage 3: fibrovascular proliferation
    - stage 4: subtotal RD
    - stage 5: total RD
  - zones
    - zone 1: centered on optic disc with radius of 2x optic disc-fovea distance
    - zone 2: outside zone 1 to nasal ora
    - zone 3: temporal retinal crescent
- FEVR — AD
- incontinentia pigmenti (IP) — M do not survive
  - XLD — girls only
  - infancy — blistering skin rash
  - early childhood — grey/brown skin patches
  - CNS and dental abnormalities
- Norrie disease — XLR — boys only

Data acquisition
- History
  - birth history
    - gestational age <30 weeks
    - birth weight <1500 gr
  - neonatal history
    - supplemental oxygen
    - neonatal sepsis
    - respiratory & GI disease
  - family history of FEVR
- Physical Exam
  - screening recommendations
    1. birth weight <1500 gr
    2. gestational age <30 weeks
    3. .>1500 gr or >30 weeks but with unstable clinical course
  - first eye exam — whichever is later
    - 31 weeks postmenstrual age
    - 4 weeks postnatal age
  - iris: prominent iris/pupillary vessels — ROP
  - cataract & anterior segment abnormalities — Norrie disease
  - dilated funduscopy with scleral depression — both eyes

Patient Education
- Prognosis & Complications
  - myopia
  - amblyopia
  - strabismus
  - glaucoma
  - cataract
  - macular dragging
  - retinal detachment
  - permanent vision loss
- Follow-up
  - need for long-term follow-up
    - @ 6 months
    - yearly
  - weekly exams until retina fully vascularized

Treatment
- Surgical
  - Cryo-ROP study
    - indication for treatment
      - threshold disease
        - stage 3
        - zone 1 or 2
        - plus disease
      - 5 contiguous clock hours or 8 total clock hours
  - Early Treatment for ROP study
    - showed benefit of treating pre-threshold disease
    - treat
      - type 1 (high risk)
        - zone 1 with plus disease (any stage)
        - zone 1, stage 3 (with or without plus disease)
        - zone 2, stage 2 or 3 with plus disease
      - type 2 (lower risk) — follow closely
  - treatment modalities
    - laser photocoagulation — preferred over cryo
    - cryotherapy

Assessment
- ROP
  - stage 2, zone 2 without plus disease

Ophthalmology Mind Maps/Arman Mashayekhi, MD