5.10.5. Pupillary Abnormalities (V): Light–Near Dissociation

- Definition
  - near response exceeds the best pupillary constriction that bright light can produce
- See Table 10-1
  - Anterior visual pathway damage (retina, optic nerve, chiasm)
  - Short posterior ciliary nerve damage
    - panretinal photocoagulation
    - retinal cryotherapy
    - orbital surgery
    - peripheral neuropathy
  - Aberrant reinnervation
    - Adie syndrome
    - 3rd cranial nerve reinnervation
- Afferent Visual Pathway
  - bilateral
  - optic neuropathy is the most common cause of light–near dissociation
  - damage to only the afferent limb of the pupillary light reflex (optic nerve)
- Midbrain
  - pathogenesis
    - dorsal midbrain damage
    - the lesion spares the more ventrally located fibers of the near reflex pathway
  - clinical presentation
    - midsize pupils
      - poor light response
      - preserved near response
    - associated findings
      - bilateral eyelid retraction (Collier sign)
      - vertical gaze palsy
      - accommodative paresis
      - convergence-retraction nystagmus (Parinaud syndrome)
  - Argyll Robertson pupil
    - tertiary syphilis involving the central nervous system
    - small pupils (<2 mm)
      - often irregular
      - do not react to light
        - this feature distinguishes Argyll Robertson pupils from bilateral chronic tonic pupils
      - near response and subsequent redilation are normal and brisk
      - dilation is poor after instillation of mydriatic eyedrops
    - iris atrophy
      - portions of the iris transilluminate
    - serologic tests for syphilis
  - Argyll Robertson–like pupils
    - bilateral tonic pupils (chronic)
    - diabetes mellitus
    - chronic alcoholism
    - encephalitis
    - after panretinal photocoagulation
- Aberrant Regeneration
  - light–near dissociation can result from aberrant regeneration of damaged nerves that restores the near reflex but not the light reflex
  - tonic pupil syndrome
    - injured short ciliary nerves resprout and accommodative fibers mistakenly reinnervate the iris sphincter
    - resembles light–near dissociation!
  - misdirected growth after traumatic injury or chronic compression of the oculomotor nerve
    - aberrant regeneration of the medial rectus fibers
    - pupillary contraction occurs during attempted adduction

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