9.10.4. Ocular Involvement in AIDS (I)

Toxoplasma Retinochoroiditis

- differs from toxoplasmosis in immunocompetent patients
  - ≤40% have bilateral disease
  - lesions are larger
  - vitreous reaction may be less
  - 6% preexisting scars are rare
  - solitary, multifocal, and miliary patterns of retinitis
    - Figure 11-3 (© 2020 American Academy of Ophthalmology)
  - inevitably progresses if left untreated
  - may be associated with cerebral or disseminated toxoplasmosis
- pathogenesis
  - more common: newly acquired T gondii infections
  - more common: dissemination from nonocular sites
  - reactivation of quiescent toxoplasmosis also occurs
- may be difficult to distinguish from
  - ARN
  - necrotizing herpetic retinitis
  - syphilitic retinitis
- diagnostic workup
  - aqueous and vitreous samples for culture and polymerase chain reaction techniques
- pathology
  - inflammatory reaction in the choroid, retina, and vitreous is less prominent
  - trophozoites and cysts can be observed in greater numbers
  - T gondii organisms can occasionally be noted invading the choroid
- management
  - magnetic resonance imaging (MRI) of the brain
  - consultation with specialists in infectious diseases
  - antitoxoplasmic therapy
    - various combinations of pyrimethamine, sulfadiazine, azithromycin, atovaquone, or clindamycin
    - consider the possibility of coexisting cerebral or disseminated toxoplasmosis
    - continued maintenance therapy may be necessary for patients with poor immune status that is not improving
  - corticosteroids should be used with caution and only in the presence of appropriate antimicrobial coverage

Necrotizing Herpetic Retinitis

- severity directly proportional to the level of immunologic compromise
- rare variant of necrotizing herpetic retinitis
  - Figure 11-12 (© 2020 American Academy of Ophthalmology)
- progressive outer retinal necrosis (PORN)
  - varicella-zoster virus or herpes simplex virus
  - in the absence of, at the same time as, or subsequent to cutaneous varicella-zoster infection
  - in early stages PORN may be difficult to differentiate from peripheral CMV retinitis
  - rapid progression
  - relative absence of vitreous inflammation
  - high incidence of retinal detachment
  - bilateral involvement is common
- treatment
  - intravitreous ganciclovir, foscarnet, or acyclovir
  - combination antiretroviral therapy

Ophthalmic manifestations

- human immunodeficiency virus (HIV)
  - infects and results in the depletion of CD4+ helper T lymphocytes
- reported in 70% of infected people
- may be the first sign of disseminated systemic HIV infection
- visual morbidity occurs primarily with posterior segment involvement
- accelerated aging may be a part of HIV-associated eye disease
  - earlier onset of macular degeneration and cataracts
- HIV-related microangiopathy of the retina (retinopathy)
  - the most common ocular finding in patients infected with HIV
  - HIV has been isolated from the human retina
  - HIV antigen has been detected in retinal endothelial cells
  - retinal hemorrhages
  - microaneurysms
  - cotton-wool spots
    - Figure 11-1 (© 2020 American Academy of Ophthalmology)
- opportunistic viral, bacterial, and fungal infections
  - cytomegalovirus (CMV)
  - herpes zoster virus
  - Toxoplasma gondii
  - Mycobacterium tuberculosis
  - Mycobacterium avium-intracellulare
  - Cryptococcus neoformans
  - Pneumocystis jirovecii
  - Histoplasma capsulatum
  - Candida
  - molluscum contagiosum virus
  - microsporidia
- Kaposi sarcoma of the eyelid and conjunctiva
- lymphomas involving the retina (primary intraocular lymphoma), adnexal structures, and orbit
- squamous cell carcinoma of the conjunctiva
- HIV infection itself may cause anterior or intermediate uveitis
  - not responsive to corticosteroids
  - improves with antiretroviral therapy

Cytomegalovirus Retinitis

- CD4+ counts ≤50 cells/μL
- remains the most common opportunistic ocular infection in patients with AIDS
- occasionally is the first AIDS-defining infection
- references
- Immune recovery uveitis (IRU)
  - occurs only in eyes with previous CMV retinitis whose immune status improves with combination antiretroviral therapy
    - increase in the CD4+ T-lymphocyte count of at least 50 cells/μL to at least 100 cells/μL
    - 10%
  - risk factors
    - risk proportional to the surface area of retina involved
      - CMV retinitis surface area ≥25%
    - greater risk (odds ratio, 10.6) in patients ever treated with cidofovir
    - has not been linked to
      - active replication of CMV
      - continuation or discontinuation of anti-CMV medication
  - clinical presentation
    - anterior or intermediate uveitis
    - more likely to have
      - macular edema
        - resistant to sub-Tenon corticosteroids
          - such injections do not cause reactivation of CMV infection
          - intravitreal injections of corticosteroids must be avoided!
      - epiretinal membrane
    - associated with moderate vision loss
- Retinal detachment
  - 50% of patients with CMV retinitis
    - during active disease or after successful treatment
  - with potent antiretroviral regimens, the rate of retinal detachment has been reduced to 0.06 per patient-year
  - risk factors
    - involvement of all 3 retinal zones
    - lower CD4+ T-lymphocyte count
    - more extensive retinitis
  - treatment
    - difficult to repair because of
      - extensive retinal necrosis
      - multiple, often posterior, hole formation
    - pars plana vitrectomy with long-term silicone oil tamponade
      - anatomical reattachment in 90%

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