



**9.7.19. Infectious Ocular Inflammatory Diseases (XIX): Bacterial Uveitis (IV): Leptospirosis Nocardiosis**

**Ocular Nocardiosis**

- epidemiology**
  - baritally acid-fast
  - gram-positive rod
  - beaded branching filaments
  - Nocardia asteroides
  - found in soil
  - infection occurs by ingestion or inhalation
  - Immunocompromised individuals are at more risk
  - rare
- systemic disease**
  - pneumonia
  - disseminated abscesses
  - occurs by hematogenous spread
- ocular involvement**
  - mild pain and redness of anterior uveitis
  - severe pain and decreased vision of panophthalmitis
  - symptoms may vary
  - can affect essentially any ocular structure
  - periorbital tissue and the adnexae
  - keratitis
  - neurotizing scleritis
  - isolated, unilateral choroidal or subretinal mass (abscess)
  - mineral vitritis
  - anterior chamber cell and flare
  - iritis
  - multiple choroidal abscesses
  - panuveitis
  - overlying retinal detachment
- diagnosis**
  - vitreous aspiration for Gram stain and culture
  - microscopic identification of organisms
  - enucleation
- treatment**
  - systemic sulfonamide (trimethoprim-sulfamethoxazole)
  - for protracted periods of time
  - combination therapy with additional antibiotics

**Leptospirosis**

- epidemiology**
  - Leptospira interrogans
  - gram-negative spirochete
  - zoonotic infection
  - natural reservoirs
    - livestock
    - horses
    - dogs
    - rodents
    - excrete the organism in their urine
  - worldwide distribution
    - tropical and subtropical regions
    - rare in the United States
    - majority of US cases occur in Hawaii
- transmission**
  - humans contract the disease upon exposure to contaminated soil or water
  - agricultural workers
  - sewer workers
  - veterinarian
  - fish workers
  - slaughterhouse workers
  - military personnel
  - swimmers
  - triathletes
  - whitewater rafters
  - not known to spread from person to person
  - maternal-fetal transmission may occur
- clinical presentation**
  - incubation period = 2-4 weeks
  - abrupt onset of fever, chills, headache, myalgias, vomiting, and diarrhea
  - initial (leptosipremic) phase
    - similar to stage 1 Lyme disease
    - severe septicemic leptospirosis
      - Well disease
      - renal and hepatocellular dysfunction
      - rare (occurs in 10%)
      - fatal in 30%
    - leptospires may be isolated from the blood and CSF
    - clear rapidly as the disease progresses to the second phase of the illness
  - second (immune) phase
    - similar to stage 2 Lyme disease
    - meningitis
    - leptosipuria
    - cranial nerve palsies
    - myelitis
    - uveitis
    - organism may persist for longer periods of time in immunologically privileged sites
    - brain
    - eye
- ocular involvement**
  - occurs in both the leptosipremic and immune phases
  - prolonged interval between systemic and ocular disease
  - circumcorneal conjunctival hyperemia
    - earliest and most common sign
    - pathognomonic
  - mild anterior uveitis to panuveitis with retinal vasculitis
  - potentially vision-threatening
  - HLA-B27-associated uveitis
  - idiopathic pars planitis
  - Behçet disease
  - Eales disease
  - sarcoidosis
  - tuberculosis
  - sypilis
  - intraocular inflammation
    - similar to stage 2 Lyme disease
    - differential diagnosis
- diagnostic tests**
  - definitive diagnosis: isolation of the organism from bodily fluids
  - presumptive diagnosis: serologic assays
    - for detection of IgM antibodies against leptospiral antigens
    - ELISA
    - complement-fixation test
    - highly sensitive and specific
  - PCR-based assays are under evaluation
  - causes false-positive result on RPR or FTA-ABS tests
- treatment**
  - intravenous penicillin G, 1.5 MU every 6 hours
  - oral doxycycline, 100 mg twice daily
  - not known if systemic antibiotic treatment is protective against long-term complications such as uveitis
  - should be considered for ocular disease that occurs even months after onset of the acute systemic disease
  - x 1 week
  - topical, periocular, or systemic corticosteroids to suppress intraocular inflammation
  - visual prognosis of leptospiral uveitis is quite favorable