**Lyme Disease**

### Epidemiology

**Source:** Infected tick (deer tick)
**Transmission**
- Vector-borne transmission via tick bites
- NOT person-to-person
- Blood transfusion

**Incubation**
- ~11 days (1-55 days)

**Clinical case definition**

**Early Localized Stage:**
- Red, expanding rash (erythema migrans) at site of tick bite. Begins as red macule or papule and increases in size. Rarely painful or pruritic. Sometimes "bulls-eye" appearance
- Fatigue, chills, headache, muscle ache, swollen lymph nodes

**Early Disseminated Stage:**
- Additional EM lesions
- Bell’s or facial palsy
- Severe headaches/neck stiffness (meningitis)
- Swelling at large joints

**Late Stage:**
- Recurrent arthritis, esp. at large joints (knees)
- Possible CNS manifestations

**Complications:**
- In children who do not receive antimicrobial therapy, ~50% develop arthritis
- ~10% develop central nervous disease
- ~<5% develop cardiac involvement

**Epi Profile:**
- Endemic in 3 U.S. regions:
  - Southern New England
  - Eastern mid-Atlantic states
  - Upper midwest
- LA does have Lyme disease but vectors are NOT very effective.
- Few confirmed cases reported every year

### Diagnosis

**Microbiology:** The disease is caused by spirochete *Borrelia burgdorferi.*

**Lab Diagnosis**

- **Culture:** It is possible to culture biopsy specimen from the perimeter of a skin lesion, but it is difficult and requires special media.
- **Serology:** Early disseminated stage and late stage can be serologically diagnosed using a two-step approach
  - Screening test for antibodies using sensitive enzyme immunoassay (EIA) or immunofluorescent antibody assay (IFA)
  - Positive results should be tested by standardized Western immunoblot for presence of antibodies
- **Two-step testing is necessary because EIA or IFA may yield false positive results.**

**Probable:** Clinically compatible case

**Confirmed:** Clinically compatible case with known exposure
OR clinically compatible case that is laboratory confirmed

**For early stages of Lyme Disease, diagnosis is best made by recognizing the characteristic rash, symptoms, and history of tick bite. Antibodies against *B. burgdorferi* are not detectable for weeks after infection in most individuals, so serologic tests will not helpful in immediate diagnosis.**

### Treatment, Prophylaxis

**Early Localized Disease:**
- **Doxycycline:** Patients >8 years old; 100 mg 2x per day for 14-21 days
- **Amoxicillin:** Patients <8 years old; 50 mg/kg per day for 14-21 days
- **Cefuroxime:** Patients <8 years old & allergic to penicillin; 30 mg/kg per day for 14-21 days

**Early Disseminated & Late Disease:**
- Treatment may vary depending on symptoms and severity
- Typically, same oral regimen as for early localized disease but for 21-28 days

**Chemoprophylaxis is NOT recommended for cases of tick bites that do not show clinical manifestations.**

### Control

**Prevention:**
- In tick-infested areas, make sure to wear clothing that covers any exposed areas.
- Spray tick-repellant (DEET) onto skin; reapply often.
- Inspect yourself for ticks after possible exposure, giving special attention to head, neck, behind the ears, belt line, and axillae.

**Patients with Lyme Disease should not donate blood.**

http://www.infectiousdisease.dhh.louisiana.gov

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