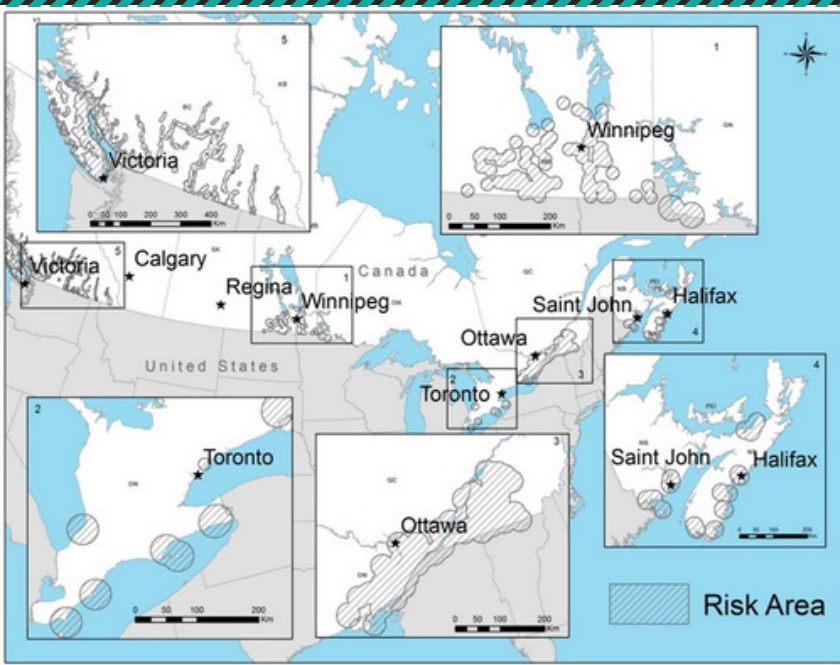


LYME DISEASE

an overview for rural physicians

updated: July 2018



EPIDEMIOLOGY

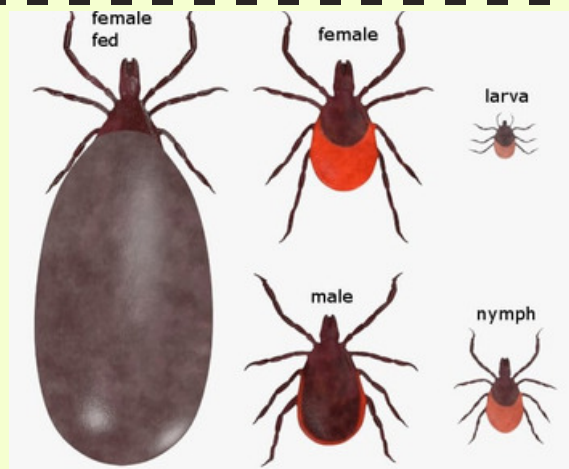
- Lyme diagnosis is tricky!
- Detection starts with identifying patients with potential for exposure in endemic regions (southern BC, MB, ON + NB & NS), Wisconsin & US Eastern Seaboard.
- Consider the endemic season of exposure (generally early spring - late fall.)
- If in doubt the CDC has maps to identify endemic regions.

www.canada.ca/en/public-health/services/publications/diseases-conditions/lyme-disease-canada-federal-framework.html

MICRO/PARASITOLOGY

- Lyme disease is caused by the spirochete: *Borrelia burgdorferi*.
- Vectored through ticks of the genus *Ixodes*, (various species) aka Deer ticks
- *Ixodes* ticks have ~2 year life cycles and become carriers generally after biting mice. They are much smaller than non-vector Dog Ticks.
- **Only 25-30%** of North Americans will recall a tick-bite.
- **Ticks must be attached \geq 36-72hr** in order to transmit Lyme.

Medscape Tick-Borne Illness: reference.medscape.com/slideshow/tick-borne-illnesses-6006369#1



PRESENTATION

Stage 1 (1-30/7)

- Erythema migrans occurs in $\frac{2}{3}$ of patients, but only $\frac{1}{2}$ of these will develop the "pathognomic rash" (target) pictured. Usually in the first 7 days but up to 30 days.
- Rash can appear anywhere but usually close to the tick bite site.
- 80% of patients will only develop a single lesion where as 20% will develop multiple lesions (from a single bite.)
- Fever/Chills/myalgias within the first week occur in 50%
- $\frac{1}{3}$ of patients with Stage 1 will not progress to Stage 2 or 3.

Stage 2 (3-10/52)

- Early disseminated Lyme disease usually develops 3-10 weeks after inoculation
- Systemic manifestations: fever, malaise. One or more organ systems become involved. MSK and neuro are most common.
- Migratory polyarticular Sx (bursae, tendons, joints) evolve over 1-2 days into a monoarticular process involving the knee, ankle, or wrist. Neurologic symptoms are reported in 5-20% of cases. Cranial neuropathy is most common. Others include meningitis and encephalopathy. Less common: dizziness, syncope, dyspnea, chest pain, and palpitations. Ocular manifestations: diplopia secondary to a cranial neuropathy or Bell palsy.

Stage 3 (months to years)

- Primarily rheumatologic and neurologic.

DIAGNOSTICS

- In endemic areas, patients with probable erythema migrans and recent tick exposure should be started on Abx **without blood tests**. In the first few weeks the probability of Lyme disease is high and sensitivity of serologic tests is low.
- If the lesion is indeed erythema migrans, improvement should occur within a few days after initiation of empiric antibiotics, along with resolution of any constitutional symptoms.

- In contrast, laboratory tests are important for establishing the diagnosis in the many patients with suspected Lyme disease who do not recall a tick bite and did not notice or do not have erythema migrans. However, much confusion can occur in the interpretation of the tests used for Lyme disease. Confer with ID?

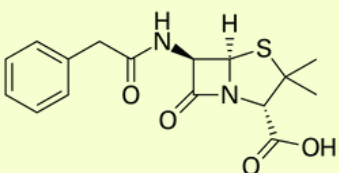
- Tick bite only, in **non-endemic** region: prophylaxis or wait & observe
- Tick bite only, **endemic** region < 36 hours: prophylaxis or wait & observe
- Tick bite only, **endemic** region \geq 36 hours attached: prophylaxis.

PROPHYLACTIC DOSES: Adults: **doxycycline** 100mg x 1 dose.

Children: - **amoxicillin** 50mg/kg/day \div q8h x 2/52 or

- **doxycycline** 2.2mg/kg (max 100mg) bid x 5-7/7 (8 y/o +)

- Early Localized (erythema migrans, cranial n. palsy, meningitis): 14-21 days
- Early Disseminated (carditis, borrelial lymphocytoma): 14-21 days
- Early Disseminated (arthritis): 28 days
- Late (encephalitis, acrodermatitis chronica atrophicans): 14-28 days



TREATMENT



TREATMENT CHOICES:

- | | |
|---|-----------------------|
| doxycycline 100mg bid PO | ped: 4mg/kg bid |
| amoxicillin 500mg tid PO | ped: 50mg/kg tid |
| cefuroxime 500mg bid PO | ped: 30mg/kg bid |
| ceftriaxone 2g q8h IV daily | ped: 50-75mg/kg daily |
| cefotaxime 2g q8h IV | ped: 150-200mg/kg q8h |
| PenG 18-24 M units \div q4h IV | ped: 200-400K q8h |