

Tickborne Diseases Testing

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* Neurological symptoms – meningoradiculitis, meningitis, cranial nerve deficits

Tick bite
OR
Clinical signs and symptoms suspicious for tickborne disease

Presence in area endemic for Lyme disease

Yes

Erythema migrans
AND
tick exposure or bite

Yes

Treat for
Lyme
disease

No

SCREEN

- *Borrelia burgdorferi* Antibodies (Total by ELISA)
- OR
- *B. burgdorferi* C6 Peptide Antibodies (Total by ELISA)

If using reflex testing to western blot, must use appropriate reflex test (early vs late) depending on clinical symptom onset

PLUS consider testing for coinfection

Tickborne Disease Panel by PCR (screens for *Babesia microti*, *Anaplasma phagocytophilum*, and *Ehrlichia chaffeensis*)

Negative (all tests)

No further testing on initial specimen; test convalescent specimen if suspicion for tickborne disease exists

Positive for tickborne PCR

Treat based on test results

Positive or indeterminate for Lyme

<4 weeks after onset of disease

ORDER
B. burgdorferi IgG & IgM Antibodies by Western Blot

≥4 weeks after onset of disease

ORDER
B. burgdorferi IgG Antibody by Western Blot

IgG -
IgM +

Lyme disease or false-positive IgM

Follow-up with IgG western blot (within 30 days) recommended to help confirm Lyme disease and rule out false-positive IgM western blot

IgG +
IgM -

Lyme disease

IgG -
IgM -

Consider other possible causes of false-positive ELISA, such as:

- Syphilis
- Rheumatoid arthritis
- Acute mononucleosis
- HIV
- Subacute bacterial endocarditis
- Systemic lupus erythematosus
- Periodontitis

IgG -

IgG +

Lyme disease

If Lyme disease still suspected or patient is immunocompromised
ORDER
Borrelia Species by PCR

Positive

Lyme disease

Negative

Lyme disease highly unlikely; if high suspicion, consider referral to infectious disease specialist

Neurological symptoms present*

Chronic

ORDER

- Full meningitis workup (CSF studies)
- AND EITHER OF THE FOLLOWING
- *B. burgdorferi* IgG Antibody by Western Blot (CSF)
- *Borrelia* Species by PCR

Acute

ORDER

- Full meningitis workup (CSF studies)
- AND
- *B. burgdorferi* Antibodies (Total by ELISA for CSF)
- OR CONSIDER ONE OF THE FOLLOWING INSTEAD OF TOTAL ANTIBODIES TEST
- *B. burgdorferi* C6 Peptide Antibodies (Total by ELISA for CSF)
- *B. burgdorferi* IgG and IgM Antibodies by Western Blot (CSF)
- *Borrelia* Species by PCR

Positive *Borrelia* test

CNS Lyme disease suggested