Acute Tick-Borne Disease Testing Algorithm

Clinical suspicion of tick-borne disease based on patient characteristics:
- Illness during tick season: fever, chills, headache, muscle aches, joint pain, neck pain, skin rash, Bell's palsy, heart rhythm disturbances, hypotension, jaundice, sepsis.
- Known tick exposure.
- Environmental exposure (outdoor activities, wildlife).

Based on geographic exposure, consider the following tick-borne pathogens. (Choose all that are appropriate.)

At risk for Rocky Mountain Spotted Fever (states with the highest incidence include North Carolina, Oklahoma, Arkansas, Tennessee, Missouri, Arizona, and the tribal Southwest).

At risk for Lyme disease, ehrlichiosis/anaplasmosis/ babesiosis (endemic areas for anaplasmosis and babesiosis include Northeastern and Upper Midwest United States, while ehrlichiosis is most frequently reported from the SE and South-central US).

SFGP / Spotted Fever Group Antibody, IgG and IgM, Serum
*Consider empiric treatment while awaiting test results.

Classic erythema migrans (target lesion or bull's-eye rash)

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Perform LYME / Lyme Disease Serology, Serum (Enzyme-Linked Immunosorbent Assay) and if systemic symptoms are present (eg, fever, chills, sepsis) also perform TICKP / Tick-Borne Panel, Molecular Detection, PCR, Blood
*Consider empiric treatment for ehrlichiosis/ anaplasmosis while awaiting test results.
*Consider collecting baseline serology (TICKS / Tick-Borne Disease Antibodies Panel, Serum) if patient presents with >7 days of symptoms.

TICKP Results

LYME Results

POSITIVE OR EQUIVOCAL

Consider empiric treatment for ehrlichiosis/ anaplasmosis while awaiting test results.

If neurologic or joint symptoms, consider:
PBORR / Lyme Disease (Borrelia burgdorferi), Molecular Detection, PCR (for CSF, synovial fluid, or fresh tissue samples) OR 
CLYME / Lyme Disease Serology, Spinal Fluid

1 In place of the PCR panel, PCR tests and/or smear for Babesia species can be ordered individually.
2 If Western blot is positive for IgM and negative for IgG, this may reflect 1) acute Lyme disease, or 2) a false-positive IgM result. The IgM test should only be used to diagnose acute Lyme disease in patients with <4 weeks of symptoms. Typically, a follow-up serology is recommended to demonstrate seroconversion of IgG prior to confirming a case of Lyme disease.