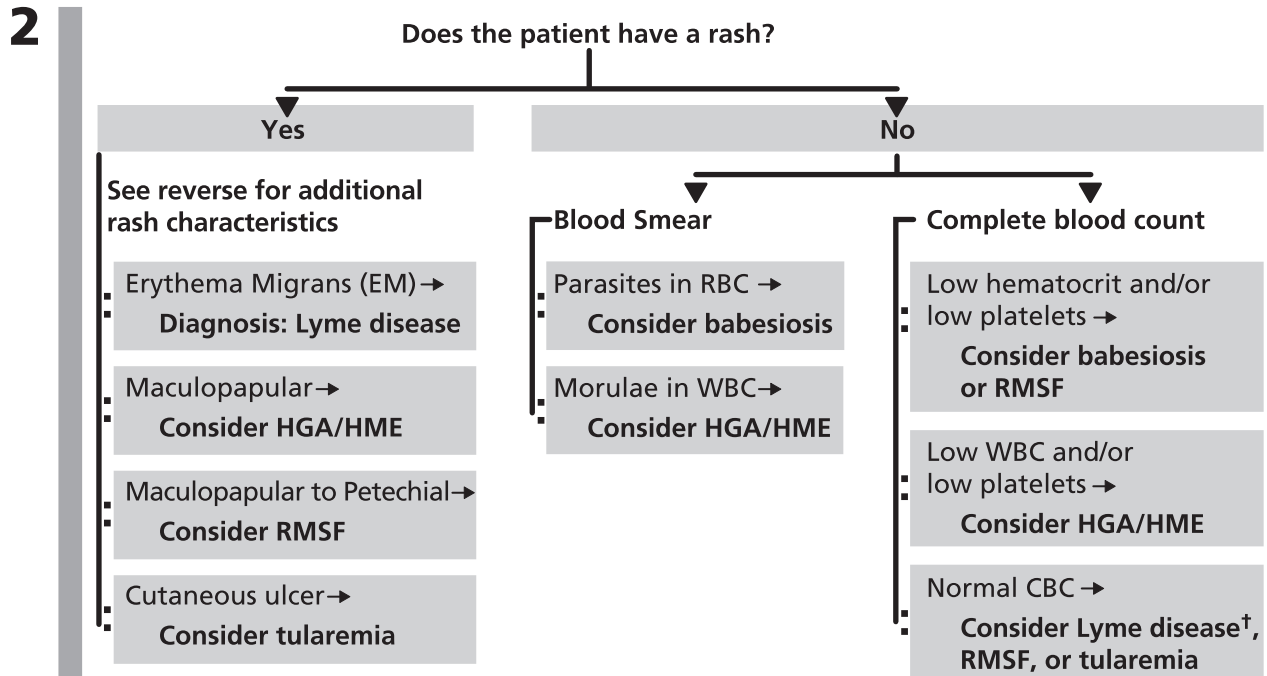


Diagnosing Tick-borne Disease

Evaluating patients for Tick-borne diseases including Lyme disease, babesiosis, human granulocytic anaplasmosis (HGA), human monocytic ehrlichiosis (HME), and Rocky Mountain spotted fever (RMSF).

* Formerly known as human granulocytic ehrlichiosis (HGE)

- 1** Patient resides, works, or recreates in an area likely to have ticks and is exhibiting **fever, headache, malaise, lymphadenopathy and/or rash**.
Remember to always ask about tick bites and exposures to tick habitats.



Note:

Patients with suspected acute tick-borne disease may require treatment prior to lab confirmation.

See reverse for information on further testing.

† Lyme disease may have low WBC

Other Considerations

- Rash occurs in approximately 60 – 80% of Lyme disease cases and 5-10% of HGA/HME cases.
- Elevated liver function tests (LFTs) can be seen in Lyme disease, HGA/HME, RMSF or tularemia.
- Co-infections with Lyme disease, babesiosis, and HGA/HME may occur. All of these diseases are transmitted by ticks.
- Bell’s palsy presentation can indicate Lyme disease infection.
- Maculopapular or petechial rash of wrists and/or ankles (early) or palms and/or soles (later) is characteristic of RMSF; if suspected, treat immediately.
- **Lyme disease, babesiosis, HGA/HME, RMSF and tularemia should all be reported to the local health department. Tularemia should be reported immediately by phone.**



Rash Characteristics of Tick-borne Diseases

Lyme Disease (Erythema Migrans)	<ul style="list-style-type: none">• Rapidly expanding• Majority are homogeneous in color• Central clearing or central erythema in minority of cases• Central punctum may be present; occasional ulceration• Pruritis, pain, warmth variably present
Babesiosis	<ul style="list-style-type: none">• Petechiae, ecchymosis
HGA / HME	<ul style="list-style-type: none">• Rash rare in HGA/HME, typically maculopapular when present
RMSF	<ul style="list-style-type: none">• Maculopapular rash develops first on wrists, ankles, palms, soles; seen in 80- 90% of cases• Petechial rash can be a later development in 40-60% of cases
Tularemia (ulceroglandular)	<ul style="list-style-type: none">• Cutaneous ulcer at site of inoculation• Local or regional lymphadenopathy typical

Testing for Tick-borne Diseases

ELISA= Enzyme-linked immunosorbent assay;
IFA= indirect fluorescent assay;
PCR= polymerase chain reaction

Lyme Disease	<ul style="list-style-type: none">• EM rash is diagnostic. No confirmatory testing required.• Available testing includes ELISA (C6 Lyme peptide or standard) or IFA. If positive or equivocal, Western blot testing should be performed for confirmation.• Testing may be negative during first 4-6 weeks of infection*
Babesiosis	<ul style="list-style-type: none">• CBC may show anemia and/or thrombocytopenia• Blood smear may show intraerythrocytic parasites• Serology*• PCR
HGA / HME	<ul style="list-style-type: none">• CBC may show leukopenia and/or thrombocytopenia• Blood smear may show WBC morulae• Serology*• PCR• Immunoblot
RMSF	<ul style="list-style-type: none">• CBC may show thrombocytopenia and/or anemia• Serology*• PCR
Tularemia	<ul style="list-style-type: none">• Serology*• IFA

* Serologic testing during the acute presentation of these diseases may be negative. Convalescent serologic testing (4-6 weeks after onset) may be required to confirm diagnosis. Antimicrobial treatment may be required prior to laboratory confirmation of diagnosis.