HospitalMD®
EMERGENCY | HOSPITALIST | HYBRID

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insight™

CLINICAL EDITION FOR COMMUNITY HOSPITALS

RECOGNIZING TICK-BORNE ILLNESSES

Consider tick-borne illness in the differential for patients presenting with flu-like symptoms in the warmer months.

The warm summer months present opportunities for many environmentally related illnesses. Diagnoses such as envenomation, trauma and heat related illnesses may be fairly easy to identify; however, tick borne illnesses may be a bit more difficult to catch. Don't forget to consider diseases such as Lyme Disease, Ehrlichiosis and Rocky Mountain Spotted Fever in patients with suspicious symptoms as these are the more common tick-borne illnesses in the United States. Lyme Disease is the most common and this issue will focus on identification and treatment of this disease.

Lyme Disease: Lyme disease is a spirochetal infection that requires tick attachment to a host. This disease is rarely transmitted from ticks attached less than 48 hours. Ticks will detach after becoming engorged with blood; therefore, if a patient finds an engorged tick on or near their body the likelihood of infection can be higher.

History: When taking a history, be sure to ask about any recent activities that might expose a patient to ticks. Things such as hiking, hunting, gardening, horseback riding and camping are among the potential indicators. Also consider these diagnoses

From the Editor

Welcome to this installment of HospitalMD **insight™–Clinical Edition**! This publication is aimed to inspire and equip you to advance clinical excellence in your community hospital. I would love to hear your feedback, comments, suggestions and accolades. Please email me with any thoughts at: BNewberry@HospitalMD.com.

BRITTANY NEWBERRY, PhD, MSN, MPH, APRN, FNP-BC, ENP-BC
Board Certified Family and Emergency Nurse Practitioner,
Vice President Education and Provider Development, HospitalMD

in people who work in outdoor jobs such as forestry workers, linemen and seasonal guides. Certainly, if your patient has or had an attached tick, Lyme Disease should be considered.

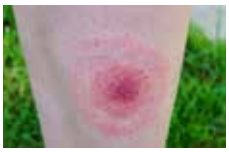
Tick Removal: Patients will sometimes present to the ED to have ticks properly removed. The most effective method of removal is with tweezers or forceps.

- **Grab the tick as close to the skin as possible.**
- **Pull straight out without twisting or jerking.**
- **Be careful not to squeeze, crush or puncture the body of the tick.**
- **Cleanse the area.**
- **If any tick remnants are left, they will generally be expelled on their own.**
- **The patient should observe the area for 30 days for any signs of infection.**
- **Removal of the tick prior to 48 hours of attachment prevents infection with Lyme Disease.**

Prophylactic Treatment: A single dose of prophylactic doxycycline (200mg for adults and 4.4 mg/kg up to 200 mg for children) is recommended if the patient meets **ALL** of the following criteria:

- **The attached tick is an adult.**
- **The tick is estimated to have been attached for > 36 hours.**
- **Prophylaxis is given within 72 hours of tick removal.**
- **Local rates of infection with B. burgdorferi is > 20%.**
- **Doxycycline is not contraindicated.**
  - **If Doxycycline is contraindicated, prophylaxis with another antibiotic is NOT recommended.**

At the time of the tick bite, serologic testing is **NOT** helpful and should not be performed. Serologic testing may be useful in patients who have been treated for Lyme Disease in the past so that a baseline serologic level can be established. A detailed description of serologic testing for Lyme Disease can be found on UpToDate HERE.



For patients who present with signs and symptoms of Lyme Disease (such as fever, fatigue, malaise, rash, headache, neck stiffness), the patient will fit into one of the three stages of Lyme Disease below. Keep in mind that approximately 30-50% of patients with Lyme disease will present with symptoms that do not include erythema migrans.

- Early localized disease is characterized by the appearance of the characteristic skin lesion, erythema migrans, with or without constitutional symptoms such as fever, lymphadenopathy, fatigue, malaise, lethargy, headache, neck stiffness, myalgias, and arthralgias. This will generally appear within one month following the tick bite.

- Early disseminated disease is characterized by multiple erythema migrans lesions (that typically occur days to weeks after infection) and/or neurologic and/or cardiac findings (that typically occur weeks to months after infection). The patient may or may not have a history of early localized Lyme disease.

- Late Lyme disease is typically associated with intermittent or persistent arthritis involving one or a few large joints, especially the knee. Late Lyme disease may develop months to a few years after the initial infection. Arthritis may be the presenting manifestation of the disease.

TREATMENT FOR LYME DISEASE:

- **Oral doxycycline, amoxicillin and cefuroxime have equivalent efficacy for the treatment of early Lyme disease and are recommended for patients with erythema migrans. Doxycycline is often used because it is effective in treating some of the potential coinfecting agents, including *Anaplasma phagocytophilum* and *Borrelia miyamotoi*. First generation cephalosporins are NOT effective and should be avoided.**

- **Treatment is generally well tolerated. However, up to 15 percent of patients with early Lyme disease, particularly those with multiple erythema migrans lesions, experience a transient worsening of symptoms during the first 24 hours of therapy, consistent with a Jarisch-Herxheimer reaction. This is due to the host immune response to antigens released by dying organisms. This treatment reaction is not unique to Lyme Disease.**

- **Late disease is also generally treated with Doxycycline (either inpatient or outpatient depending on symptom severity). However, additional treatments may be necessary if the patient experiences musculoskeletal, cardiac or neurologic symptoms. A complete discussion of treatment for all stages of Lyme Disease can be found on UpToDate HERE.**

For information on other tick-borne illnesses, check UpToDate:

Rocky Mountain Spotted Fever
Ehrlichiosis
Babesiosis

HospitalMD *CASE STUDY*

These case studies are based on actual cases that **HospitalMD** providers have seen. However, details about the case, patient and outcomes have been modified in order to protect patient privacy.

The Case: A 73-year-old male presented to the ED for a shortness of breath episode earlier in the day. He had been outside doing yard work, walked up a hill and became short of breath. He made it back to the house and sat down where he remained short of breath for approximately 20 minutes and then felt fully recovered. Later that evening, his wife learned about the incident and insisted that he go to the ED to be checked out. He had not experienced any additional symptoms since the incident.

VS: HR – 72, BP – 136/86, RR – 24, T – 98.6 F, POx – 97% on RA

Workup: On exam, the patient had no signs of abnormalities or illness and was functioning at baseline. His wife just insisted that he be "checked out".

Labs: CBC/CMP/UA/CPK/ECG/Troponin were all returned WNL. The patient's D-Dimer was 736. The age-adjusted D-Dimer cut off is 730 per MDCalc.

Imaging: Based on the slightly elevated D-Dimer and the patient history, a CTA was performed which showed a moderate clot burden in the left lung vasulature.

Treatment: The patient was given lovenox in the ED.

Disposition: The patient was admitted for PE treatment.

The Outcome: The patient did well and was discharged home after being started on coumadin with the INR in therapeutic range. The patient was set up for close follow-up and monitoring for monitoring and treatment adjustments.

Take Aways:

- Don't automatically assume that normal vital signs rules out a PE.
- Perform and document a Well's score to help you risk stratify your patient for a PE.
- Even a slight elevation in the D-Dimer for a symptomatic patient may prompt indication for a CTA.
- Screen patients for bleeding risk prior to beginning any anti-coagulation therapy and document.
- Begin anti-coagulant treatment in the ED prior to admission if possible (and in consultation with the hospitalist or the receiving facility if the patient requires transfer).
- Consider that patients with an acute PE may be at higher risk for stroke.
- Consider transfer to a higher level of care for PE patients that present as or become unstable. Patients may require high level ICU care and/or vascular surgery options.
- Stay alert as PE patients have the potential to become acutely unstable.

Customer Service Tips:

- Be sure to explain the diagnosis and the process to the patient and family. Treatment for a PE can take months, and this is a scary diagnosis for the patient. Take time to discuss what is going on with them in a way that they can understand and let them know that this diagnosis requires long term treatment and frequent follow-up.
- Take time to discuss the risks and benefits of treatment with the patient so that they understand their choices.
- Be sure to tell the patient and family to alert hospital staff for any changes in condition so that any potential deterioration can be caught early.

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- In the upper right hand corner you will see a link for "CME". Click on this link.
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- Click on "50 Credits".
- Place a checkbox next to the credits you would like to redeem and click "Continue" at the bottom.
- Answer the appropriate questions.
- Click "Next".
- Answer the additional questions.
- Click "Save".
- Click "Download" next to your certificate to view and/or save.

DOCUMENTATION *Reminders*

HPI

Strive to always include **FOUR HPI** elements in your charts.

ROS

Document the necessary elements in the ROS and then write or check "**ALL OTHER SYSTEMS REVIEWED AND ARE NEGATIVE**". This statement must be present, and the wording MUST BE PRECISE in order to be considered acceptable by the billing company.

Exam

You must have **EIGHT** exam elements present for a higher level chart.

ECG/Radiology interpretation

If you have ordered either of these, the statement "interpreted by me" must be present in the chart. **An ECG must have 3 elements and an interpretation documented and a radiology result must have an interpretation documented**.

Critical Care Time

If your patient qualifies for critical care, BE SURE to document this on the chart.

Procedures

Be sure to include all pertinent details regarding procedures so that any more complex procedures (ie intermediate vs simple suture repair) can be billed at the rate that matches the true complexity of the procedure.

SPLINTS

Routinely document when a splint is applied to include:

- What type of splint was applied.
- Who applied splints (document by me, by nurse, by ortho tech, by ED tech, etc.).
- Include post splint assessment note indicating that the splint placement was checked and that the patient is neurovascularly intact distal to the splint.

Note: Most splints are separately billable unless there is a reduction and would be included in the procedure. Medicare, however, requires the physician/mid-level personally apply the splint in order to code and bill separately.

Events and Clinical Resources

ANNUAL HEALTHSTREAM EDUCATION DEADLINE HAS PASSED!

Have you completed your HealthStream annual education? This education was due on April 30th. If you have not completed this, please get this done ASAP. It is very important that we have documentation of annual training on compliance topics such as EMTALA, restraint use and corporate compliance.

GET ACEP NOW

ACEP Now is a great publication that works to keep all of us working in Emergency Medicine up to date on clinical and political topics. Go to this link to look at the latest issue and subscribe!

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ACEP Calendar of Emergency Medicine Conferences

Calendar of Hospital Medicine Conferences

AAENP Conference Events

ONLINE EDUCATION

Emergency Medicine Boot Camp

Hospital Medicine Boot Camp

PROCEDURE TRAINING

Global Training Institute

Emergency Procedures Course

CERTIFICATION REVIEWS

Fitzgerald ENP Certification Review

Rosh ENP Certification Review

JOURNALS AND PROFESSIONAL ORGANIZATIONS

FREE! Emergency Medicine News

FREE! ACEP Now

Emergency Medicine Practice

Advanced Emergency Nursing Journal

Annals of Emergency Medicine

Journal of Hospital Medicine

Society of Hospital Medicine

American College of Emergency Physicians

American Academy of Nurse Practitioners

American Academy of Emergency Nurse Practitioners

American Academy of Physician Assistants

PODCASTS

EM: Rap

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EMplify

Hospital and Internal Medicine Podcast

The Hospitalist Podcast

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