



EM CASES SUMMARY

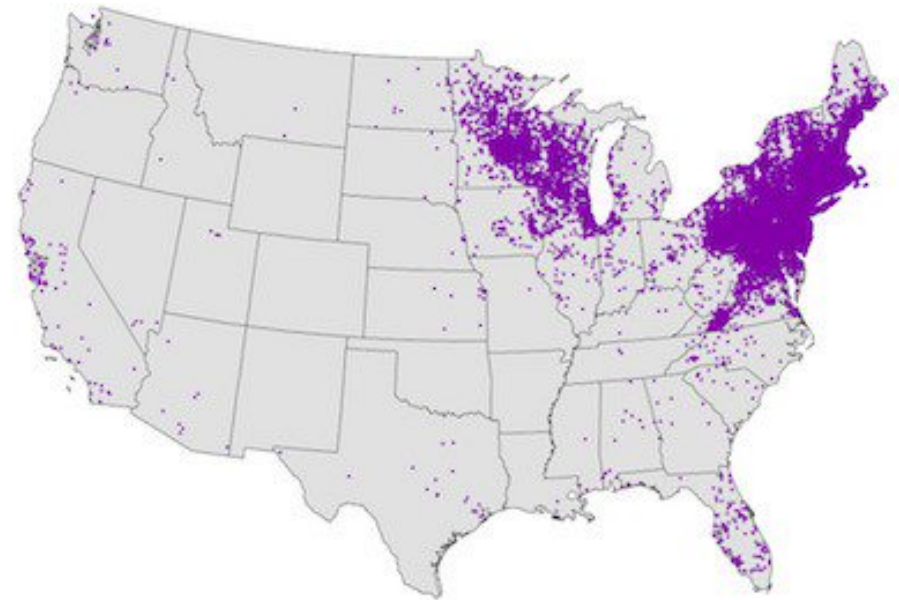
Episode 99 – Highlights from EMU 2017

With Leeor Sommer, Chris Hicks, Matt Poyner & Walter Himmel

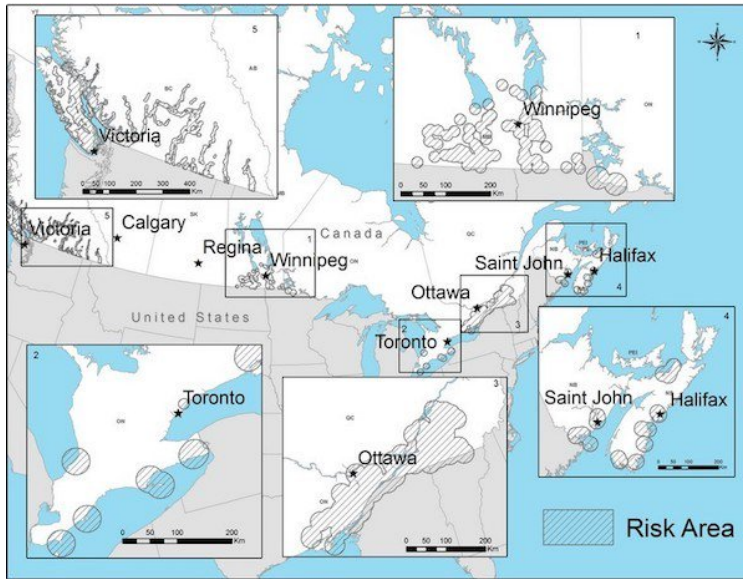
Prepared by Dr. Alexander Hart, August 2017

Lyme disease

Lyme is spreading around North America and Europe and should now be considered endemic in many areas. The incidence is rising and might be much higher than is reported. Early diagnosis is key to preventing disseminated Lyme disease and treatment of acute Lyme disease is very effective.



Distribution of Lyme Disease U.S.



Black legged Ixodes tick (care of Wikipedia)

Borelia burgdoferi is spread via the black legged *Ixodes tick*. *Ixodes* in its nymph form can also spread disease and at 1mm in size, can go undetected much more easily.

The Lyme disease presentation

Lyme disease has several presentations which can grossly be divided between *acute* Lyme disease and *disseminated* Lyme disease.

Acute Lyme Disease Presentation

About 3/4 of patients with acute lyme disease present with rash, fever, flu-like illness in the spring or summer months. Think of acute Lyme disease when a patient presents with a flu-like illness in summer.

The Rash of acute Lyme disease is most often the classic *Erythema Migrans* bull's eye type, but can also be an erythematous patch with a central scab or simply one or more erythematous patches with blurred margins.



Erythema Migrans "Bull's eye" rash of acute lyme disease



Erythematous patch with central scab consistent with acute Lyme disease

Disseminated Lyme Disease Presentation

A much more serious and refractory illness
Think of disseminated Lyme in the setting of:

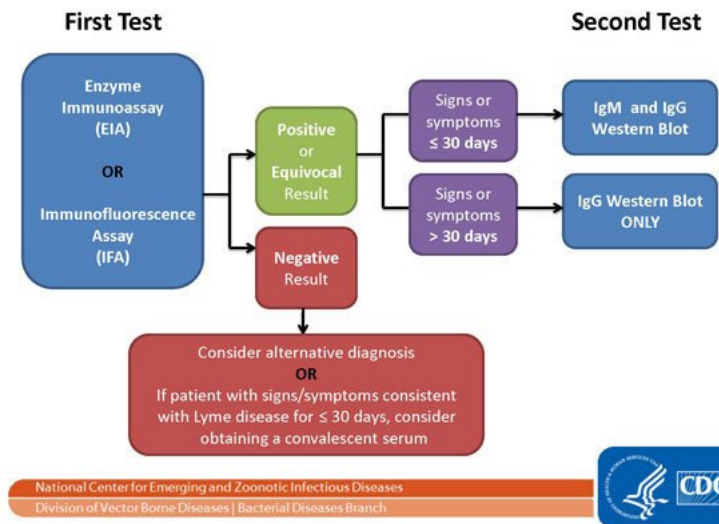
- Bilateral 7th nerve palsy (this is almost pathognomonic)
- Aseptic meningitis in summer
- Heart block, including really long (>300ms) 1st degree HB (Lyme carditis)
- Acute mono-arthritis with large effusions of large joints.

Clinical Pearl: If a patient suspected of Lyme disease has a 1st degree heart block on ECG, consider admission as many of these patient will go on to develop 3rd degree heart block.

Lyme Disease Diagnosis

Remember that testing for *Borelia* early in the acute disease state will be negative. *Borelia* is a slow growing bacterium and does not trigger the IgM/IgG response the assay requires until much later. **To prevent disseminated Lyme, treat on spec and assure follow-up testing in 2 weeks**

Two-Tiered Testing for Lyme Disease



CDC suggested testing algorithm for suspected Lyme Disease [caption]
In the case of disseminated Lyme, tests should be positive.

There is no test of cure. Once positive, patients are often positive for life. This is particularly challenging when dealing with post-treatment Lyme syndrome which can leave patients feeling sick for months to years after infection clearance.

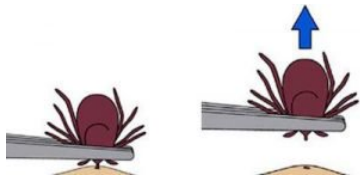
Treatment of Lyme disease

Acute Lyme

Doxycycline is first line (10 days up to 3 weeks).
Amoxicillin or cefuroxime in patients 8 years or younger.
If allergic, macrolides (more frequent treatment failures).
Amoxicillin-clavulanic acid if the differential between cellulitis and erythema migrans is unclear (treats both).

Disseminated Lyme

IV ceftriaxone or Penicillin G.
Doxycycline is first line in Lyme arthritis but may require 2-3rd line agents.



Asymptomatic Tick Bite

Grab the tick by the head with surgical forceps. Take out as much as possible.

If the tick is present for <24hrs, the risk of developing Lyme is extremely low.

If the tick has been present >24hrs or unknown:
Prophylaxis options include

- Watchful waiting
- Treat with single dose 200mg Doxycycline
- Treat with full course 14 days Doxycycline or 10 days Amoxicillin in <8y/o

NNT to prevent erythema migrans: 50

NNT to prevent disseminated Lyme: 160

NNT if tick is engorged with blood: 11

An Approach to Signover

Transition of care is a high-risk event. Signover behavior is a more complicated set of acts than many of us give credit. Here are some tips to improve signover etiquette and to ensure the transfer of information is effective.

Find a "Sterile Cockpit": Retreat to a less chaotic area. Minimize interruptions. Dedicate these few minutes to signover only.

Involve the entire team: This includes a charge/lead nurse and all the trainees.

Start with most important data: Talk about sickest patients first.

The 3 A's:

- Administrative issues (this is what's outstanding),
- Anticipate (best guess on results of tests and disposition),
- Action Items ("this is what you need to do...")

Close the loop: Start back with the critical data.

Ensure a **post signover review** is completed in the chart and that the patient is informed of the plan when possible.

Patient Complaints and How to Avoid Them

Complaint themes

- Attitude of physician – condescending/negative attitude
- Communication issues – not providing basic explanations, orienting to ED processes
- Access to care – not getting what they feel entitled to
- Quality of care – bad things happened, it's the doctor's fault

What patients want

- Explanations and acknowledgement of their suffering
- Assurance that something will change so it won't happen again

Common **pitfalls** when responding to patient complaints

- Poor preparation/factual errors
- Failure to acknowledge the suffering of the patient
- Defensive rather than reflective tone
- No assurance that effort will be made to improve

Pearls on how to respond to patient complaints (PAIN Acronym)

PREPARE – study the chart, respond within a week if possible

APOLOGISE – there is always something to apologize for, whether it be for their suffering, that expectations were not met, or especially if an error was made. Apologizing is not admitting responsibility, it is showing empathy and a willingness to find a resolution.

INFORM – explain what you did and why you did it; tell them you care about doing a good job.

NEXT STEPS – give assurance that something will be done to improve: extra reading, reviewing the case within your group, M&M rounds.

Acute Vestibular Syndrome Pitfalls & Fallacies

Vertigo has been discussed EM Cases before - [Episode 6](#) (Walter Himmel & Dan Selchen) and [Episode 45](#) (Stuart Swadron), but here are some important highlights that will help you in the diagnosis and disposition of acute vestibular syndromes.

Acute vestibular syndrome is defined as continuous vertigo (ie. hours) with nausea, vomiting, movement intolerance and nystagmus. The challenge is to distinguish between the benign peripheral etiology of vestibular neuritis and the serious central etiology of stroke.

Timing is everything. A truly abrupt onset is more likely a stroke or TIA than vestibular neuritis. BPPV presents differently to acute vestibular syndromes, with only one minute of vertigo always triggered by movement, never coming on at rest, with relatively asymptomatic periods in between the episodes of vertigo. All vertigo, no matter what the cause is worsened by movement. The big pitfall is to diagnose BPPV just because the vertigo is worse with movement or when you do a Dix-Hallpike maneuver. BPPV *only* occurs with movement. If a patient describes a history of lying perfectly still and suddenly gets vertigo, that's not BPPV.

Fallacies of Vertigo

#1: Patients with central vertigo must have at least one of the 5 Ds (Dizziness, Diplopia, Dysarthria, Dysphagia and Dysmetria) or long tract signs.

Stroke may present as isolated vertigo with only minor gait disturbance without any of the 5 Ds or long tract signs.

#2: Unidirectional nystagmus is always a sign of peripheral vertigo.

While unidirectional nystagmus *usually* points to a peripheral cause, it *can* occur with central causes of vertigo. Unidirectional nystagmus does not, on its own, rule in a peripheral cause. If nystagmus is definitely multidirectional, or purely vertical with no rotatory component the cause is almost certainly central. The [HINTS exam](#) can help differentiate a peripheral vs. central cause of acute vestibular syndrome, although this is not perfect

#3: Perform a Dix Hallpike test on every vertigo patient.

- This test is only useful for patients with truly paroxysmal, positional vertigo
- Only perform this on those patients who have a good story for BPPV
- POSITIVE test if 1) onset of vertigo + 2) vertical rotatory nystagmus
- All vertiginous disorders will worsen with movement, regardless of the cause

#4: Young patients do not have strokes.

While strokes are certainly less common in patients <50 years of age, about 1/4 of strokes are caused by vertebral artery dissections in young patients.

High Risk Scenarios in Acute Vestibular Syndrome

*Be cautious of the patient with vertigo **plus pain**.*

- Headache – consider plain head CT to rule out a cerebellar hemorrhage
- Neck pain – consider CT angiogram or MR angiogram of the head and neck to rule out vertebral artery dissection (note that not everyone with vertigo needs an angiogram. Angiograms still need to be done selectively based on all the pearls and misconceptions that we've just reviewed here)
- 50% of vertebral artery dissections are painless

Discharge diagnosis: vertigo NYD.

- Vertigo is a symptom, not a diagnosis
- If you can't describe a specific diagnosis, the patient should probably not go home

Can't ambulate, can't discharge.

- This rule is true for nearly all emergency department dispositions
- If this is the case, you will certainly need imaging as well as a discussion with your consultants

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