Atypical Presentation of Anaplasmosis

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Introduction

Anaplasmosis is a tick borne illness transmitted from the black legged tick (*Ixodes scapularis*). Vermont, Maine, Rhode Island, Minnesota, Massachusetts, Wisconsin, New Hampshire, and New York account for 90% of the cases of anaplasmosis despite the black legged tick distribution which transverses the entire east coast to the Midwest of the United States. The number of cases have increased from 1.4 cases/1,000,000 in 2000 to 6.1 cases/1,000,000 in 2016

Case Description

History of Present Illness:

Patient is a 90 year old female with past medical history including HTN and new diagnosis of hypothyroidism presenting to MMC after falling the morning of admission with a new complaint of right sided weakness. The patient reports she awoke at ~0730 at which time she stood quickly to use the restroom and fell. She says that her right leg felt weak and she was having difficulty moving it properly. The patient's family reports for the past x2 weeks prior to admission she had been feeling generalized fatigue, shaking, and has been sleeping more than usual. The previous week, she went to her PCP who drew labs and made no changes to her medications. She continued to shake and have fatigue, and she went to an OSH who drew labs and started her on levothyroxine 12.5 mcg daily for new diagnosis of hypothyroidism. The patient continued to feel weak on the right side and had generalized fatigue, new SOB, and had a new complaint of right rib pain with deep breaths which had occurred after her fall, but she denied any fevers/chills, cough, hemoptysis, LE edema/pain, abdominal pain, changes in vision, chest pain, N/V, D/C, dysuria, changes in urination, changes in BM.

The patient had been very functional at home. She lived alone and performs all ADLs/IDLs without assistance, but she has been noticing a feeling of "lightheadedness" when she stands quickly. She believed if she was to get up slowly, this feeling would not occur. She denied any previous falls. Her daughters reported she does not eat/drink much.

PMH: HTN, hypothyroidism

SH: No smoking, alcohol, or illicit drug use.

Medications: Amlodipine, metoprolol succinate, levothyroxine

Allergies: contrast dye, compazine, lodine

PHYSICAL EXAM

BP 136/50 mmHg | Pulse 97 | Temp(Src) 37.6 °C (99.6 °F) (Oral) | Resp 18 | SpO2 93%

General: Awake, alert, oriented. No distress. Well-appearing.

Neck: Full painless ROM. No lymphadenopathy, masses or thyromegaly.

Cardiovascular: Regular rhythm, normal rate. No murmurs, clicks, or rubs. 2+ pulses. No JVD.

Chest: No accessory muscle use. Clear to auscultation bilaterally with moderate air flow. Not TTP along rib which she complains of pain

Abdomen: **+distended**. Normoactive bowel sounds. Soft, non-tender.

Extremities: Full painless ROM. No joint swelling or erythema. **+Right LE atrophy**

Skin: No rashes or lesions.

Neurological Exam:

Speech and language: No dysarthria. Intact fluency and comprehension to general conversation..

Cranial nerves:

Cranial nerves 2-12 intact

Motor: No pronator drift. LUE: 5/5 proximally and 5/5 distally; LLE: 5/5 proximally and 5/5 distally. **RUE: 4+/5 proximally and 4+/5 distally; RLE: 3/5 proximally and 4+/5 distally.**

DTRs: 2+ and symmetric throughout. Sensory: Sensation is intact to light touch bilaterally

Coordination: Intact finger-to-nose and fine finger movements bilaterally.

Laboratory Findings

Labs 1 week prior:

	11.1	
5.0		96
	32.4	

137	103	19
4.2	24	1.0

114

AST: 29
ALT: 35
Alk Phos: 67
Albumin: 3.2
Bili: 0.7
Ca: 9.3

MCV: 87.6
Iron: 60 (n = 45-160)
Binding capacity: 264 (n = 205-385)
Percent saturation: 23% (n = 20-55%)
Ferritin: 537.8 (n = 30-400)

Admission Labs:

	9.0	
7.4		104
	26.8	

133	101	18
3.4	20	0.7

93

AST: 42
ALT: 21
Alk Phos: 94
Albumin: 2.5
Bili: 0.7
Ca: 7.9

MCV: 85.6
Parasites: Anaplasmasa

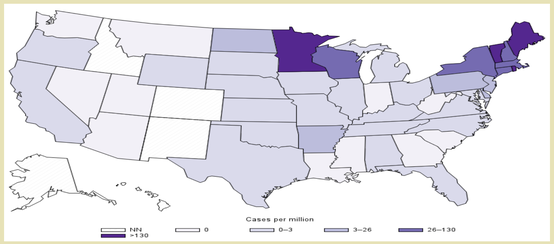

Figure 2: Annual reported incidence (per million population) for anaplasmosis-United States, 2016

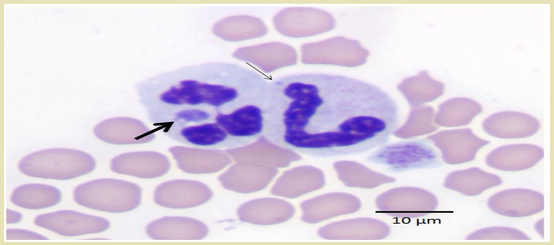

Figure 3: *Anaplasmosa pagocytophilum* is an obligate intracellular bacterium that is typically transmitted to humans by the *Ixodes ricinus* species

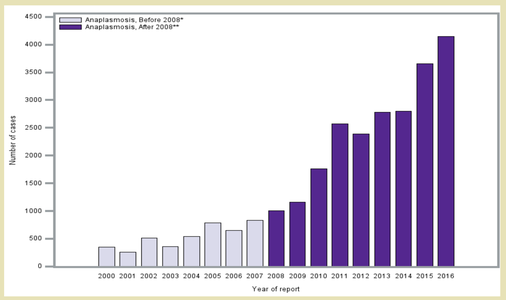

Figure 1: Number of U.S. anaplasmosis cases reported to CDC, 2000–2016

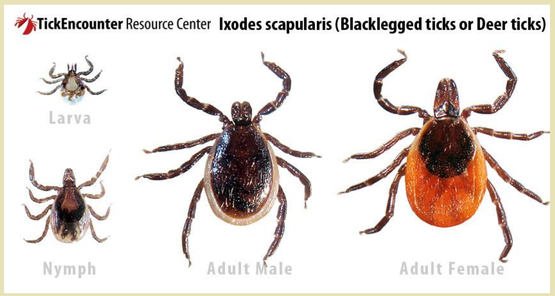

Figure 4: *Black legged Tick, formerly known as "deer tick," Ixodes scapularis*

Hospital Course and Treatment

- Admitted to internal medicine service for concern for stroke given acute focal right sided weakness
- MR brain demonstrated chronic small vessel disease with no signs of acute process or previous infarction
- After further discussion with the patient, she admitted to being outdoors frequently while at camp two weeks prior to initial presentation
- CBC demonstrated anemia and thrombocytopenia
- CMP demonstrated elevated AST (normal 20-30 for females)
- Anaplasma identified on smear
- Anaplasma PCR positive
- Lyme and babesia testing negative
- Discharged to skilled nursing facility for rehabilitation
- Completed 10 day course of antibiotics
- Followed by geriatric clinic with improvement of generalized weakness with upper and lower extremity weakness with completion of antibiotics, though the patient reported never returning back to baseline

Discussion

Typical presentation of anaplasmosis:

Early Illness

The following is a list of signs and symptoms commonly seen in the first few days of illness (days 1-5):

•Fever, chills, rigors
•Severe headache
•Malaise
•Myalgia
•Gastrointestinal symptoms (nausea, vomiting, diarrhea, anorexia) in about 20% of cases

Rarely reported

Nervous system involvement (e.g., meningoencephalitis, focal paralysis, etc.)

Late Illness

If treatment is delayed and anaplasmosis is allowed to continue, disease may become severe. Severe illness is rare, but may involve:

•Renal or respiratory failure
•Peripheral neuropathies
•Disseminated intravascular coagulation (DIC)-like coagulopathies
•Rhabdomyolysis
•Hemorrhage

Clinical Manifestations and discussion:

Although the patient did demonstrate typical laboratory findings with anemia and thrombocytopenia, she lacked any of the typical early symptomology of fevers, chills, myalgias, or gastrointestinal symptoms. She presented with malaise and focal weakness of both the right upper and lower extremity with no neurological imaging that correlated with these findings to suggest acute cerebral vascular accident or recrudescence of previous insult. It is rare to have neurological involvement with anaplasmosis, but in these cases, focal neurological deficits have been reported. The patient's right upper and lower extremity findings did improve with treatment and resolution of the infection making this a likely etiology for her findings at presentation, although her ongoing lower extremity atrophy is not explained by the timeline of this case.

It is important for health care providers to be suspicious of atypical presentations of typical pathologies. With the rise in tick borne infections and co-infections, a high clinical suspicion in endemic regions is necessary to prevent missed opportunities for early treatment as late illness complications can be severe.

References

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