



ACES



ASSESSMENT OF CORE-CONTENT EDUCATION SERIES

CHAPTER 129
CHAPTER 132

RABIES
TICK-BORNE
ILLNESSES



29 JANUARY 2014



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1. Which of the following is true?

- A. Worldwide, dogs are the most commonly rabies-infected animals.
- B. Despite similarities to dogs, foxes rarely carry rabies.
- C. Skunks are the most common source of rabies in the US.
- D. Due to efforts by the WHO, deaths from rabies have dropped to less than 5000 cases/year.
- E. Rabbits and other langomorphs almost never carry rabies because they are herbivores.



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2. Regarding clinical rabies:

- A. There are three distinct stages: prodrome, acute neurological illness, death.
- B. The incubation period is typically < 72 hours.
- C. Hydrophobia is largely mythical and is almost never seen.
- D. One-quarter of patients with clinically-evident rabies will survive, although with neurologic sequelae.
- E. The duration of the incubation period depends on the severity of the bite.



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3. Post-exposure rabies prophylaxis

- A. Includes gentle wound irrigation with saline only, so as not to irritate tissues and increase the risk of viremia.
- B. Should include immunoprophylaxis for a pt who awakens to find a bat in her tent, even without a known bite.
- C. Should include human rabies immunoglobulin (HRIG) applied topically to the wound.
- D. Involves the same regimen worldwide regardless of the type of exposure or country of origin.



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4. Which of the following is not commonly seen with encephalitic, or “furious” rabies?
- A. Hydrophobia – the fear of being in contact with water
 - B. Aerophobia – the fear of air in motion
 - C. Hyperactivity in response to light exposure
 - D. Seizures
 - E. Excessive salivation



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5. Which is true in making the diagnosis of Lyme disease?

- A. Erythema chronicum migrans (ECM) is always a macular rash with central clearing.
- B. 10% of patients cannot recall the tick bite.
- C. Arthritis of early Lyme disease is episodic, symmetrical, polyarticular and attacks small joints.
- D. Common sites for ECM include ankles and skin folds.
- E. ECM is seen in 50% of early Lyme disease.



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6. Which of the following is the correct pair?

- A. Lyme disease – caused by a virus
- B. Rocky Mountain Spotted Fever – *Ixodes* sp. ticks
- C. Tularemia – lagomorph reservoir
- D. Tick paralysis – *Rickettsia rickettsii*
- E. Relapsing fever – parasitic (protozoal)



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7. You suspect tick paralysis (TP) in an 8-year-old boy.

- A. Treatment of choice is doxycycline for 3 weeks.
- B. TP is an ascending flaccid paralysis 4-7 days after tick attachment.
- C. TP is commonly seen in the southwest, distinguishing it from other tick-borne illnesses.
- D. A single dose of antibiotics is needed to kill the bacteria that produce the neurotoxin.
- E. The neurotoxin prevents acetylcholine breakdown.



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8. A 35-year-old “outdoorsy” male presents to your ED in upstate NY after syncope. You see a HR of 40-bpm with occasional p-waves. You realize:
- A. This cannot be due to Lyme disease as you see no ECM rash.
 - B. You should administer aspirin immediately.
 - C. This conduction abnormality can be managed outpatient.
 - D. This patient needs a temporary cardiac pacemaker.
 - E. The treatment of choice is still oral doxycycline.



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9. Which of the following is true regarding Lyme disease?

- A. Cattle are the preferred hosts of *Ixodes scapularis*
- B. Culture of blood/tissue is the gold standard for diagnosis
- C. *Borrelia burgdorferi*, a spirochete, spreads to all tissues
- D. Skin lesions on the palms and soles are common
- E. Once chronic symptoms develop, antibiotics are no longer useful



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10. Regarding Rocky Mountain spotted fever (RMSF):
- A. A maculopapular rash is the most common symptom.
 - B. It is most commonly seen in Montana, Idaho, Colorado and Utah.
 - C. *Rickettsia rickettsii* are obligate intracellular bacteria that live in platelets. This leads to thrombocytopenia / petechiae.
 - D. Early RMSF mimics any self-limited febrile viral illnesses.
 - E. A triad of fever, rash and tick bite is seen in 33% of cases.



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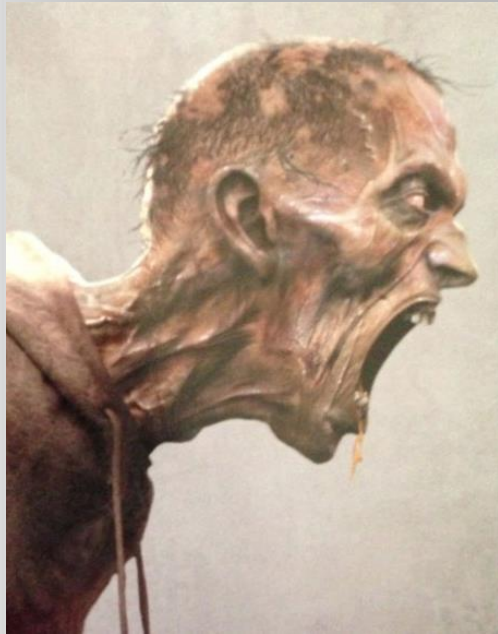




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RABIES



- Lyssavirus (rhabdoviridae) – RNA
- Preference for CNS tissue
- In US:
 - Raccoons most common carrier
 - Bats most common infector
- Worldwide: Dogs most common

CONTENT TOPICS

RABIES

Background
Clinical
Treatment
TICK ILLNESS



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RABIES SYNDROME

- 5 stages of rabies infection:
 - Incubation (30-90) days
 - Prodrome – flu-like syndrome
 - Acute neurological illness
 - Excitement
 - Opisthotonus
 - Hydrophobia
 - Salivation, lacrimation, unsteady gait
 - Coma
 - Death



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RABIES TREATMENT

- Aggressive wound washing
 - Virucidal agent
- Human rabies immune globulin
 - HRIG 20 IU/kg (local if poss)
- Human diploid cell vaccine
 - HDCV days 0, 3, 7, 14, 28
- In US treat:
 - skunk, raccoon, fox, bat



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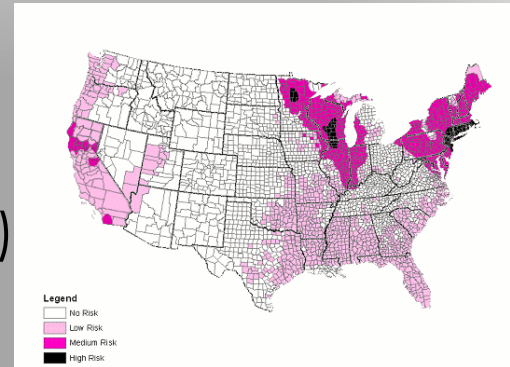
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TICK-BORNE ILLNESS

Lyme Disease:

- *Borrelia burgdorferi*
- Ixodes ticks (white tailed deer)
- 3 stages of disease:
 1. Localized – rash
Erythema migrans: annular, expanding erythematous lesion with central clearing (spares palms, soles)



CONTENT TOPICS

RABIES

TICK ILLNESS

Lyme Dis.

RMSF

Ehrlichiosis

Babesiosis

Tularemia



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TICK-BORNE ILLNESS

Lyme Disease:

- 3 stages of disease:
 1. Localized – rash
 2. Disseminated – neuro / cardiac
Neuro: CN VII palsy, meningitis, peripheral neuropathy
Cardiac: myocarditis, pericarditis, heart block



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TICK-BORNE ILLNESS

Lyme Disease:

- 3 stages of disease:
 1. Localized – rash
 2. Disseminated – neuro / cardiac
 3. Persistent – arthritis



CONTENT TOPICS

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TICK-BORNE ILLNESS

Lyme Disease:

- Diagnosis – ELISA for screening
Western Blot to confirm
- Treatment
 - doxycycline
 - erythromycin
 - amoxicillin
 - ceftriaxone if unstable / ill



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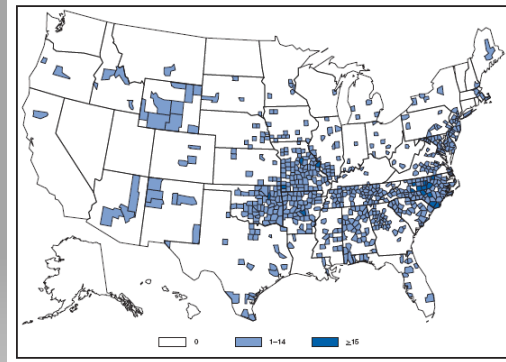
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TICK-BORNE ILLNESS

Rocky Mountain Spotted Fever:

- *Rickettsia rickettsii*
- Multiple tick species
- Southeastern US
- April – September



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TICK-BORNE ILLNESS

Rocky Mountain Spotted Fever:

- Flu-like syndrome – fever, HA, myalgias
- Rash – begins distal, spreads proximal
macules → petechiae → purpura (d/t vasculitis)



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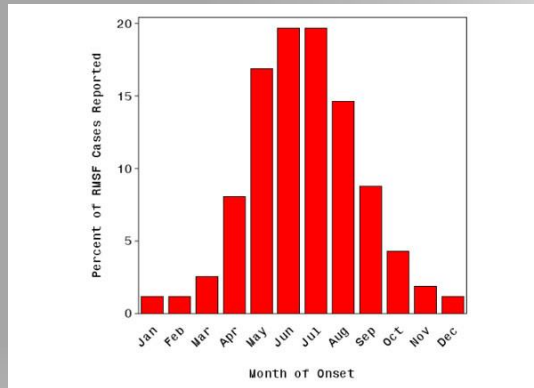
Tularemia



TICK-BORNE ILLNESS

Rocky Mountain Spotted Fever:

- Diagnosis – clinical!
- Complications (vasculitis)
 - Confusion / sz / delirium
 - DIC
 - Heart failure / ARDS
 - Renal failure
 - Loss of digits / limbs
- Treatment – doxycycline, chloramphenicol



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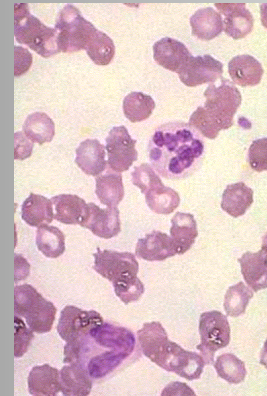
Tularemia



TICK-BORNE ILLNESS

Ehrlichiosis:

- Similar syndrome to RMSF
- Two types: HME: human monocytic
HGE: human granulocytic
- Pancytopenia, hypoNa⁺⁺, ↑ LFTs
- Dx: clinical suspicion
- Tx: doxy, tetracycline, chloramphenicol
- Complications: DIC, renal failure, coma, death



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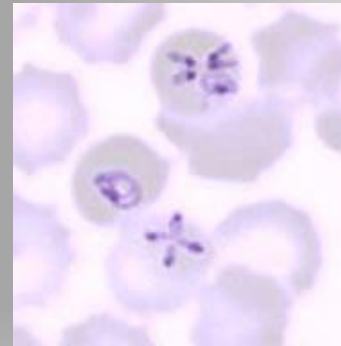
Tularemia



TICK-BORNE ILLNESS

Babesiosis:

- Malaria-like hemolytic disease
- Intra-erythrocyte protozoa
- Sx: often asx, fevers, malaise, hepatosplenomegaly, jaundice
- Dx: peripheral smear
- Tx: only immunocomp, quinine + clinda or atovaquone + azithro



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TICK-BORNE ILLNESS

Tularemia:

- Gram- coccobacillus *Francisella tularensis*
- Lagomorph resevoir



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TICK-BORNE ILLNESS

Tularemia:

- Gram- coccobacillus
- Lagomorph resevoir
- Sx: 1. ulceroglandular
2. glandular
3. oropharyngeal
4. pneumonic
5. oculoglandular
6. typhoidal



Tx: doxy, gent

Dx: clinical, serology

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