



27 August, 2019

## Agenda

- Paul Pottinger: *Emerging Infections of the PNW: Babesiosis*
- Case Discussions
- Open Discussion



# UWWTASP

tele-antimicrobial stewardship program



Paul Pottinger MD

- No financial conflicts of interest.
- Everything we discuss is QI, thus protected from legal discovery under WA State Code.

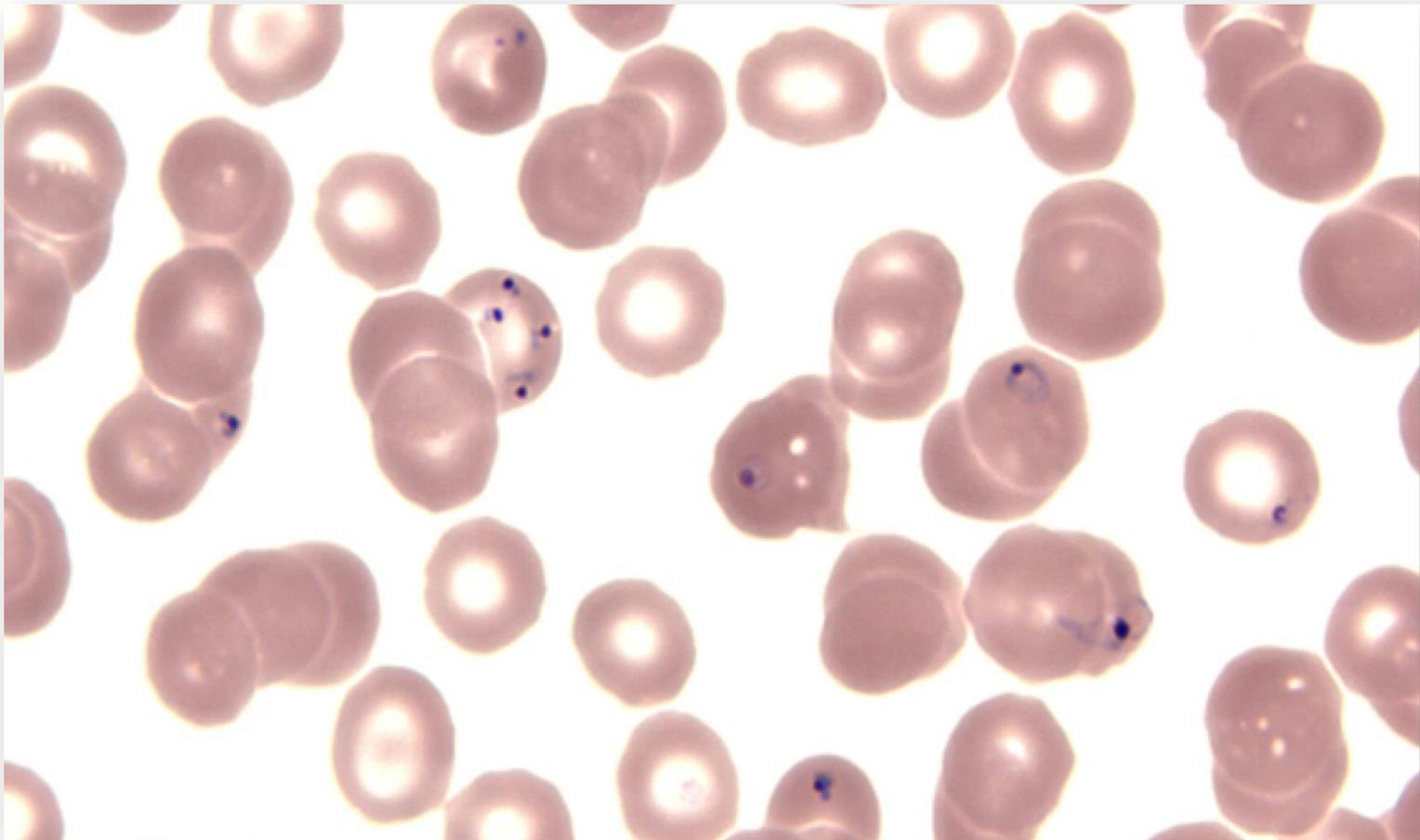
# Case...

- September. Sunnyside, WA.
- A 41 y/o man previously healthy since surviving Hodgkin's Disease.
- Acute fever, rigors, myalgias, anorexia, cough, headache □ Rx'd for CAP with cefotaxime.
- Next day: Fever persists, urine turns brown.
- CBC: WBC 6K, Hct 34%, Plt 68K.
- U/A: No RBCs but Large Blood.



# Case... *What does this look like?*

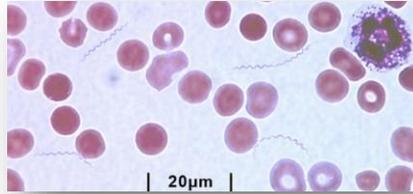
## Peripheral Blood Smear



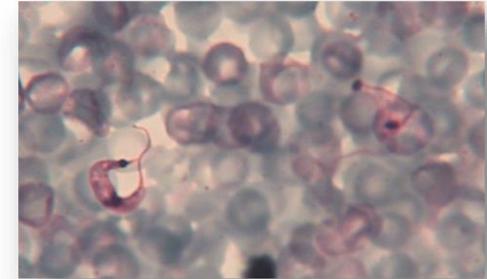
# Organisms on Blood Smear....

## Larger than / outside WBC/RBC

- Borrelia

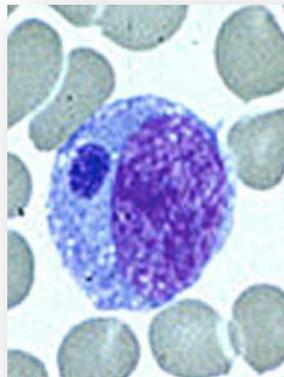


- Parasites (filaria, trypanosomes)

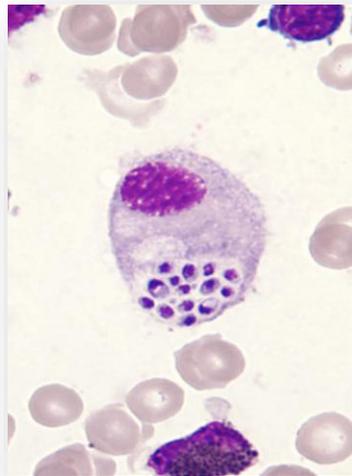


## Inside WBC

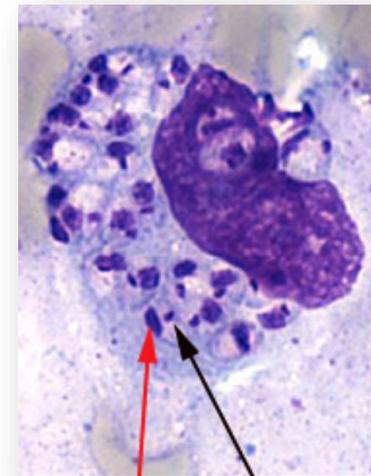
- Ehrlichia,  
Anaplasma



- Histoplasma



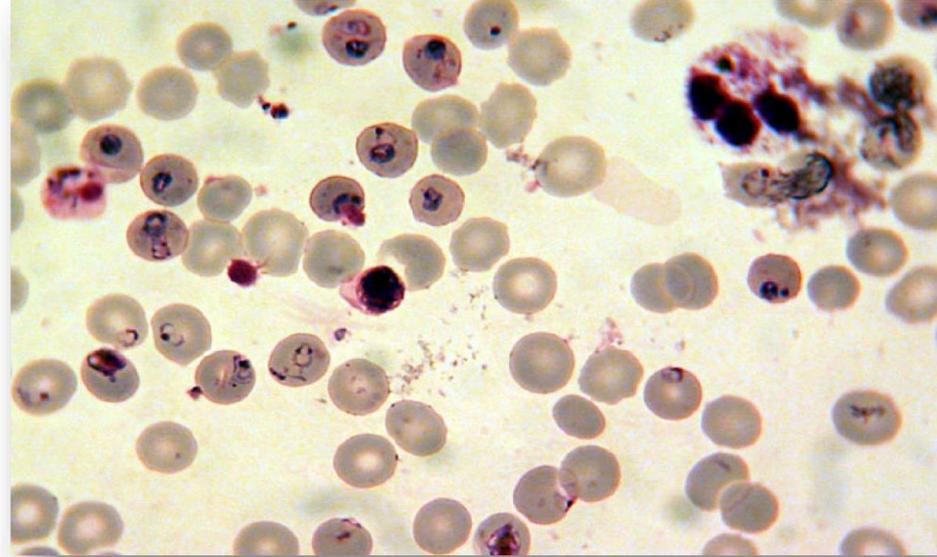
- Leishmania



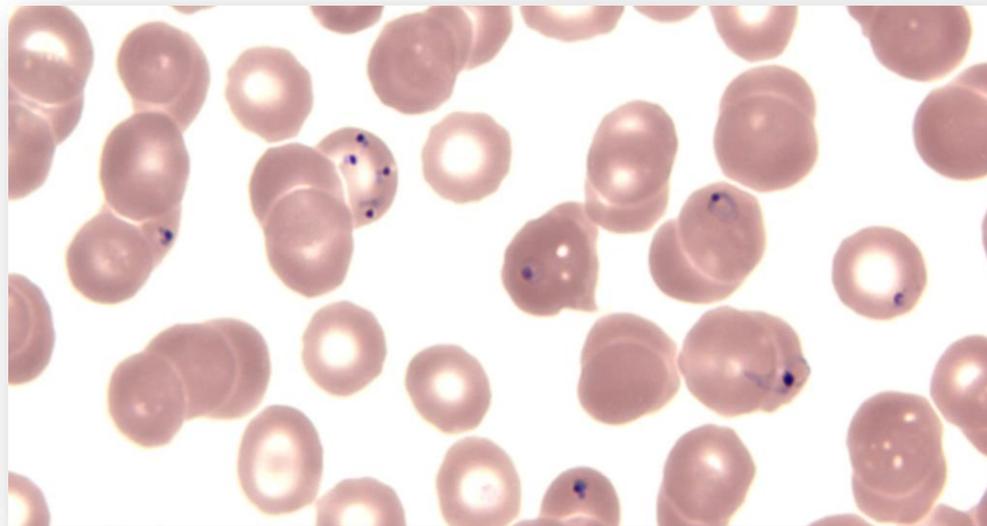
# Organisms on Blood Smear....

## Inside RBC

- Plasmodia (malaria)



- Babesia



# Babesiosis: *Timeline*

- 1888: Discovered by Hungarian pathologist Babes in animals.
- > 100 species identified... in animals.
- 1957: First human case in Croatia (fatal).
- 1960s: First human American cases (Nantucket Island) due to *B.microti*.
- Several hundred US cases reported to CDC

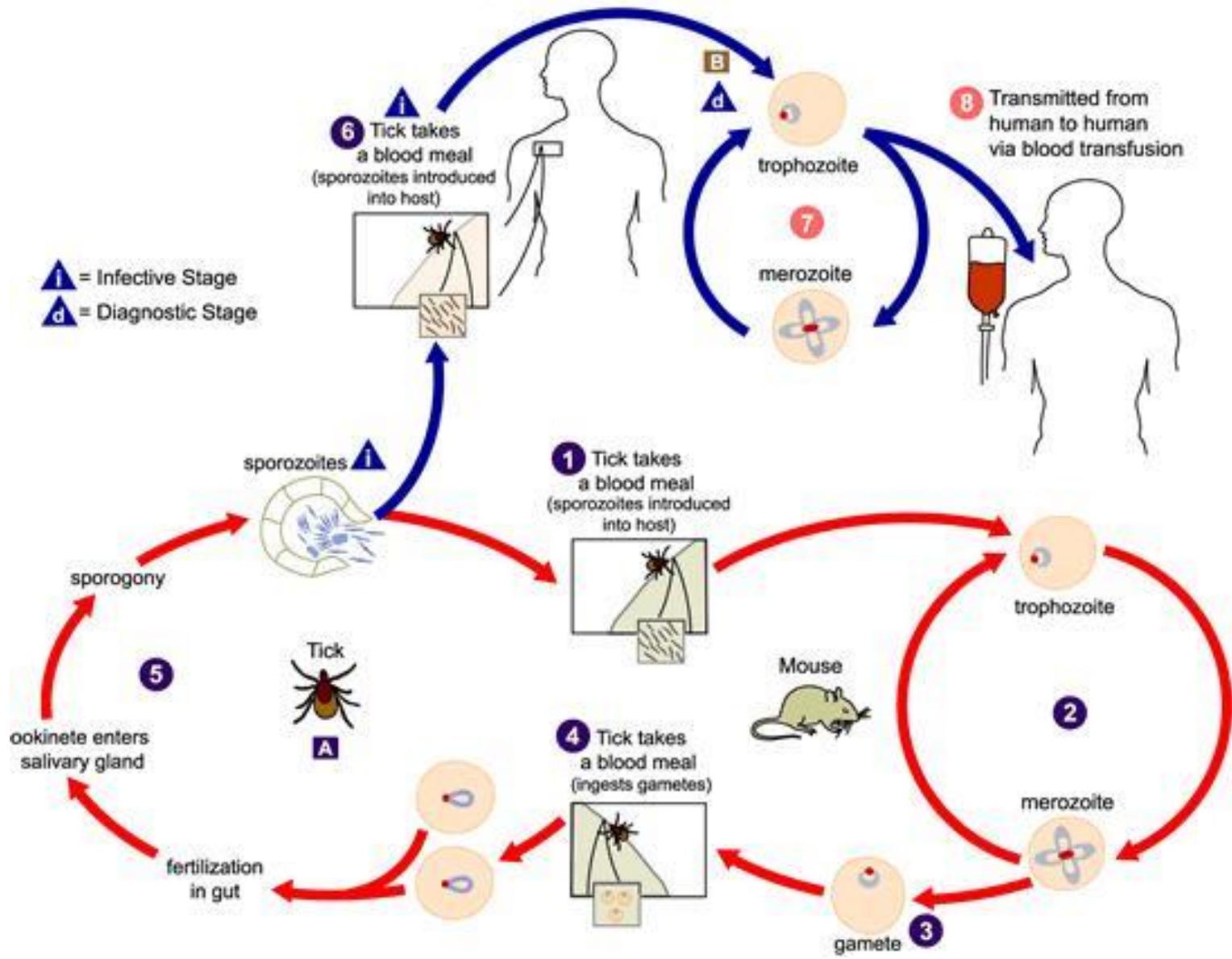


# Babesiosis: *Biology*

- Single-Celled Eukaryote (protozoan) (Related to Plasmodium of malaria fame)
- Zoonosis (livestock, horses, others?)
- Tick-Borne (Except vertical bloodborne or SOT)



# Babesiosis: *Biology*



# Babesiosis: *PNW Epi*



# Babesiosis: *Presentation*

- Protean...
- Often asymptomatic, or low-grade FUO, or mild hemolysis
- May present as non-specific Influenza-like illness. BUT...
- Tick exposure or recent transfusion common (though bites usually not recalled!)
- Hemolytic anemia prominent
- May cause sepsis in asplenic patients



# Babesiosis: *Diagnosis*

- Peripheral Blood Smear (GMS or Wright stain are best)... tell the lab to “look for Babesia!”



- Serology too slow for acute use
- PCR not generally available... UW and Karius can perform next-gen sequencing



# Babesiosis: *Treatment*

For most cases:

- Rx **Atovaquone + Azithro** (“AA” therapy)

For **severe** infection (asplenic, suppressed, rituximab):

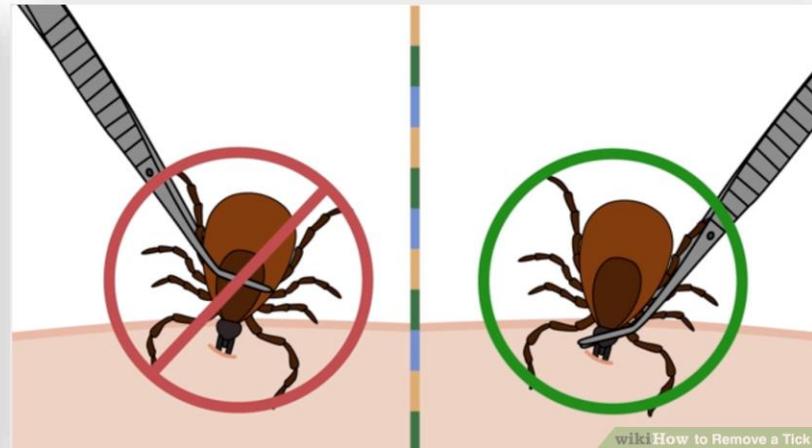
- Rx **quinine + clinda** (more experience than AA, not necessarily superior)
- Consider ***exchange transfusion if parasitemia > 10%, DIC, significant hemolysis, ARDS, asplenic***
- Consider empiric ***Rx lyme & anaplasma (ehrlichia)***



# Babesiosis: *Prevention*

## Just like preventing Lyme dz...

- Bug Juice
- Trim Lawns
- Pant cuffs in socks
- Careful self exam after being outside



# Babesiosis: *Experience?*

**Have you seen a case of Babesia?**

**How about Malaria?**



# Babesiosis: *Conclusions*

- Tick-borne RBC infxn
- Rare in WA... for now
- Masquerades as flu, or FUO...
- Asplenic cases may be severe, with massive hemolysis
- Diagnose with blood
- Treat with “AA” if mild, quinine + clinda if severe



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