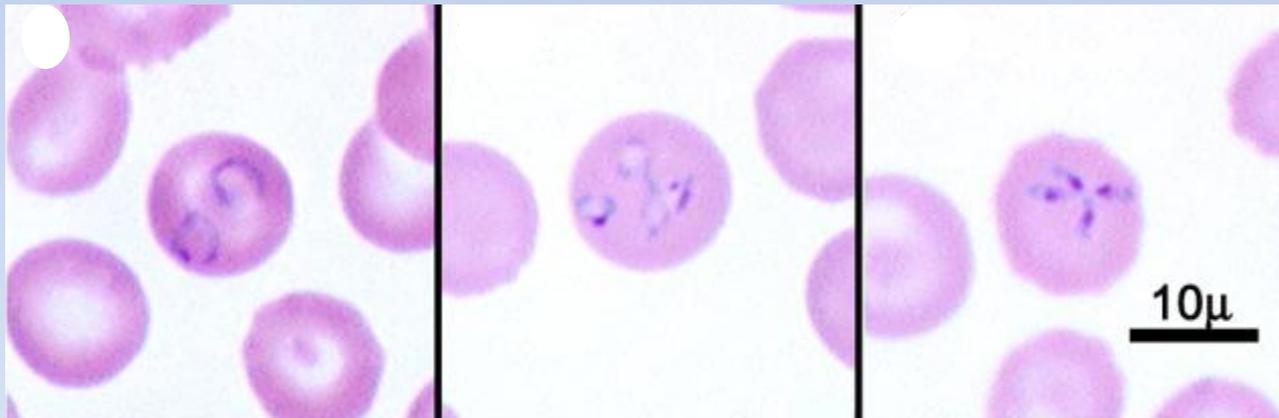




BABESIOSIS

Babesiosis

- Intraerythrocytic protozoan (piroplasm)
 - *Babesia divergens* (primarily Europe)
 - *Babesia microti* (Northeastern and North Central U.S.)
 - *Babesia duncani* (Western U.S.)
- *B. duncani* (WA-1 type *Babesia*)
 - Most recently characterized human *Babesia* sp.*



Common morphology of small *Babesia* . Left to right: ring form, amoeboid, “Maltese-cross” or dividing form. Giemsa-stained blood smear of *B. duncani*.



Clinical Human Babesiosis

Signs and symptoms

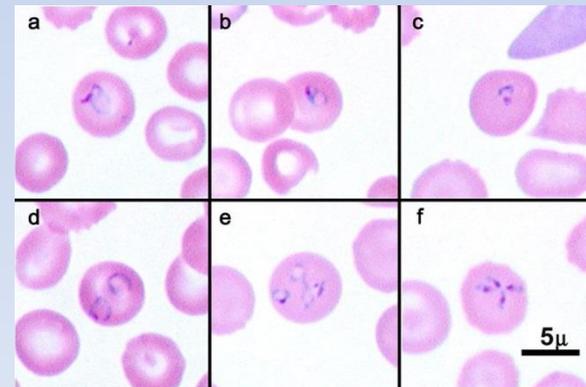
- Infections can be asymptomatic
- Gradual onset of high fever, chills, fatigue, malaise, and anorexia
- Less frequent: arthralgia, myalgia, nausea and vomiting, abdominal pain
- Leukopenia, thrombocytopenia are common
- *B. duncani* infection may cause pulmonary congestion
- Severe hemolytic anemia reported
- Rash is rare

Predisposing factors for acute clinical disease

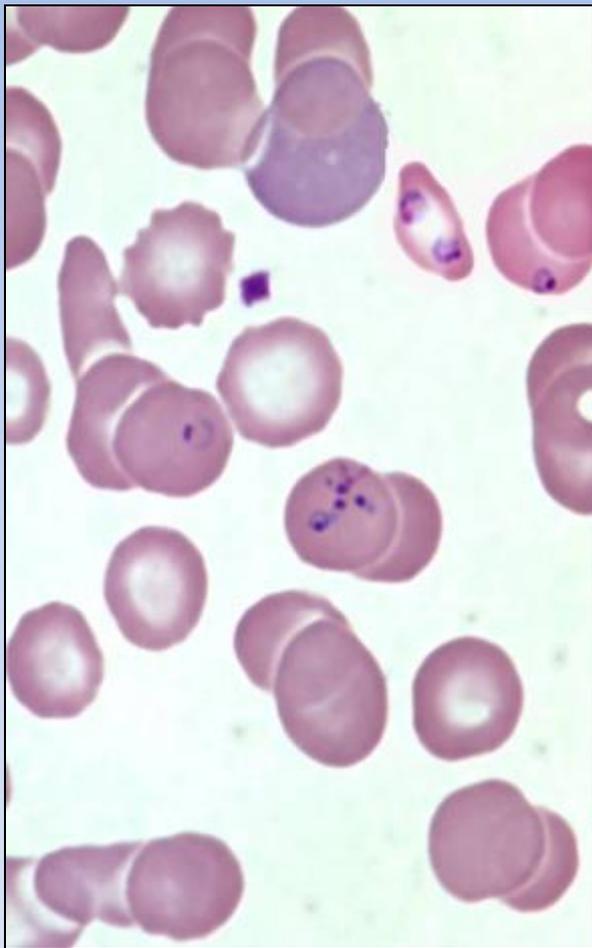
- Older age --majority of cases >50 years old
- Immunosuppression / splenectomy

Diagnosis of Babesiosis

- Clinical symptoms
- Parasites on Geimsa-stained thin blood smears
- Serology: Immunoflorescent antibody test (IFAT) available now in commercial laboratories; immunoblot
- Hamster inoculation (CDC, research)
- PCR (CDC, research)



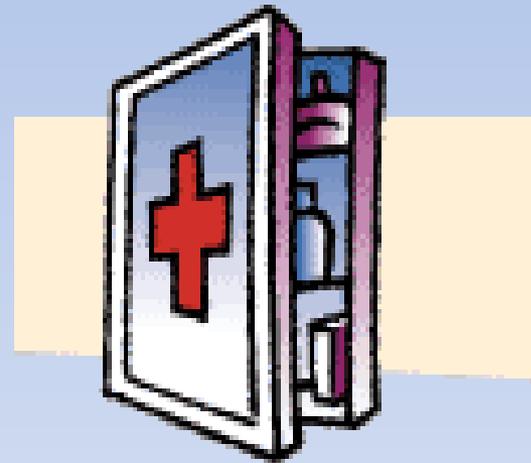
Blood Smear Evaluation: *Babesia*



Babesia: Ring form may be confused with Plasmodium but dividing tetrads typical of *Babesia* spp.

Treatment of Babesiosis

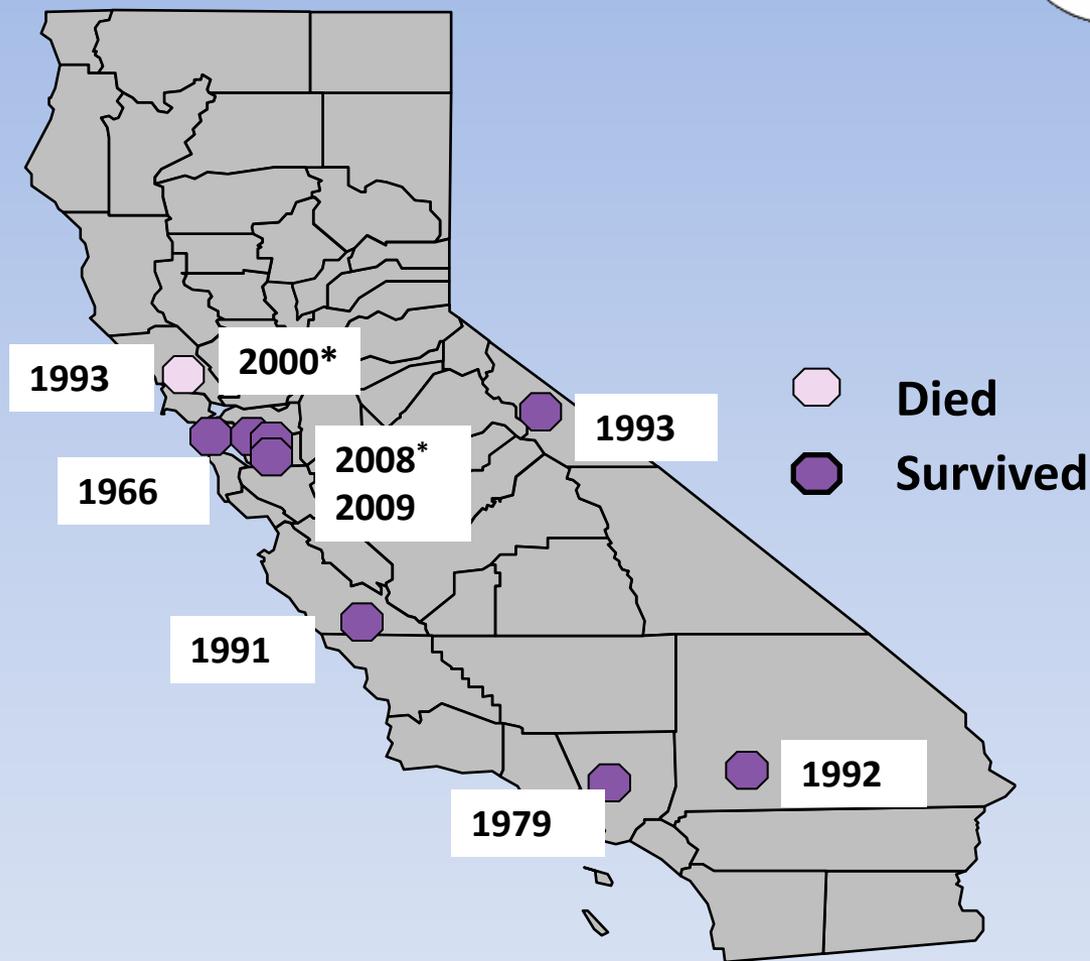
- Azithromycin and Atovaquone
- Quinine and Clindamycin
- Blood transfusion



Babesia duncani cases in California, 1966-present*

11 cases of babesiosis caused by *Babesia duncani* or closely related species have been documented in California, 1966 - present.

*Blood donor and recipient



Babesiosis Ecology in California

Animal reservoirs and tick vectors are unknown



Genetically identical *Babesia* to California human *Babesia* spp. have been recovered from bighorn sheep and deer in California, some in areas where human cases have been exposed. Tick vector is unknown.



Human Babesiosis: Blood Transfusion Risk



- Transfusion transmitted babesiosis (mostly *Babesia microti*) is the leading infectious cause of mortality (38%) in transfusion recipients as reported to the Food and Drug Administration.
- Infected donors have been identified year around; infected recipients have been identified in non-endemic states

Prevention:

- Prescreen on donation questionnaire
- Monitor recipient for febrile illness post transfusion, particularly in endemic areas
- Blood bank screening
 - Test for *B. microti* under development
- Documented infection results in permanent deferral

<http://www.aabb.org/programs/publications/bulletins/Documents/ab14-05.pdf>



To learn more about babesiosis in California, visit the
CDPH website at:

<http://www.cdph.ca.gov/healthinfo/discond/Pages/Babesiosis.aspx>



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