Chagas Fast Facts

What is Chagas Disease?
- The cause: Trypanosoma cruzi, a protozoal organism, lives in the digestive tract of infected bugs.
- The vector: It is transmitted by Triatomine insects from the Reduviidae family, also known as cone-nose or kissing bugs.

Where is Chagas Disease?
- The disease is endemic in much of Latin America, including Mexico and Central and South America.
- In the United States, it is predominately found in the southern states.

Which dogs can get infected?
- Any dog can get infected.

How is it transmitted to dogs?
- Transmission occurs when infected fecal material from the insect enters host mucus membranes or bug bite. Dogs can become infected by ingesting infected bugs and from congenital transmission from mom to puppies.

What are the phases of the disease?
- A brief acute stage often goes undetected and is characterized by intense inflammation where dogs can develop fever, lethargy, lymphadenopathy, and arrhythmias.
- An asymptomatic period, often called the latent or indeterminate phase, follows acute infection.
- A subset of dogs will enter a chronic, symptomatic stage characterized by myocardial fibrosis. Clinical signs, if they develop, are related to arrhythmias, cardiomyopathy, heart failure, and sudden death.

Why is Chagas disease important?
- It is classified by the CDC as a neglected parasitic infection that is preventable.
- It results in arrhythmias, cardiomyopathy, heart failure, and sudden death.
- Effective treatment is limited, with important adverse effects.
- Infected dogs may be sentinels for public health risk.
- The disease is reportable (in humans) in 4 states and is reportable (in animals) in Texas.
Chagas Life Cycle

**Triatome Bug Stages**
1. Triatome bug takes a blood meal (passes metacyclic trypanastigotes in feaces, trypanastigotes enter bite wound or mucosal membranes, such as the conjuctiva)
2. Metacyclic trypanastigotes in hindgut
3. Multiply in midgut
4. Epimastigotes in midgut
5. Triatome bug takes a blood meal (trypanastigotes ingested)

**Human Stages**
2. Metacyclic trypanastigotes penetrate various cells at bite wound site. Inside cells they transform into amastigotes.
3. Amastigotes multiply by binary fission in cells of infected tissues.
4. Intracellular amastigotes transform into trypanastigotes, then burst out of the cell and enter the bloodstream.

- image courtesy of Centers for Disease Control and Prevention
References


*For a current review of Chagas disease including a figure of the Trypanosoma cruzi life cycle

Centers for Disease Control and Prevention, Atlanta, GA. “Parasites: American Trypanosomiasis (also known as Chagas Disease)” Accessed August 24, 2015. www.cdc.gov/parasites/chagas


