

HOUSTON  
**Methodist**<sup>SM</sup>  
LEADING MEDICINE



Weill Cornell Medical College



Baylor  
College of  
Medicine

# 2014 DSS CASE #6

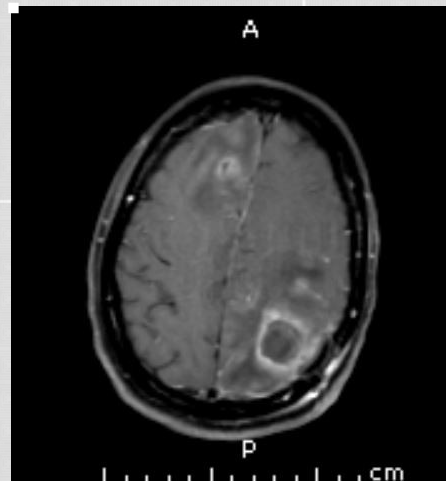
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# CLINICAL HISTORY

- A 49-year-old woman from Honduras was admitted with a 3-week history of headache, right-sided weakness, and progressive altered mental status
- MRI demonstrated two ring-enhancing lesions and edema
- Patient diagnosed with HIV/AIDS
  - CD4 count of 38 cells/microliter
  - Viral load of 375,000 copies/mL
- Underwent a biopsy of the left parietal region
- Discharged on sulfadiazine and pyrimethamine but was non-compliant

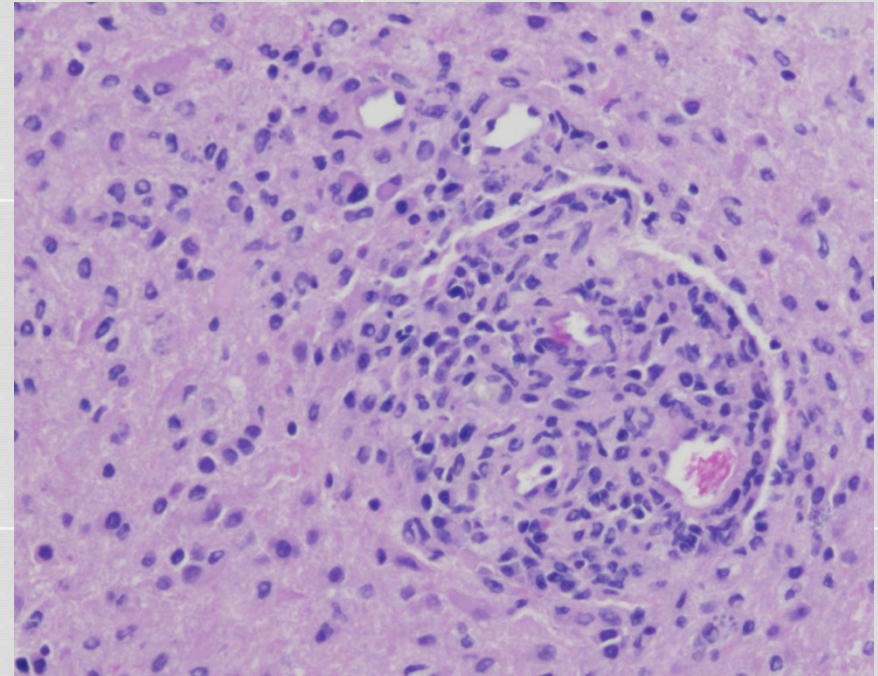
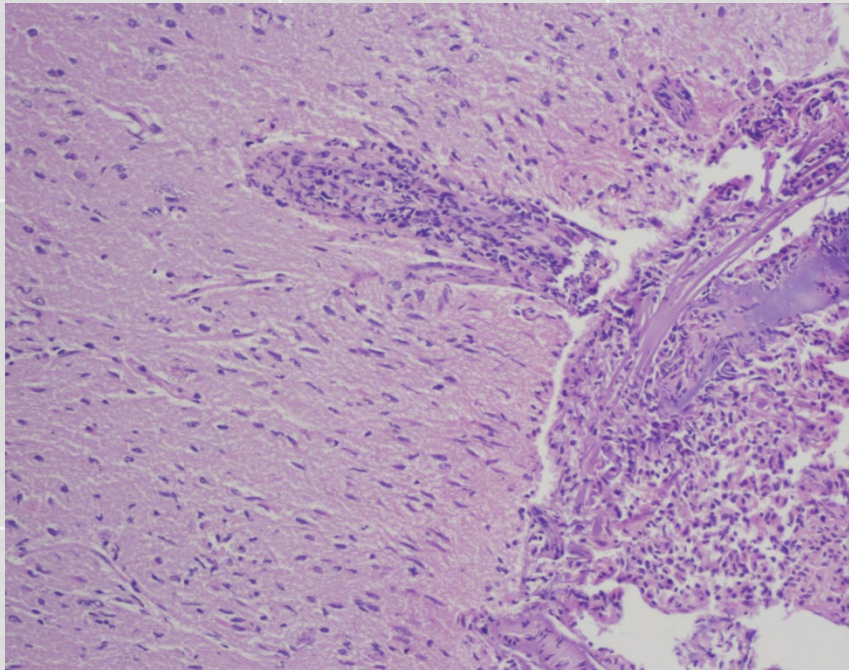
# CLINICAL HISTORY

- Admitted to Ben Taub General Hospital (Houston, TX) with altered mental status and RUE/RLE weakness
- Repeat MRI showed worsening of the brain lesions:



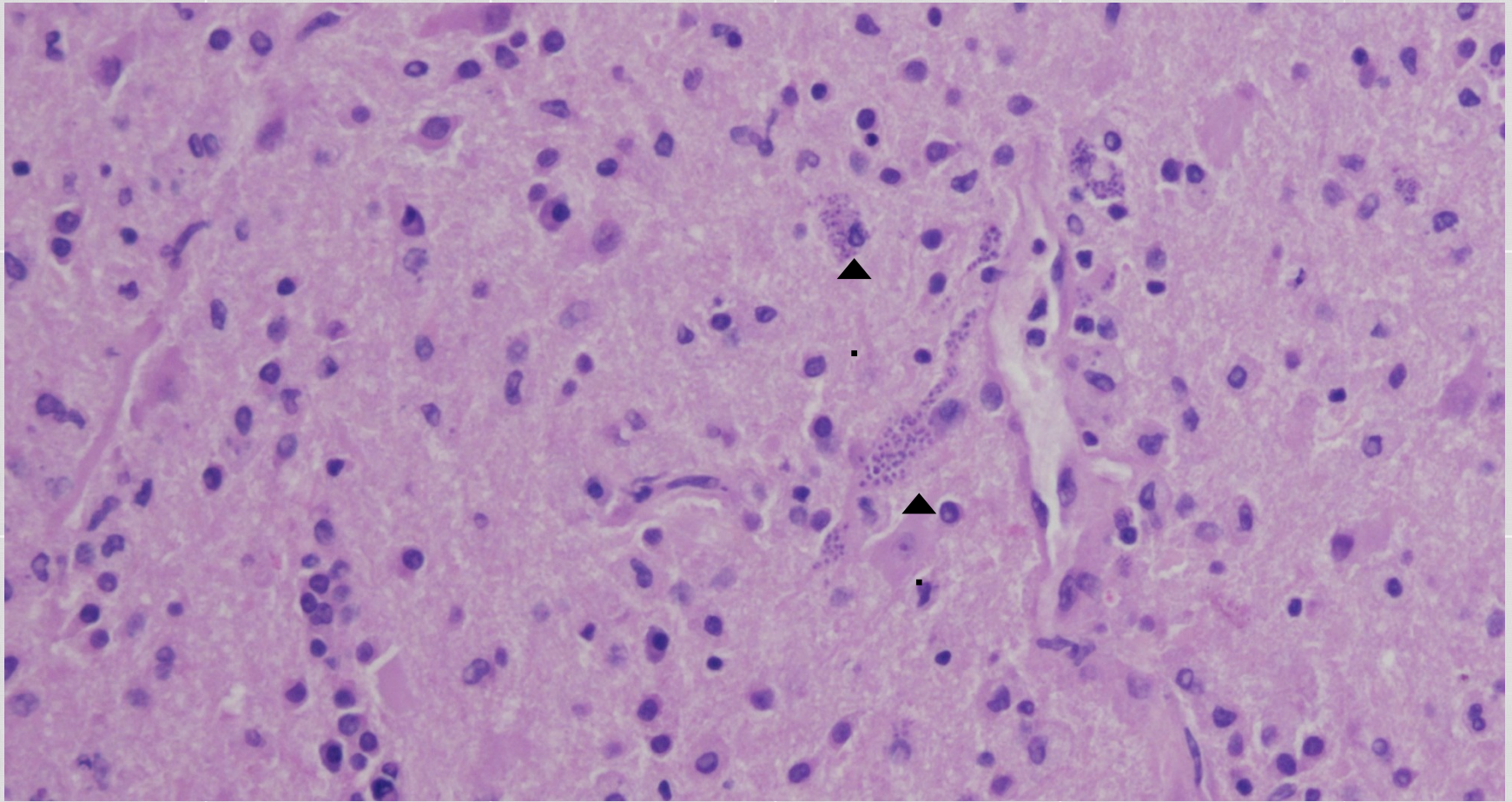
- Biopsy slides obtained from the outside hospital....

# BIOPSY FINDINGS



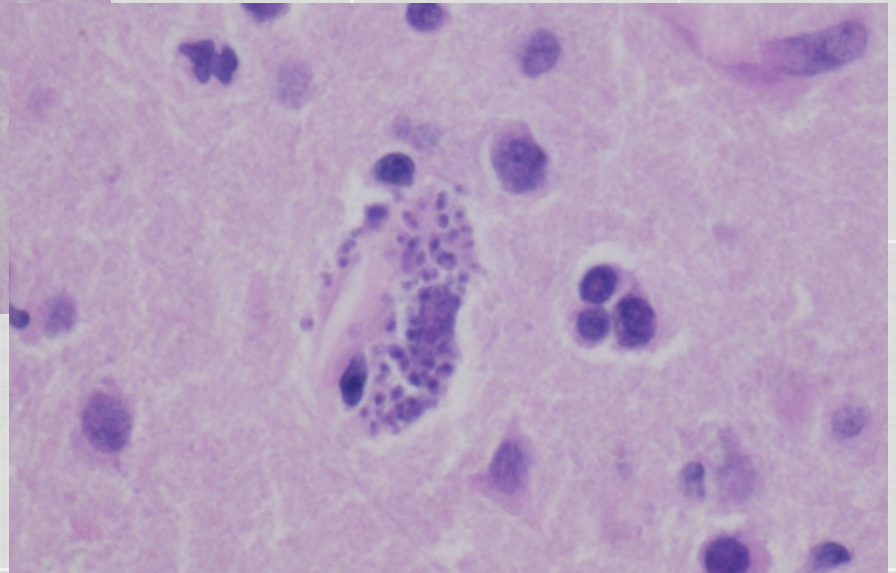
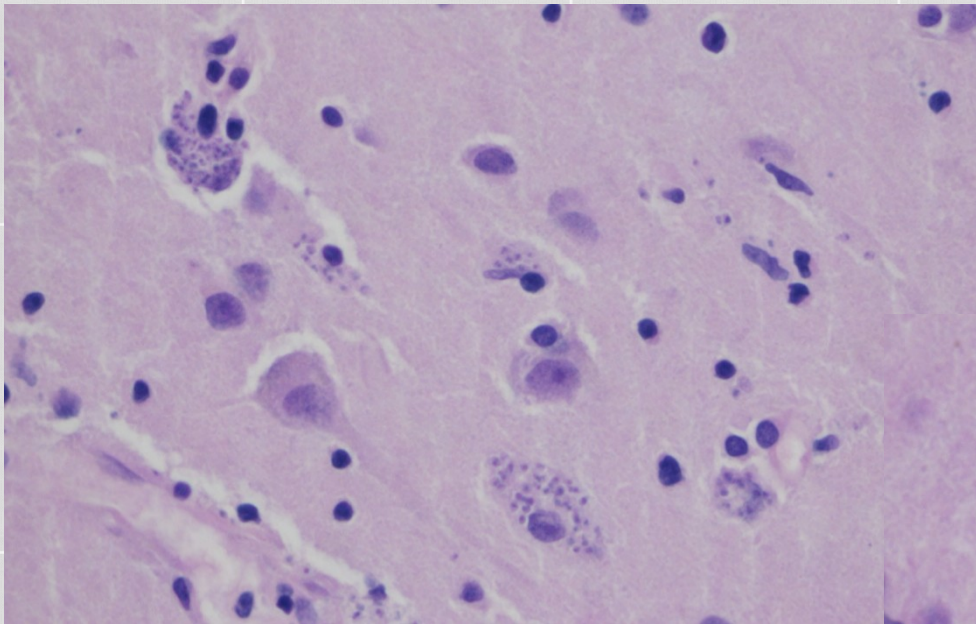
Meningeal and parenchymal inflammatory infiltrate,  
perivascular inflammation, gliosis

# BIOPSY FINDINGS



Mononuclear inflammation, gliosis, intracellular structures

# BIOPSY FINDINGS



Round intracellular structures

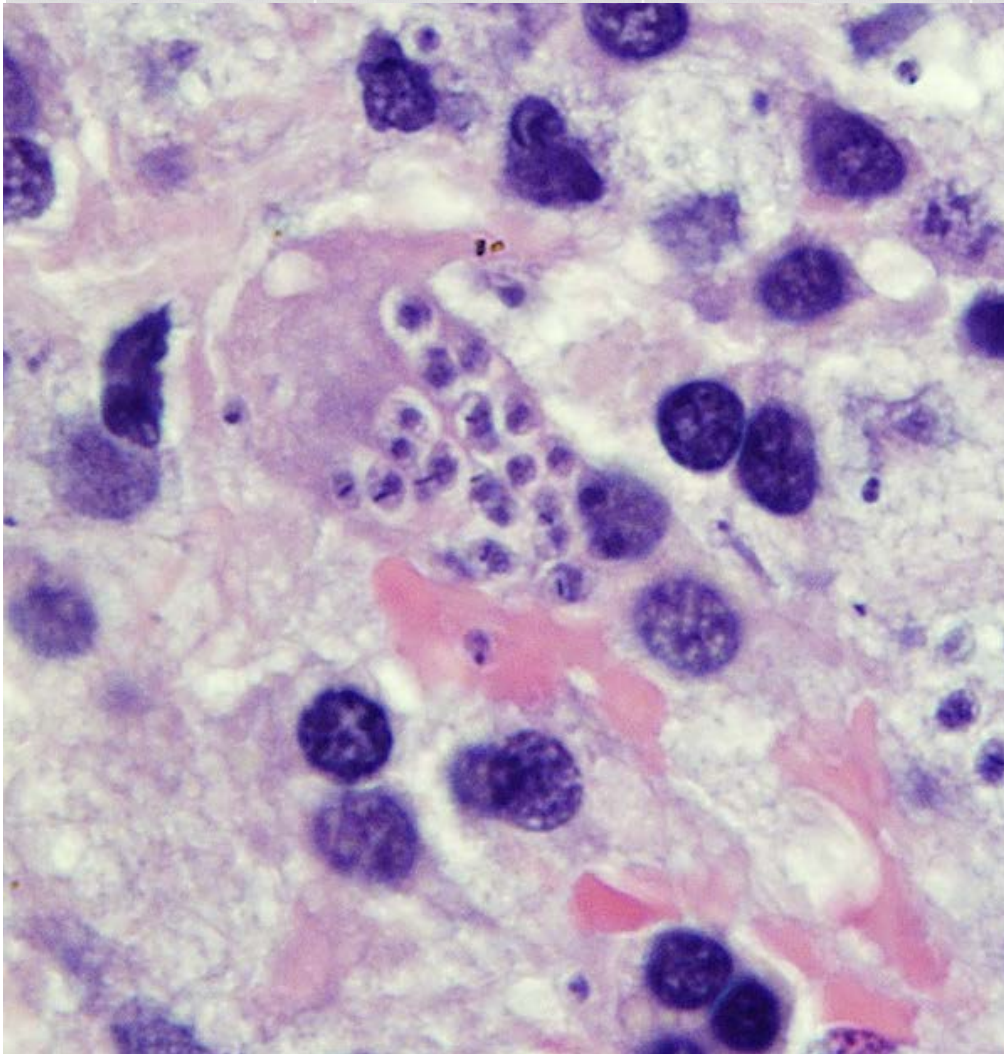
THEIR DIAGNOSIS?  
YOUR DIAGNOSIS?  
DIFFERENTIAL DIAGNOSIS?

DX: CHAGASIC  
MENINGOENCEPHALITIS

AKA, *TRYPANOSOMA CRUZI* MENINGOENCEPHALITIS



# ADDITIONAL STUDIES



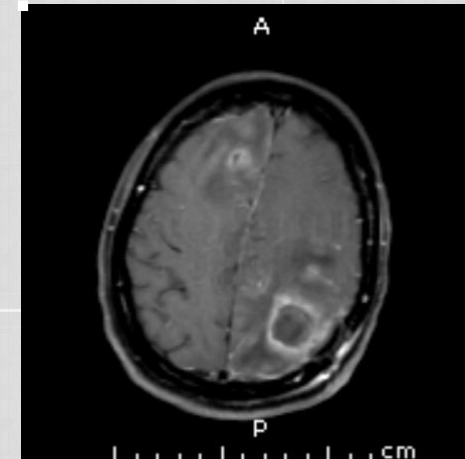
Giemsa-stained and H&E sections showed rod-shaped kinetoplasts of the amastigote form

CSF showed flagellated parasites consistent with trypomastigote forms of *Trypanosoma cruzi*

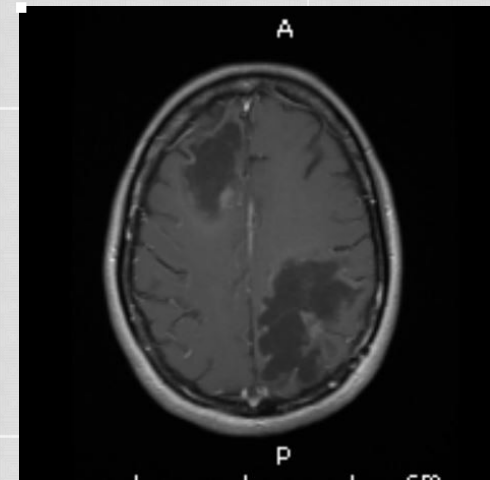


# ADDITIONAL STUDIES AND FOLLOW-UP

- Serologic confirmation
- CSF and serum PCR were positive for *T. cruzi* and negative for *Toxoplasma*
- ECG and echocardiogram were negative for Chagas cardiomyopathy
- Patient treated with benznidazole and antiretroviral therapy



Prior to treatment



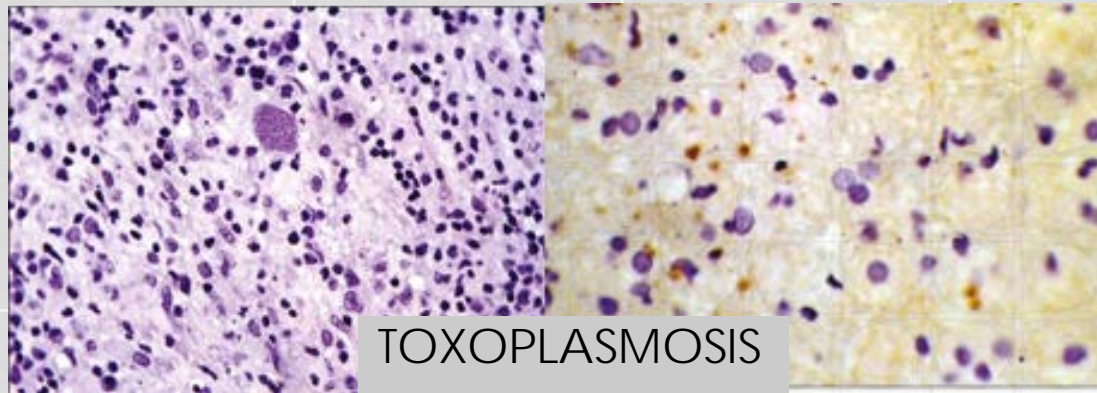
Six months after treatment



# CHAGASIC ENCEPHALITIS

- Most often due to **reactivated Chagas disease** in patients from South and Central America and Mexico
- May reactivate **secondary to HIV/AIDS** or in other immunocompromised states (following organ transplants)
- **Characteristics features** are multifocal, necrotizing lesions with many amastigotes and mass effect. This pseudotumor-type presentation has been referred to as a brain "chagoma".
- **Mortality** of 79-100%

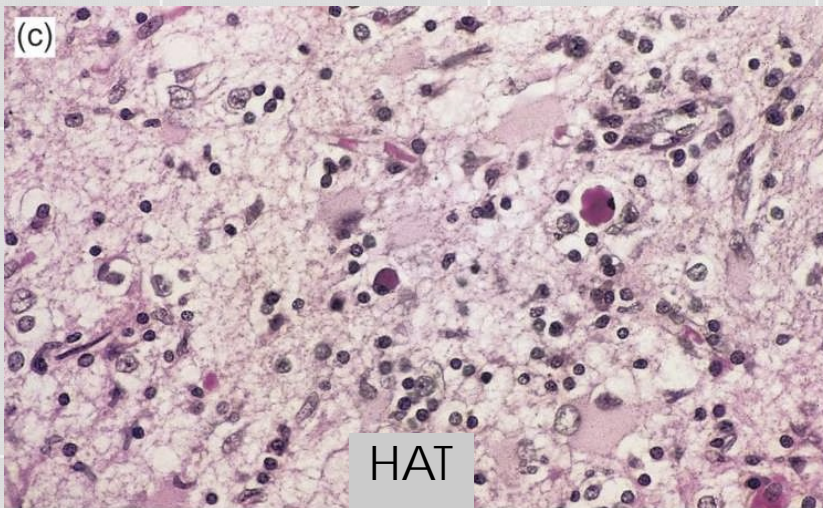
# DIFFERENTIAL DIAGNOSIS IN THE CNS



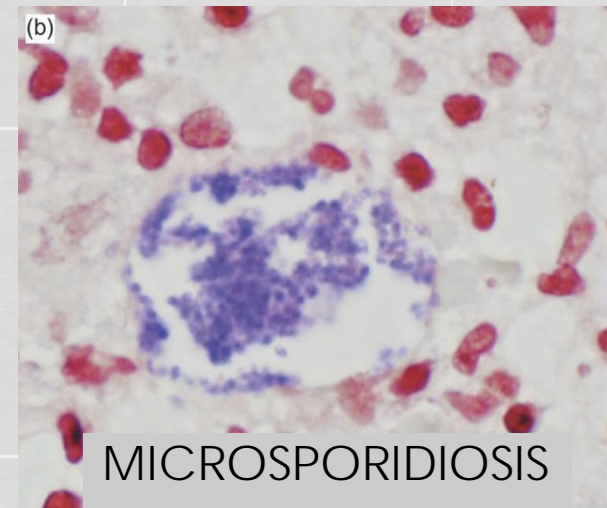
Doug Miller. *Modern Surgical Neuropathology* (2009)



*Greenfield's Neuropathology* (2008)



*Greenfield's Neuropathology* (2008)



*Greenfield's Neuropathology* (2008)

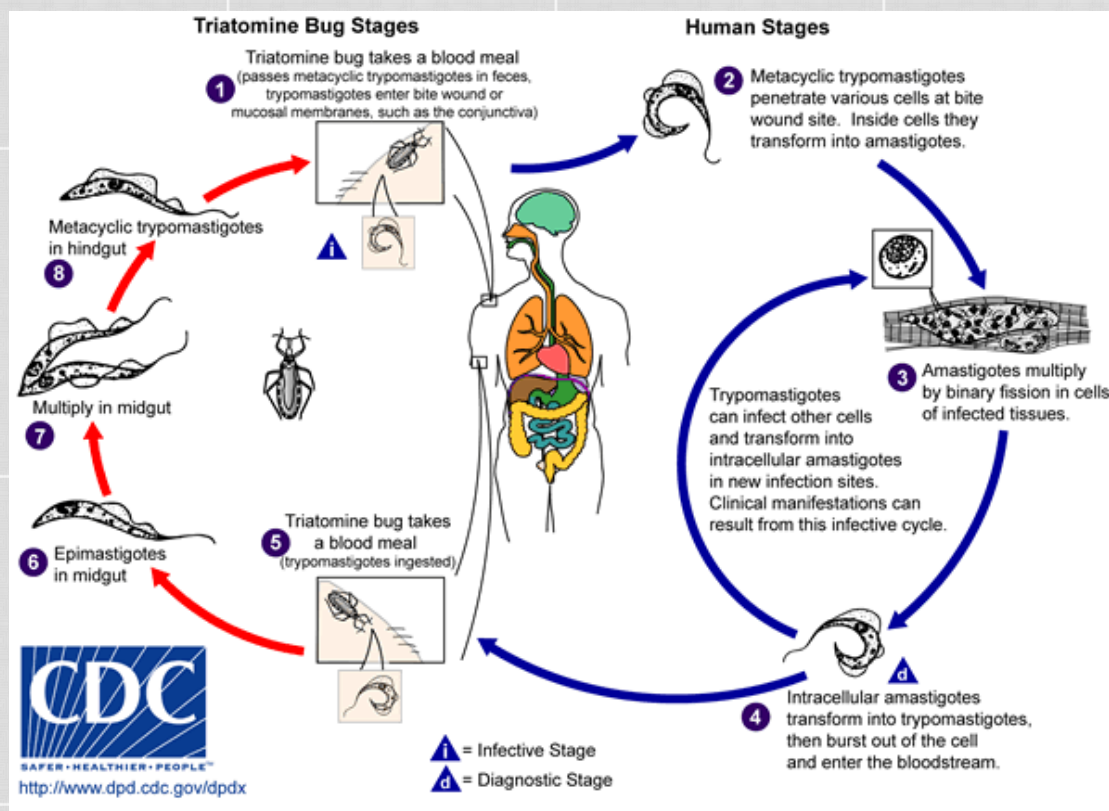


# CHAGAS DISEASE IN THE UNITED STATES

- The CDC estimates **up to 300,000 individuals in the US have Chagas disease** (<http://www.cdc.gov/parasites/chagas>)
- **US vectorborne cases** of Chagas are very rare but do happen
- Current **treatment regimens** vary and may include benznidazole or nifurtimox
- The FDA recommends **one time testing of donated blood products in US donors**

# HELP IS AVAILABLE!

- [http://www.cdc.gov/parasites/chagas/health\\_professionals/index.html](http://www.cdc.gov/parasites/chagas/health_professionals/index.html)





## TAKE HOME POINTS

1. If **MRI findings resemble PCNSL or toxoplasmosis**, **consider chagasic meningoencephalitis** particularly in at-risk populations
2. When **histologic findings resemble CNS toxoplasmosis**, consider reactivated Chagas disease.....
3. Chagas disease is **not uncommon in the United States**
4. The **CDC is an important resource** in these cases.
5. **Infarcts** are common in chronic Chagas disease

# RESOURCES AND REFERENCES

## RESOURCES

- CDC: [http://www.cdc.gov/parasites/chagas/health\\_professionals/index.html](http://www.cdc.gov/parasites/chagas/health_professionals/index.html)
- Texas State Department of Health: <https://www.dshs.state.tx.us/>
- WHO Neglected Diseases: [www.who.int/neglected\\_diseases/diseases/chagas/en/](http://www.who.int/neglected_diseases/diseases/chagas/en/)

## REFERENCES

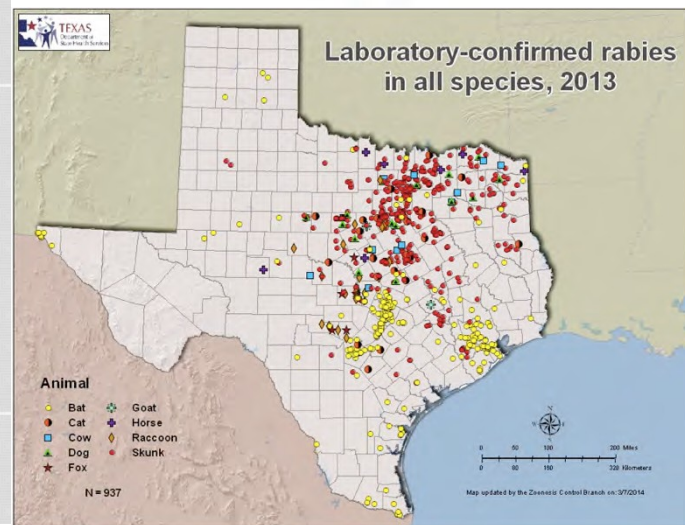
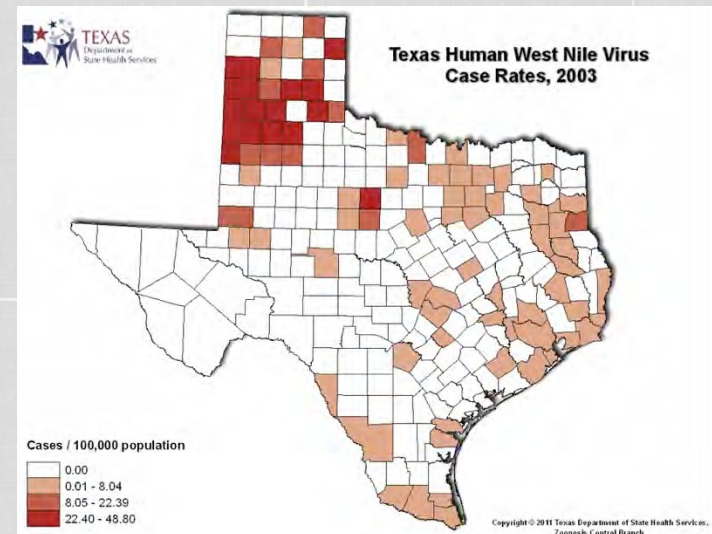
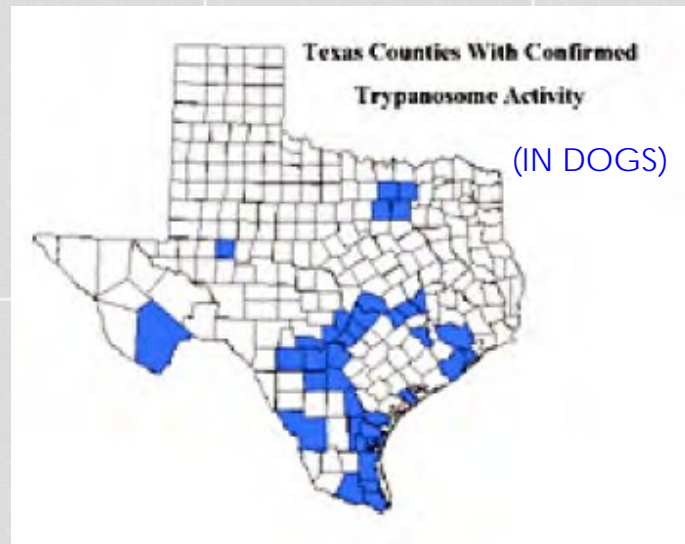
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## THIS CASE PUBLISHED AS:

- Yasukawa K, Patel SM, Flash CA, Stager CE, **Goodman JC**, Woc-Colburn L. *Trypanosoma cruzi* Meningoencephalitis in a Patient with Acquired Immunodeficiency Syndrome. *Am J Trop Med Hyg*. Jun 2 2014.



# THANKS!!



Texas Department of State Health Services:  
Infectious Disease Control Unit  
<https://www.dshs.state.tx.us/idcu/>