2014 DSS CASE #6

MATTHEW D. CYKOWSKI, M.D
SUZANNE Z. POWELL, M.D
J. CLAY GOODMAN, M.D
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....
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 MENINGENCEPHALITIS
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
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

- Toxoplasmosis
- Cerebral Malaria
- HAT
- Microsporidiosis
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](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
- Texas State Department of Health: https://www.dshs.state.tx.us/
- WHO Neglected Diseases: www.who.int/neglected_diseases/diseases/chagas/en/

REFERENCES

THIS CASE PUBLISHED AS:
THANKS!!

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