

Learning Objectives

- Be able to recognize the manifestations of Chagas disease and Chagas Cardiomyopathy
- Understand the need for screening high risk populations prior to development of chronic, determinate disease in order to reduce the rate of mortality in patients with Chagas disease

Case Presentation

- A 51-year-old male with a history of hypertension, hyperlipidemia, Chagas disease, and chronic pericardial effusion presented complaining of chest pain associated with lightheadedness, shortness of breath, and fatigue for 3 days.
- He had similar symptoms 2 months prior with no evidence of ischemia on work up at that time.
- Vitals on admission: BP 134/93 mmHg, HR 96 bpm, temperature 37.3 °C, RR 20/min, SpO2 97 % on room air.
- Initial EKG revealed normal sinus rhythm with premature ventricular contractions and non-specific ST/T wave changes.
- Lab results were normal except for troponin 20 ng/mL, NT-Pro BNP 268 pg/mL. Chest x-ray showed no abnormalities.
- CT chest with contrast revealed a moderate to large pericardial effusion, which was chronic for the patient.
- While in the ER, the patient developed ventricular tachycardia (VT) that persisted despite Valsalva maneuver and several rate-controlling medications.
- He was admitted to the Cardiology Care Unit with concern of VT storm, likely secondary to his history of Chagas disease.
- Antiarrhythmic therapy with IV Amiodarone was started along with Metoprolol 25mg PO BID.
- Transthoracic echocardiography revealed an ejection fraction (EF) of 35-40%, apical akinesis and moderate inferior hypokinesis, possible aneurysmal apex. No LV thrombus was noted, but moderate-to-large pericardial effusion with no tamponade physiology was present.
- Anticoagulation was discontinued given resolution of LV thrombus. Amiodarone was discontinued given sustained normal sinus rhythm with occasional PVCs.
- An ICD was implanted, and the patient was deemed stable for discharge. A cardiac MRI was pending at the time of discharge.

Case Follow up

- In a follow-up appointment, the patient reported continued symptoms of shortness of breath and lightheadedness.
- Review of his recent cardiac MRI revealed left apical thrombus and aneurysm with transmural infarction consistent with findings of myocardial fibrosis associated with Chagas disease.
- The patient was re-admitted to the hospital and re-started on anticoagulation. He had recurrent VT for which he was started on amiodarone with resolution prior to discharge.

Figures

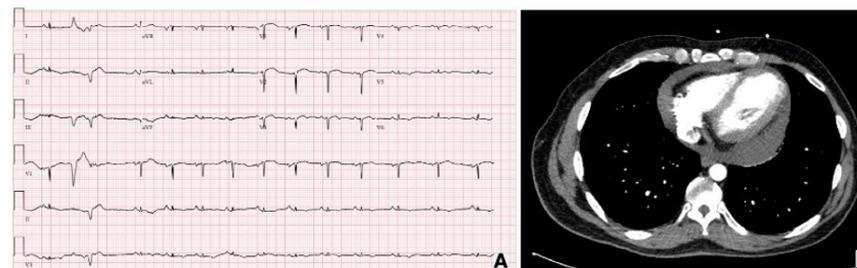


Figure 1. Initial electrocardiogram demonstrated normal sinus rhythm with occasional premature ventricular contractions and non-specific ST/T wave changes. Chest computed tomography with contrast revealed moderate pericardial effusion.

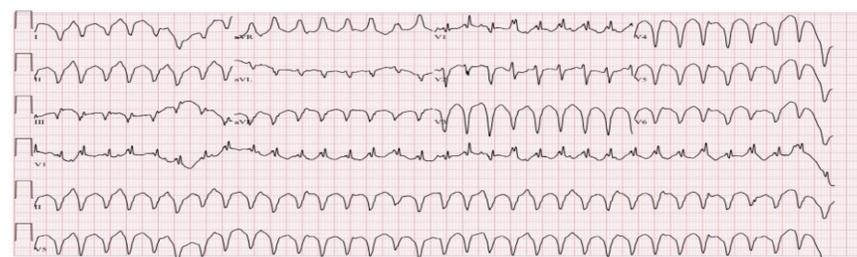


Figure 2. A subsequent electrocardiogram demonstrated wide QRS complex tachycardia consistent with sustained ventricular tachycardia.

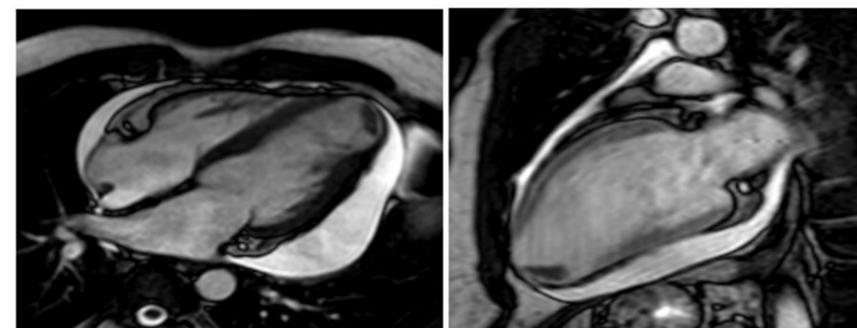


Figure 3. Cardiac MRI demonstrated left apical aneurysm with transmural infarction and left apical thrombus. Epicardial delayed myocardial enhancement in several regions was evident.

Discussion

- Chagas disease is a protozoal infection caused by the parasite *Trypanosoma cruzi* (*T. cruzi*), transmitted by triatomine bugs that are endemic in Latin America.
- Approximately 300,000 people living in the U.S. are infected with Chagas disease. Most are asymptomatic, making it difficult to diagnose.
- About 20-30% of those with untreated disease develop a chronic, determinate form of disease, characterized by Chagas Cardiomyopathy or Gastrointestinal disease.
- Mortality in Chagas disease is almost exclusively due to cardiomyopathy. Patients with Chagas Cardiomyopathy can experience sudden cardiac death due to arrhythmias, particularly with sustained VT that can degenerate into ventricular fibrillation.
- Screening may be beneficial in high-risk individuals: those with exposure to the triatomine bug, people born in or lived for at least 6 months in an endemic area of Latin America, and people born to mothers infected with *T. cruzi*.
- Screening involves two serology tests for IgG in the chronic phase; both must be positive in order to confirm diagnosis.
- Treatment of acute/indeterminate disease is with antitrypanosomal therapy (benznidazole or nifurtimox); chronic disease is treated based on the manifestations.
- Although recommended by the CDC, screening is not performed routinely due to lack of patient and physician knowledge about at-risk populations.
- By educating ourselves and screening high risk patients earlier, we have the potential to reduce mortality rates from Chagas Cardiomyopathy in the U.S.

References

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