

A case of Chagas cardiomyopathy presenting as syncope and left ventricular apical aneurysm

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ABSTRACT: Chagas cardiomyopathy, caused by infection with *Trypanosoma cruzi*, is the leading cause of non-ischemic cardiomyopathy in Latin America. It has been described by the World Health Organization as one of the neglected tropical diseases. This case highlights the importance of including Chagas disease in the differential diagnosis for a patient from an endemic region presenting with non-ischemic cardiomyopathy and characteristic echocardiographic findings of left ventricular apical aneurysm. Treatment with benznidazole or nifurtimox remains controversial, but may be beneficial for selected patients. Our patient completed a sixty-day course of benznidazole provided through the Centers for Disease Control and Prevention.

— **Keywords:** Chagas, Cardiomyopathy, Apical aneurysm, *Trypanosoma cruzi*, Benznidazole.

INTRODUCTION

Chagas cardiomyopathy is a manifestation of chronic infection with the protozoa *Trypanosoma cruzi*¹. The disease is endemic to continental Latin America, where an estimated six million people are infected². Chronic Chagas cardiomyopathy affects 20-40% of those infected with *T. cruzi* and is the leading cause of non-ischemic cardiomyopathy in Latin America and the third most common indication for heart transplant^{3,4}. While Chagas disease has previously been restricted to areas of endemicity, with increasing rural-urban migration, globalization, immigration, and travel, cases are increasingly being diagnosed outside of Latin America^{4,5}.

CASE PRESENTATION

The patient is a 43-year-old female with a history of non-ischemic cardiomyopathy, atrial fibrillation, stroke, and hyperthyroidism who presented to our Quaternary Care Facility with a heat burn to the right elbow following a syncopal episode. She reported a similar

episode of syncope one week prior to presentation. She endorsed a ten-pound weight loss over the previous four months, fatigue, and occasional palpitations, but denied chest pain, shortness of breath, fevers, chills, pain or difficulty swallowing, or abdominal pain. She had no personal history or family history of coronary artery disease, hyperlipidemia, or other risk factors for myocardial infarction. The patient grew up in Cacaopera, a municipality in the Morazán Department of El Salvador, and moved to the United States 12 years prior to presentation. In the Emergency Department, the patient was in atrial fibrillation with rapid ventricular response with a blood pressure of 138/100. On examination, she had a large burn over her right elbow and underwent split thickness skin graft of the right thigh to the right elbow later in her hospital course. Echocardiogram showed an ejection fraction of 55% with segmental wall motion abnormalities, a thinned, wide-necked focal apical inferior aneurysm measuring 2.8 cm, and peri-apical akinesis (Figure 1). Based on characteristic echocardiographic findings of ventricular apical aneurysm with a lack of risk factors for cardiac ischemia and immigration from an endemic region in Latin America,

Chagas cardiomyopathy was suspected. Upon further questioning, the patient recalled seeing the vector for *T. cruzi* in her house in El Salvador, called “Chinche picuda” or “Telapate” (i.e. “kissing bug”). Her initial *T. cruzi* IgG antibody was positive; this was confirmed by the Center for Disease Control and Prevention (CDC) with additional serology, immunofluorescence assay and immunoblot. Computed tomography (CT) of the abdomen/pelvis did not show megaesophagus or megacolon. The decision was made to pursue pharmacological treatment, which was provided by the CDC. She completed a sixty-day course of benznidazole 5 mg/kg/day, or 150 mg by mouth twice daily without issue. Due to the risk of vertical transmission, screening of the patient’s young children was also recommended.

DISCUSSION

Herein we present a case of Chagas cardiomyopathy in a patient with non-ischemic cardiomyopathy and left ventricular apical aneurysm. The patient had clinical, laboratory, and imaging findings supporting the diagnosis of chronic Chagas cardiomyopathy, including her epidemiology, positive *T. cruzi* IgG, and classic echocardiographic findings. Due to low levels of awareness among health care providers, the diagnosis of Chagas cardiomyopathy may be overlooked or delayed⁵. This case highlights the importance of maintaining a high degree of suspicion for the disease in a patient from an endemic area presenting with cardiac pathology without other identifiable risk factors for cardiac disease. Chagas disease should always be suspected in immigrant patients presenting with a non-ischemic cardiomyopathy². A recent CDC report on the release of benznidazole through the investigation new drug program in the United States revealed that 32% of patients receiving treatment were from El Salvador and that nearly 65% were between the ages of 19-50⁶. The use of antitrypanosomal treatment, including either benznidazole or nifurtimox, in patients with chronic Chagas disease is controversial. Many experts have recommended treatment of these patients based on small, non-randomized studies, which showed slowing of disease progression and reduced mortality in patients undergoing antitrypanosomal treatment⁵. The 2015 BENEFIT trial, a prospective, randomized study, found that treatment with benznidazole in patients with established cardiomyopathy did not result in a statistically significant reduction in the occurrence of major cardiac events, the composite endpoint of the study. However, all components of the primary composite endpoint occurred less frequently in the benznidazole group compared to the placebo group and there was a reduction in hospitalization rates of the treatment group, though statistical significance was not achieved⁷. Despite this data, most experts still advocate for offering treatment to patients with chronic Chagas disease, especially younger patients without evidence of advanced cardiomyopathy^{5,8}. For the patient presented in this case, it was felt that the benefits of treatment outweighed the risks due to her young age (<50 years)

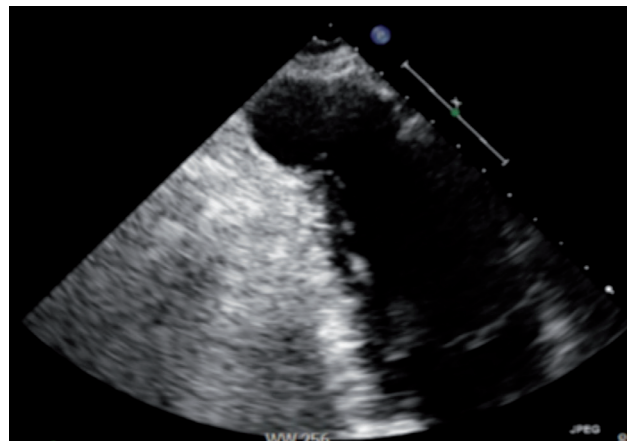


Figure 1. 2D Echocardiogram showing an apical inferior aneurysm.

and lack of advanced cardiomyopathy, liver disease, or kidney disease. Finally, preventative efforts are critical in the approach to control Chagas disease. While vector control programs in endemic countries can be highly effective, this requires significant government and public health interest, which is lacking in many of these countries⁴. Screening at-risk, asymptomatic patients was shown to be a cost-effective strategy for early detection of Chagas disease in several European countries. These patients include pregnant women, immigrants from Latin America, infants born to mothers with *T. cruzi*, and people <18 years of age in endemic areas of *T. cruzi*². Finally, screening for blood donors and organ transplant donors and recipients is another important opportunity for early detection of *T. cruzi* infection⁴.

CONCLUSIONS

Chagas disease, while endemic to Latin America, remains a global health issue due to its increasing presentation in nonendemic regions and significant morbidity for individual patients. Constant vigilance for appropriate screening and diagnosis is crucial in order to prevent many of the long-term sequelae of *T. cruzi* infection and initiate appropriate treatment.

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CONFLICT OF INTEREST:

The authors have no conflicts of interest to report.

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