

# Chagas Cardiomyopathy presenting as Symptomatic Bradycardia: An under-appreciated emerging public health problem in the United States.

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## Introduction

Chagas cardiomyopathy is a vector-borne parasitic infection caused by the protozoa *Trypanosoma cruzi* (*T. cruzi*)<sup>1</sup>. The disease is endemic in Latin America and is the leading cause of non-ischemic cardiomyopathy in the region. While Chagas has traditionally been considered a disease restricted to areas of endemicity, there are an estimated 300,000 people living in the United States with Chagas today, the majority of which are suspected to have acquired the disease from areas which they emigrated<sup>2</sup>. We present a case of Chagas cardiomyopathy acquired in an endemic area, and detected in its early stage. This case is representative of the under-appreciated prevalence of the disease and its consequences in an area with a large immigrant population of Latin American origin.

## Case

A 42-year-old El Salvadoran woman presented to the ED with left sided chest pain radiating to her left arm followed by dizziness and a syncopal episode lasting 5 minutes. She admitted to multiple similar episodes over the past year. She had been advised to see a cardiologist for symptomatic bradycardia, but never followed up. Significant family history includes a sister in El Salvador who also began suffering similar episodes.

On examination, she was found to be bradycardic with heart rate fluctuating between 30-42 beats/minute and an EKG significant for sinus bradycardia with conserved axis and segment intervals, and no other conduction abnormalities (figure 1). Laboratory investigations were unremarkable. Her cardiac ultrasound showed an EF of 62%. The patient was diagnosed with symptomatic sinus bradycardia and a pacemaker was placed.

During her initial hospital course, a first Chagas serology test was ordered given that the patient had no other identifiable causes or risk factors for cardiomyopathy beyond the epidemiological context from which she came. This result came back positive after discharge, and diagnosis was confirmed with a second serology. Without any other clear etiology, it is suspected that Chagas was the cause of the cardiomyopathy.

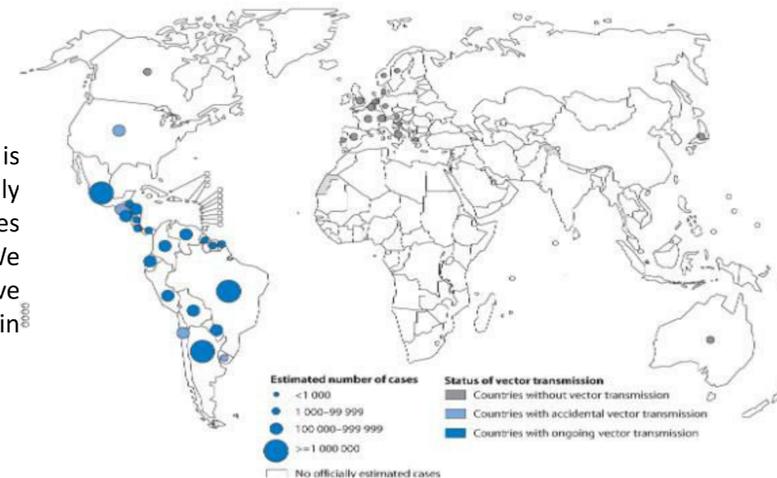


Figure 2: Distribution of *T. cruzi* infection worldwide<sup>4</sup>.

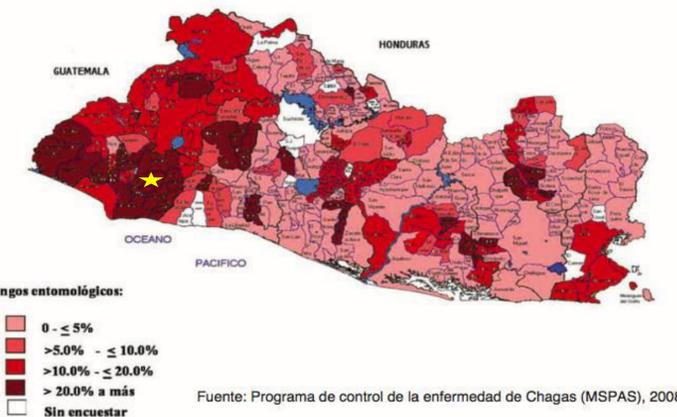


Figure 3: Vector distribution density in patient's home country of El Salvador and representation of their geographical location (star)<sup>5</sup>.



Figure 4: graphical representation of region of origin of NYC foreign-born population as per US Census 2011<sup>6</sup>.

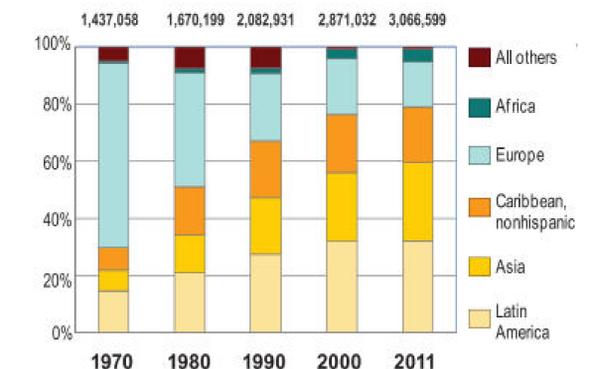


Figure 5: Temporal changes of the region of origin of the immigrant population in NYC. US census 2011<sup>6</sup>.

## Figures

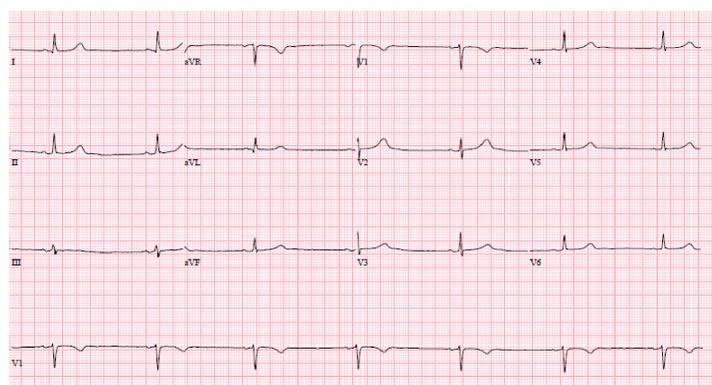


Figure 1: EKG of patient remarkable for sinus bradycardia.

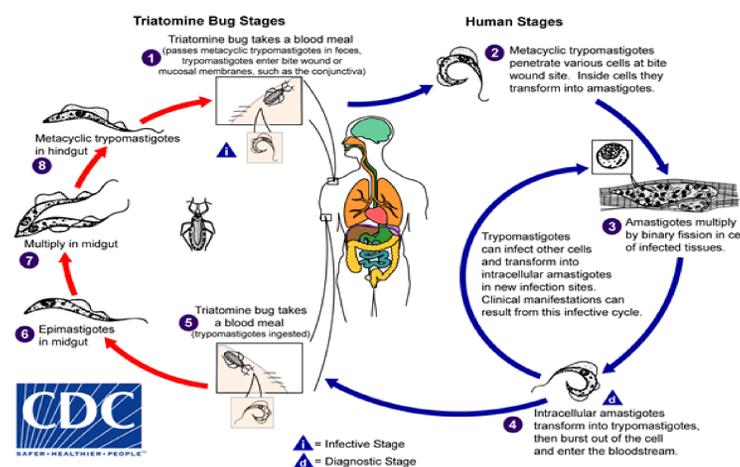


Figure 2: American Trypanosomiasis life cycle<sup>3</sup>.

## Discussion

This case highlights the under-recognized prevalence of Chagas in the United States and the importance of considering Chagas in the etiological differential diagnosis of electrocardiographic changes among Latin American immigrants. While the United States is not considered an endemic area for Chagas disease, the influx of Latin American immigrants has created a new challenge to identify susceptible populations, diagnose suspected cases, and provide adequate treatment for this disease.

## REFERENCES

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