

## TRYPANOSOMA CRUZI MENINGOENCEPHALITIS AND MYOCARDITIS IN A PATIENT WITH ACQUIRED IMMUNODEFICIENCY SYNDROME.

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### SUMMARY

We report the case of a 52-year-old male heterosexual patient with acquired immunodeficiency syndrome (AIDS) and reactivation of Chagas' disease manifested by meningoencephalitis and myocarditis, diagnosed post-mortem. Unexplained reactivation of Chagas' disease should be included among the diagnostic criteria of AIDS in human immunodeficiency virus positive patients. On the other hand, AIDS should be considered in the differential diagnosis of patients with unexplained reactivation of Chagas' disease.

**KEY WORDS:** Acquired immunodeficiency syndrome; Human immunodeficiency virus; Meningoencephalitis; Myocarditis; Trypanosomiasis, American.

### INTRODUCTION

Chagas' disease (American trypanosomiasis) is an important health problem in Latin America. In Brazil, the largest endemic area for Chagas' disease, over 25 million people are estimated to be at risk to infection<sup>(2)</sup>.

Reactivation of chronic Chagas' disease in immunodeficient patients has been associated with leukemia<sup>(5,6,10)</sup>, lymphoma<sup>(7)</sup>, transplant<sup>(9,12)</sup>, and human immunodeficiency virus (HIV) infection<sup>(1,3,4,8,11)</sup>.

We report the case of a patient with acquired immunodeficiency syndrome (AIDS) whose necroscopic examination showed *Trypanosoma cruzi* meningoencephalitis and myocarditis and *Pneumocystis carinii* pneumonia. We believe that only in this case, and in another one recently described<sup>(11)</sup>, histologically confirmed *T. cruzi* meningoencephalitis and myocarditis were recognized simultaneously in HIV positive patients.

### CASE REPORT

A 52-year-old patient was admitted to the hospital complaining of weight loss of 20 kg, bloody diarrhea for 6 months, and fever for the last 15 days. Two days before admission he had an episode of generalized seizure and temporary unconsciousness. He was known to be heterosexual, with

many partners, and denied having received blood transfusions.

On examination the patient appeared ill and dehydrated. The temperature was 39.2°C, the pulse was 82, the respirations were 20. The blood pressure was 190/120 mmHg. Pulmonary auscultation disclosed rales on the left lung field. Heart and abdomen were normal. He was confused, aphasic, had neck stiffness and right hemiparesis. Fundoscopic examination was normal.

The cerebrospinal fluid was clear, with 19 cells per mm<sup>3</sup>, mostly lymphocytes. Serum indirect immunofluorescence and passive hemagglutination to *T. cruzi* were both positive. An x-ray film of the chest revealed bilateral pulmonary consolidation and normal cardiac area. An ecocardiogram was normal. A computed axial tomographic scan of the brain disclosed hypodense areas in the right frontal and parietal lobes.

Empiric treatment for presumptive brain abscess and pneumonia with broad spectrum antibiotics was instituted, but the patient had progressive deterioration, and died 6 days after admission. He never had clinical evidence of myocarditis. A positive enzyme-linked immunosorbent assay to HIV antibodies was available only after the death.

Post-mortem examination revealed acute *T. cruzi* meningoencephalitis, with multiple subcorti-

cal areas of necrosis, hemorrhage and inflammation scattered all over the white matter of both hemispheres, especially in the frontal and parietal lobes (Fig. 1). Perivascular exudate of lymphocytes, monocytes and eosinophils in the white and gray matter of both hemispheres, and intense parasitism of glial cells by amastigote forms of *T. cruzi* were noted (Fig. 2A). Histological examination of the heart revealed acute *T. cruzi* myocarditis of the left atrium; countless muscle cells parasitized by amastigotes were generally surrounded by a dense infiltrate of lymphocytes and monocytes (Fig. 2B); few foci of mononuclear cells infiltrate were seen in the myocardium of the ventricles. Identification of the parasite was confirmed by a peroxidase-antiperoxidase procedure and by electronic microscopy (Fig. 3). Severe bilateral *P. carinii* pneumonia was also noted.

## DISCUSSION

We believe that there was reactivation of the trypanosomiasis in a patient in the indeterminate phase of the disease, taking into consideration that: (a) the patient had no recent contact to areas of

vector transmission of the disease, and had no history of transfusion; (b) there was no clinical evidence of the cardiac or digestive form of the disease; (c) necroscopic findings were of mild and sparse foci of mononuclear infiltrates, except in the left atrium where there was acute myocarditis; (d) there was no histological evidence of Chagas' disease in other organs.

Reactivation of Chagas' disease in immunodeficient patients has been shown to manifest either as meningoencephalitis<sup>(3,4,6,7,8,9)</sup> or, less frequently, as myocarditis<sup>(8,12)</sup>. DEL CASTILLO et al.<sup>(1)</sup> reported the case of a patient with AIDS and cerebral American trypanosomiasis who had acute myocarditis, probably by *T. cruzi*, diagnosed clinically in the post-operative period, without histological confirmation. Nevertheless, only one of the cases reported so far<sup>(11)</sup> had confirmed simultaneous involvement of heart and brain.

Our patient had no clinical evidence of myocarditis, probably because acute inflammation was restricted to the left atrium; we have no satisfactory explanation for the involvement of only part of the myocardium.

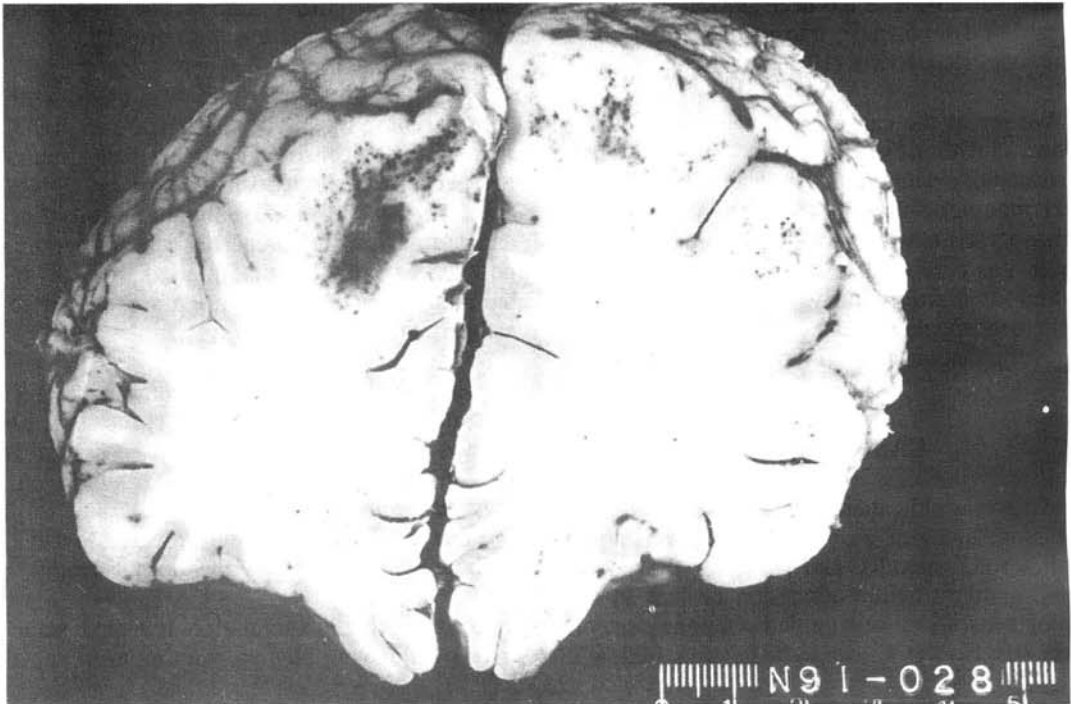


Figure 1 - Acute *T. cruzi* meningoencephalitis. Brain section. Multiple cortical and subcortical areas of necrosis and hemorrhage.

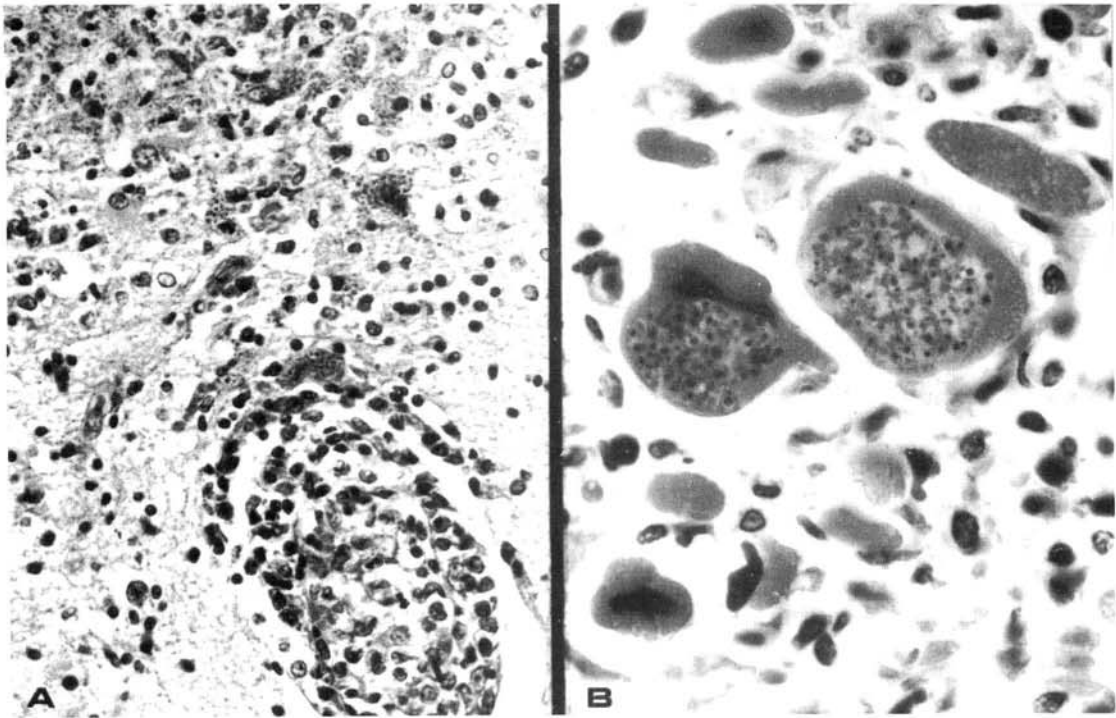


Figure 2 - (A) Acute *T. cruzi* meningoencephalitis. Intracellular pseudocysts filled with amastigotes in glial cells. Vasculitis and perivasculitis in the bottom right (original magnification x 400) (B) Acute *T. cruzi* myocarditis. Pseudocysts with amastigotes in two myocardial fibers. (Hematoxylin and eosin stained; original magnification x 1000).

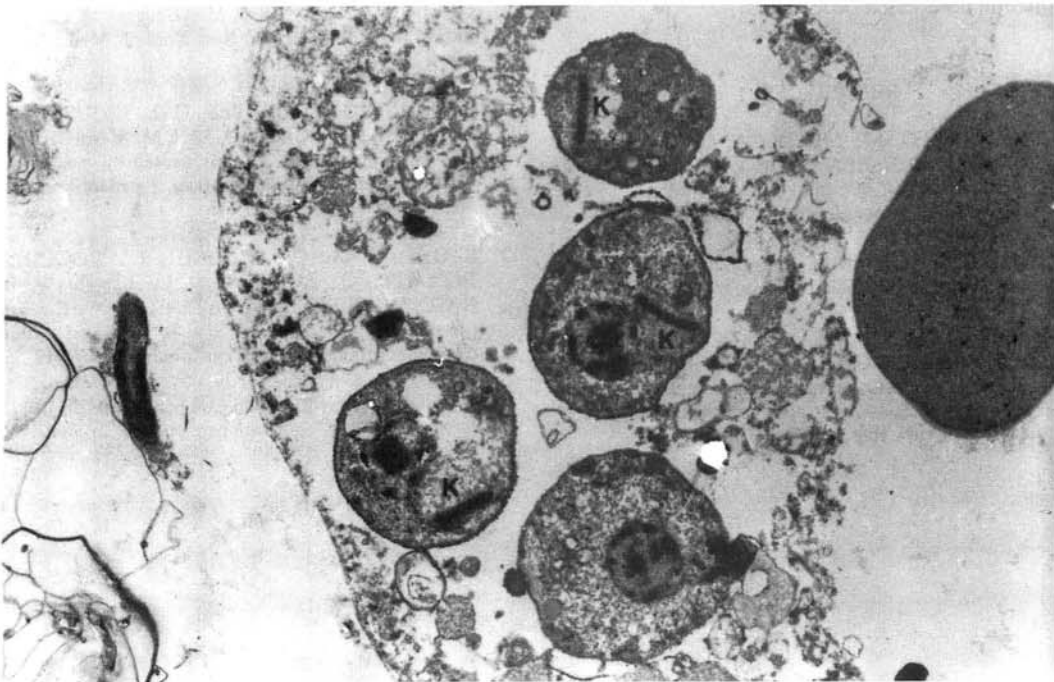


Figure 3 - Acute *T. cruzi* meningoencephalitis. Brain section. Four amastigotes in the cytoplasm of a glial cell; the kinetoplast (K) is seen in three of them. (Electron microscopy; original magnification x 7000).

Although few other cases of reactivation of Chagas' disease in AIDS patients have been reported, mostly in Brazilian scientific meetings, we know of only six cases already published<sup>(1,2,3,4,8,11)</sup>. Nevertheless, it seems sensible to include unexplained reactivation of Chagas' disease among the diagnostic criteria of AIDS in HIV positive patients. On the other hand, AIDS should be considered in the differential diagnosis of patients with unexplained reactivation of Chagas' disease.

## RESUMO

### Meningoencefalite e miocardite por *Trypanosoma cruzi* em paciente com síndrome da imunodeficiência adquirida.

Relata-se o caso de um paciente de 52 anos, heterossexual, com síndrome da imunodeficiência adquirida e reativação de doença de Chagas, manifestada por meningoencefalite e miocardite diagnosticadas post mortem. Reativação inexplicada de doença de Chagas deveria estar entre os critérios para diagnóstico de AIDS em portadores do vírus da imunodeficiência adquirida. Por outro lado, o diagnóstico de AIDS deveria ser considerado em pacientes com reativação inexplicada de doença de Chagas.

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