



Facultad de Ciencias de la Salud
Programa de Medicina

Estudio de Caso: Infección por VIH/SIDA

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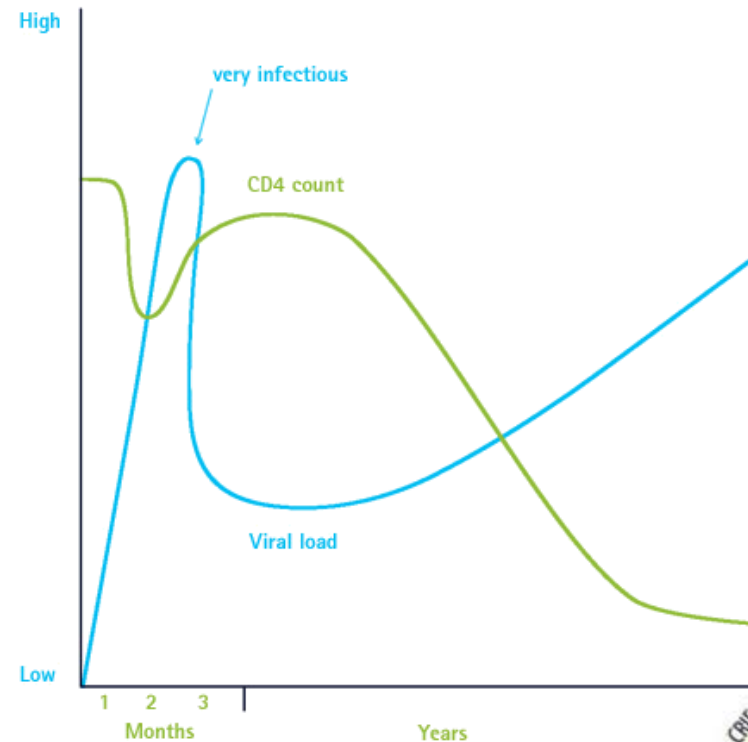
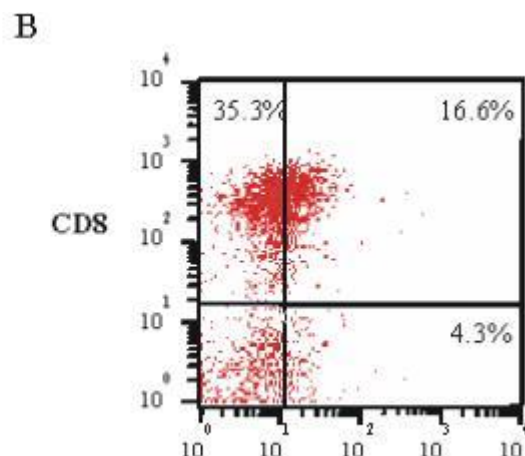
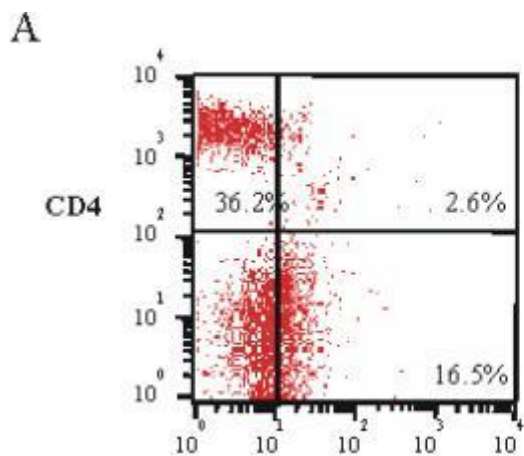
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Caso #1

- Paciente masculino, 35 años, HSH, que se presenta con cefalea, náusea, vómitos, fotofobia y rigidez cervical
- Se le realiza una punción lumbar
 - Células blancas: 3
 - Proteínas: 65 mg/dl
 - Glucosa: 50 mg/dl
- Prueba Rápida y Consejería para VIH: +
- ELISA para VIH: +
- Western-blot para VIH: +

Caso #1

- Contaje de CD4: 180 células/mm³
- Carga viral: 1000 copias de ARN/mm³





1993 Revised Classification System for HIV Infection and the Expanded CDC Surveillance Case Definition of AIDS in Adults and Adolescents

<i>Clinical Categories</i>			
CD4 T-cell Categories	A Asymptomatic	B Symptomatic	C AIDS Indicator Conditions
>500/mm ³ (≥ 29%)	A1	B1	C1
200-499/mm ³ (14-28%)	A2	B2	C2
<200/mm ³ (<14%)	A3	B3	C3



1993 CDC Surveillance Case Definition

<p>Category A (Asymptomatic HIV)</p>	<p>Asymptomatic HIV Infection Persistent generalized lymphadenopathy (PGL) Acute HIV Infection with accompanying illness or hx of HIV infection</p>	
<p>Category B (Symptomatic HIV)</p>	<ul style="list-style-type: none"> - Bacillary angiomatosis - Candidiasis, oropharyngeal (thrush), vulvovaginal (>1month) - Cervical dysplasia - Constitutional symptoms (fever >38 C or diarrhea >1 month) - Hairy Leukoplakia 	<ul style="list-style-type: none"> - Herpes zoster (shingles) involving at least 2 distinct episodes or more than 1 dermatome - Idiopathic thrombocytopenia purpura - Listeriosis - Pelvic Inflammatory Disease - Peripheral Neuropathy
<p>Category C (AIDS Defining Infections)</p>	<ul style="list-style-type: none"> - Candidiasis of bronchi, trachea, or lungs - Candidiasis, esophageal - Cervical cancer, invasive - Coccidioidomycosis, disseminated or extrapulmonary - Cryptococcosis, extrapulmonary - Cryptosporidiosis, chronic (>1 month) - Cytomegalovirus disease or retinitis - Encephalopathy, HIV related - Herpes simplex virus (HSV) - Histoplasmosis, disseminated or extrapulmonary - HIV-associated dementia - Isosporiasis, chronic intestinal (>1 month) - Kaposi sarcoma 	<ul style="list-style-type: none"> - Lymphoid interstitial pneumonia - Lymphoma, Burkitt's, immunoblastic, primary of brain - Mycobacterium avium-intracellulare complex (MAC) - Mycobacterium tuberculosis, pulmonary or extrapulmonary - Nocardiosis - Pneumocystis carinii pneumonia - Pneumonia, recurrent - Progressive multifocal leukoencephalopathy (PML) - Salmonella septicemia, recurrent - Toxoplasmosis of internal organs - Wasting syndrome due to HIV

Caso #1

- Contaje de CD4: 180 células/mm³
- Carga viral: 1000 copias de ARN/mm³
- Estadio (CDC): C3

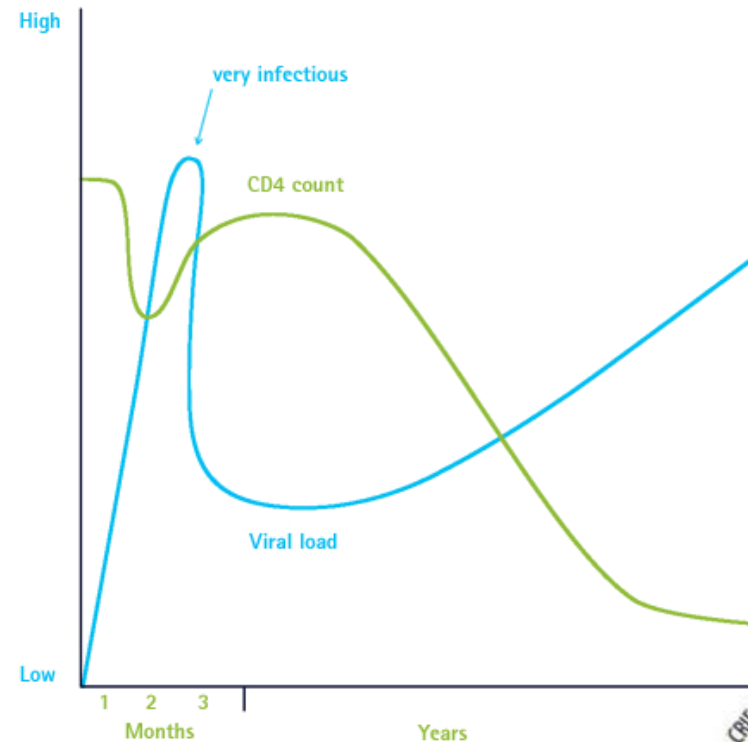
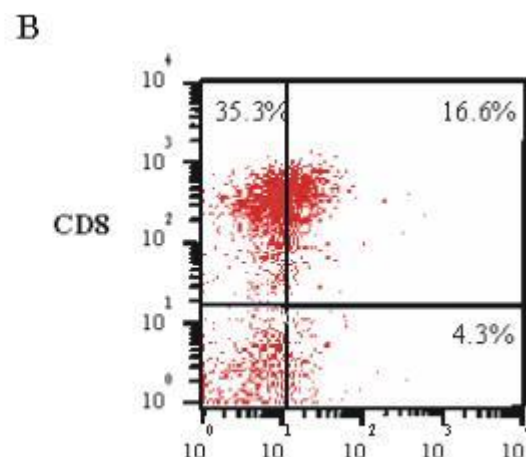
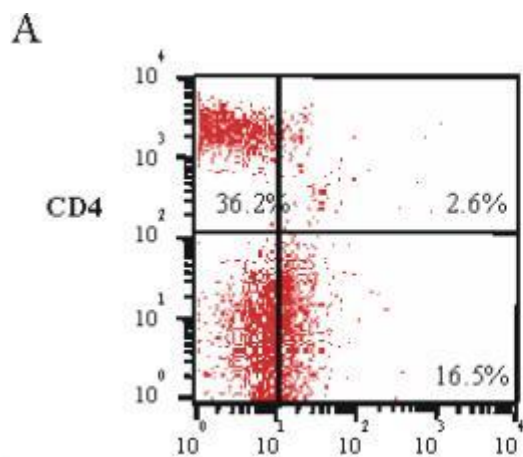


Table 1. WHO clinical staging of established HIV infection

HIV-associated symptoms	WHO clinical stage
Asymptomatic	1
Mild symptoms	2
Advanced symptoms	3
Severe symptoms	4

Table 3. WHO clinical staging of HIV/AIDS for adults and adolescents with confirmed HIV infectionⁱ

Clinical stage 1
Asymptomatic Persistent generalized lymphadenopathy
Clinical stage 2
Moderate unexplained weight loss ($<10\%$ of presumed or measured body weight) ¹ Recurrent respiratory tract infections (sinusitis, tonsillitis, otitis media and pharyngitis) Herpes zoster Angular cheilitis Recurrent oral ulceration Papular pruritic eruptions Seborrhoeic dermatitis Fungal nail infections

Clinical stage 3

Unexplainedⁱ severe weight loss (>10% of presumed or measured body weight)

Unexplained chronic diarrhoea for longer than one month

Unexplained persistent fever (above 37.6°C intermittent or constant,
for longer than one month)

Persistent oral candidiasis

Oral hairy leukoplakia

Pulmonary tuberculosis (current)

Severe bacterial infections (such as pneumonia, empyema, pyomyositis,
bone or joint infection, meningitis or bacteraemia)

Acute necrotizing ulcerative stomatitis, gingivitis or periodontitis

Unexplained anaemia (<8 g/dl), neutropaenia (<0.5 × 10⁹ per litre)
or chronic thrombocytopaenia (<50 × 10⁹ per litre)

Clinical stage 4ⁱⁱ

HIV wasting syndrome

Pneumocystis pneumonia

Recurrent severe bacterial pneumonia

Chronic herpes simplex infection (orolabial, genital or anorectal of more than one month's duration or visceral at any site)

Oesophageal candidiasis (or candidiasis of trachea, bronchi or lungs)

Extrapulmonary tuberculosis

Kaposi's sarcoma

Cytomegalovirus infection (retinitis or infection of other organs)

Central nervous system toxoplasmosis

HIV encephalopathy

Extrapulmonary cryptococcosis including meningitis

Disseminated non-tuberculous mycobacterial infection

Progressive multifocal leukoencephalopathy

Chronic cryptosporidiosis (with diarrhoea)

Chronic isosporiasis

Disseminated mycosis (coccidiomycosis or histoplasmosis)

Recurrent non-typhoidal Salmonella bacteraemia

Lymphoma (cerebral or B-cell non-Hodgkin) or other solid HIV-associated tumours

Invasive cervical carcinoma

Atypical disseminated leishmaniasis

Symptomatic HIV-associated nephropathy or symptomatic HIV-associated cardiomyopathy

¿Diagnósticos?

- No infecciosas
 - Ej: Meningitis linfomatosa, aséptica, de Mollaret
- Bacterial
 - *Streptococcus pneumoniae*, *Listeria*
 - Sífilis
 - Tuberculosis
- Virales
- Fungal
 - Histoplasmosis
 - Criptococcosis

¿Diagnósticos?

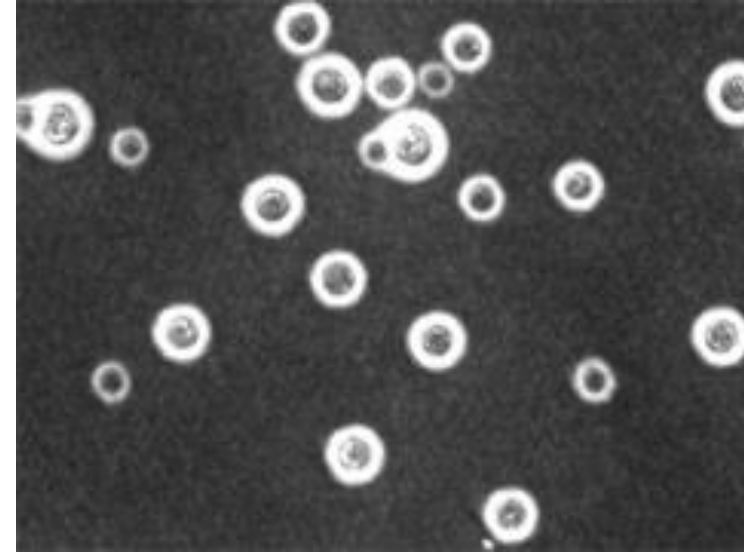
- No infecciosas
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 - Sífilis
 - Tuberculosis
- Virales
- Fungal
 - Histoplasmosis
 - **Criptococcosis**

Meningitis por *Cryptococcus sp.*

- Causa muy común de meningitis en pacientes con SIDA
 - Tres veces más común en pacientes con SIDA
- CD4 usualmente <50 células/mm³
- Cefalea subaguda, fiebre
- Otras manifestaciones incluyen compromiso visual, auditivo, parálisis de nervios craneanos, ataxia, convulsiones
- Rigidez de cuello se reporta en 30-60%

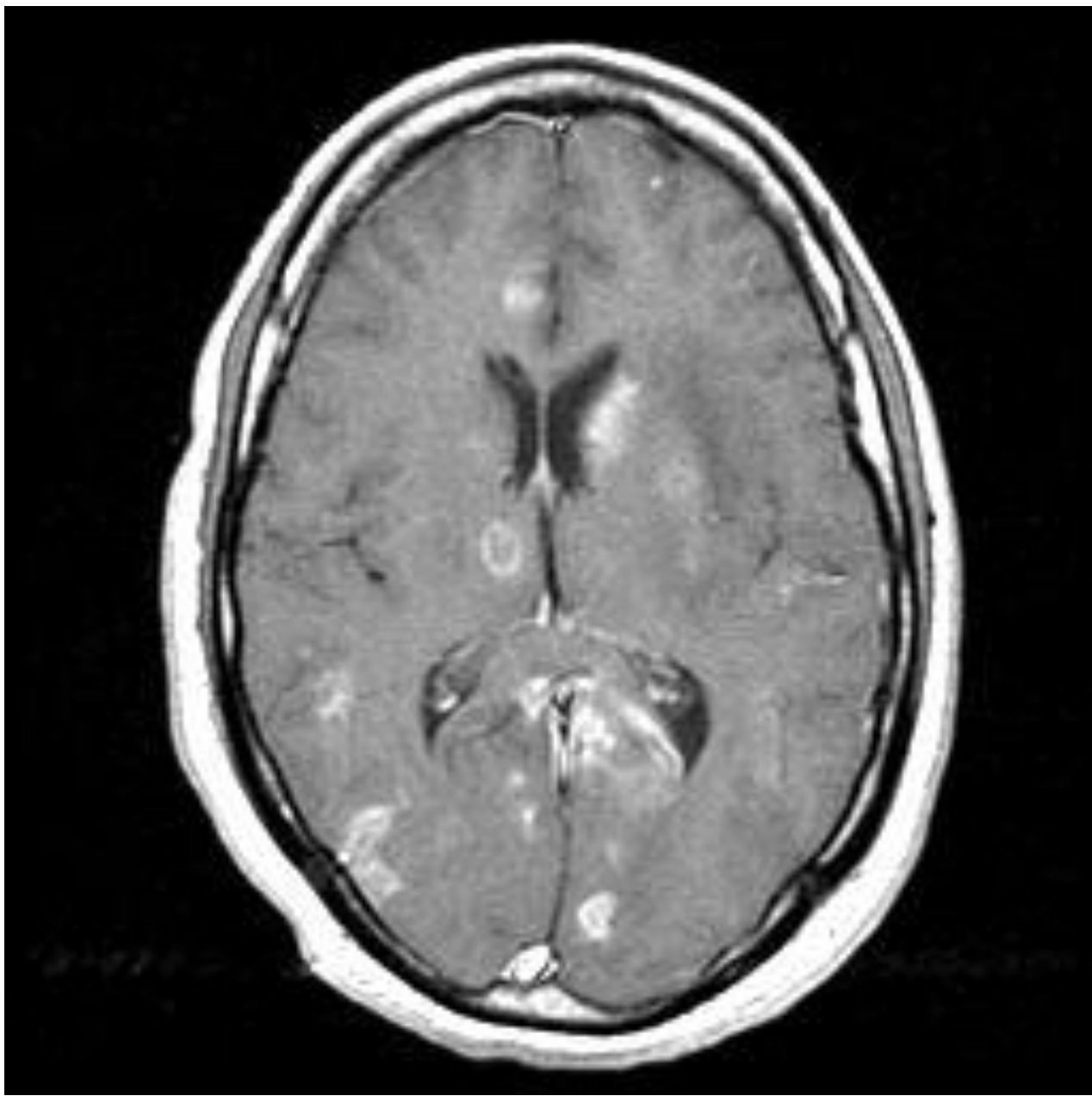
Meningitis por *Cryptococcus sp.*

- Serología positiva >90%
- Cultivos en alrededor 75%
- Análisis del LCR
 - Presión inicial elevada, pleocitosis linfocítica
 - LCR Normal en 20%
 - Tinta china positiva en 75-95%
- En la cohorte de pacientes VIH/SIDA de Pereira (2010-11):
 - 0,7% con criptococosis extrapulmonar



Caso #2

- Paciente femenino, 40 años, conocida con diagnóstico de infección por VIH/SIDA, con conteo de CD4 55 células/mm³.
- Consulta por presentar debilidad progresiva del lado derecho de su cuerpo
- Es valorada por un neurólogo: hemiplegia derecha y parálisis del VII par craneal derecho



Lesiones ocupantes de espacio en pacientes VIH

- Común
 - Toxoplasmosis
 - Linfoma
 - Tuberculoma
- Menos común
 - Croptococoma
 - Leucoencefalopatía multifocal progresiva (LMP)
 - Absceso bacteriano
 - Aneurisma micótico
 - Otras: sífilis, Chagas, *Nocardia*, *Aspergillus*

Radiologic characteristics of CNS masses in HIV-positive patients

- Enhancement with contrast:
 - Toxoplasmosis: ring enhancing
 - Lymphoma: ring or diffuse enhancement
 - Tuberculoma: diffuse enhancement
- Non enhancing:
 - Cryptococcoma
 - PML
- Number of lesions:
 - Toxoplasmosis: multiple lesions
 - Lymphoma: single or multiple lesions
 - Tuberculoma: single or multiple

CNS and *Toxoplasma gondii*

- Usually acquired through oral ingestion
- Prevalence is high in Europe and Africa (50-78%), less frequent in US (10-45%)
- Symptoms occur from reactivation of latent infection
 - Patients are generally seropositive (*Toxoplasma* IgG)
 - CD4<100
 - Course is acute or subacute

CNS toxoplasmosis

- Focal neurologic deficits
 - Altered mental status, weakness, seizures
- Headaches
- Fever
- CT with contrast or MRI: ring-enhancing lesion
- Treatment
 - Pyrimithemine and sulfadiazine (with folinic acid)
 - Alternatives: clindamycin and pyrimethamine, TMP/SMX, dapsone, atovaquone

Toxoplasmosis vs. primary lymphoma

- Toxoplasmosis more likely
 - Positive anti-Toxo IgG
 - Multiple lesions in basal ganglia, cortex
 - Clinical response to therapy in 1 week, imaging response in 2 weeks
 - SPECT scan cold
- Lymphoma more likely
 - Negative anti-Toxo IgG
 - Single lesion, white matter, periventricular
 - No improvement on anti-Toxo therapy
 - SPECT scan hot

Caso #2

- Toxoplasmosis cerebral
 - En pacientes VIH/SIDA de Pereira (2010-2011):
 - 1,6%



Resultados

● Variables asociadas a la ocurrencia de EO

○ Ocurrencia de oportunistas fue mayor en sujetos ≥ 35 años

● 30,5% (IC95% 22,5-38,5) (OR=1,742; IC95% 1,032-2,941).

○ Ocurrencia de oportunistas fue mayor en aquellos no afiliados al SGSSS

● 36,7% (IC95% 23,6-49,7) (OR=2,048; IC95% 1,117-3,753).

Ocurrencia de EO según grupos de Edad

Edad (años)	Ocurrencia de EO		Total
	Sí	No	
≥ 35	n	43	98
	%	30,5%	69,5%
<35	n	33	131
	%	20,1%	79,9%
Total	n	76	229
	%	24,9%	75,1%

$\chi^2=4,362$; $p=0,037$; OR=1,742 (IC95% 1,032-2,941)

Ocurrencia de EO según afiliación a SGSSS

Afiliación	Ocurrencia de EO		Total
	Sí	No	
No	n	22	38
	%	36,7%	63,3%
Sí	n	54	191
	%	22,0%	78,0%
Total	n	76	229
	%	24,9%	75,1%

$\chi^2=5,511$; $p=0,019$; OR=2,048 (IC95% 1,117-3,753)



Resultados



Enfermedades Oportunistas Encontradas



Resultados

● Letalidad

- 7,2%, mayor en aquellos con EO (OR=6,3; IC95% 2,5-15,8)

Muerte según ocurrencia de EO

Ocurrencia de EO	Muerte		Total
	Sí	No	
Sí	n	14	75
	%	18,7%	100,0%
No	n	8	229
	%	3,5%	100,0%
Total	n	22	305
	%	7,2%	100,0%

$\chi^2=19,376$; $p<0,001$; OR=6,34 (IC95% 2,543-15,810)



Resultados

- **Algunas oportunistas específicas fueron significativamente más frecuentes en aquellos ≥ 35 años**

Enfermedad Oportunista (%)	Edad (años)		OR	IC95%
	≥ 35	< 35		
Candidiasis esofágica	6,4	1,2	5,556	1,182-2,632
Síndrome de emaciación	5,0	0,6	8,547	1,035-71,429
Candidiasis de vías aéreas	4,3	0,0	1,045	1,009-1,082
TB extrapulmonar	2,8	0,0	1,029	1,001-1,059



Resultados

- **Algunas oportunistas específicas conllevaron significativamente más a la muerte de los pacientes.**

		Muerte (%)	OR	IC95%
Septicemia recurrente por <i>Salmonella</i>	Sí	66,7	28,100	2,442-323,34
	No	6,6		
Neumonía por <i>P. jirovecii</i>	Sí	50,0	14,684	2,774-77,725
	No	6,4		
Candidiasis esofágica	Sí	36,4	8,698	2,329-32,490
	No	6,2		
Meningitis	Sí	37,5	8,747	1,942-39,397
	No	6,4		
Candidiasis de la vía aérea	Sí	33,3	6,925	1,195-40,130
	No	6,7		
Leucoencefalopatía multifocal	Sí	50,0	13,381	0,808-221,601
	No	7,0		

- **Solo la meningitis fue significativa en el análisis multivariado, para la muerte: $OR_{ajustado} = 7,738$ (IC95% 1,368-43,777).**



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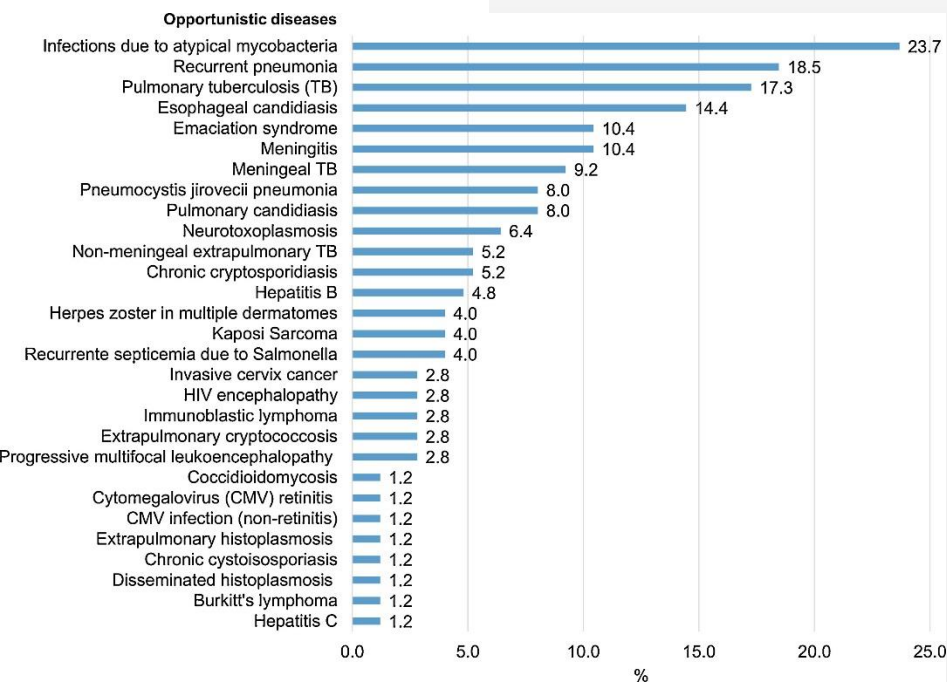


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Article outline

Funding
Conflict of interest
Ethical approval
Acknowledgment
References

Figures and tables



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Volume 6, Issue 6, December 2013, Pages 496–498



Letter to the Editor

Epidemiology of opportunistic diseases in AIDS patients from Pereira municipality, Colombia, 2010–2011

Paola A. Saldarriaga-Arenas^{a, b}[Show more](#)<http://dx.doi.org/10.1016/j.jiph.2013.07.003>[Get rights and content](#)

Morbidity and mortality related to acquired immunodeficiency syndrome (AIDS)-defining opportunistic diseases (ODs) have been significantly reduced since the introduction of highly active anti-retroviral therapy (HAART). However, they still represented a significant epidemiological burden among patients with AIDS in some developing countries [1] and [2]. Even more, there is few recent data, particularly population-based, about the prevalence and factors associated to ODs in AIDS patients of some countries of South America, with limited access to HAART, such as Colombia [3] and [4]. Surveillance studies on it should be frequently done. According to the World Health Organization, this country is in the list of nations with 40–59% of eligible people receiving HAART at the end of 2011 [4].

For these reasons we assessed the prevalence of ODs in the population of AIDS patients living and attended in the municipality of Pereira, the capital area of Risaralda department, in western Colombia, during 2010–2011. This population is included in the HIV control program of Pereira municipality. Pereira (459.667 pop. for 2011) is one of the municipalities with highest incidence of HIV/AIDS in the country, 34.6 cases/100,000 pop. for 2011, with a significant increase in the last 6 years (2006–2011) [5].

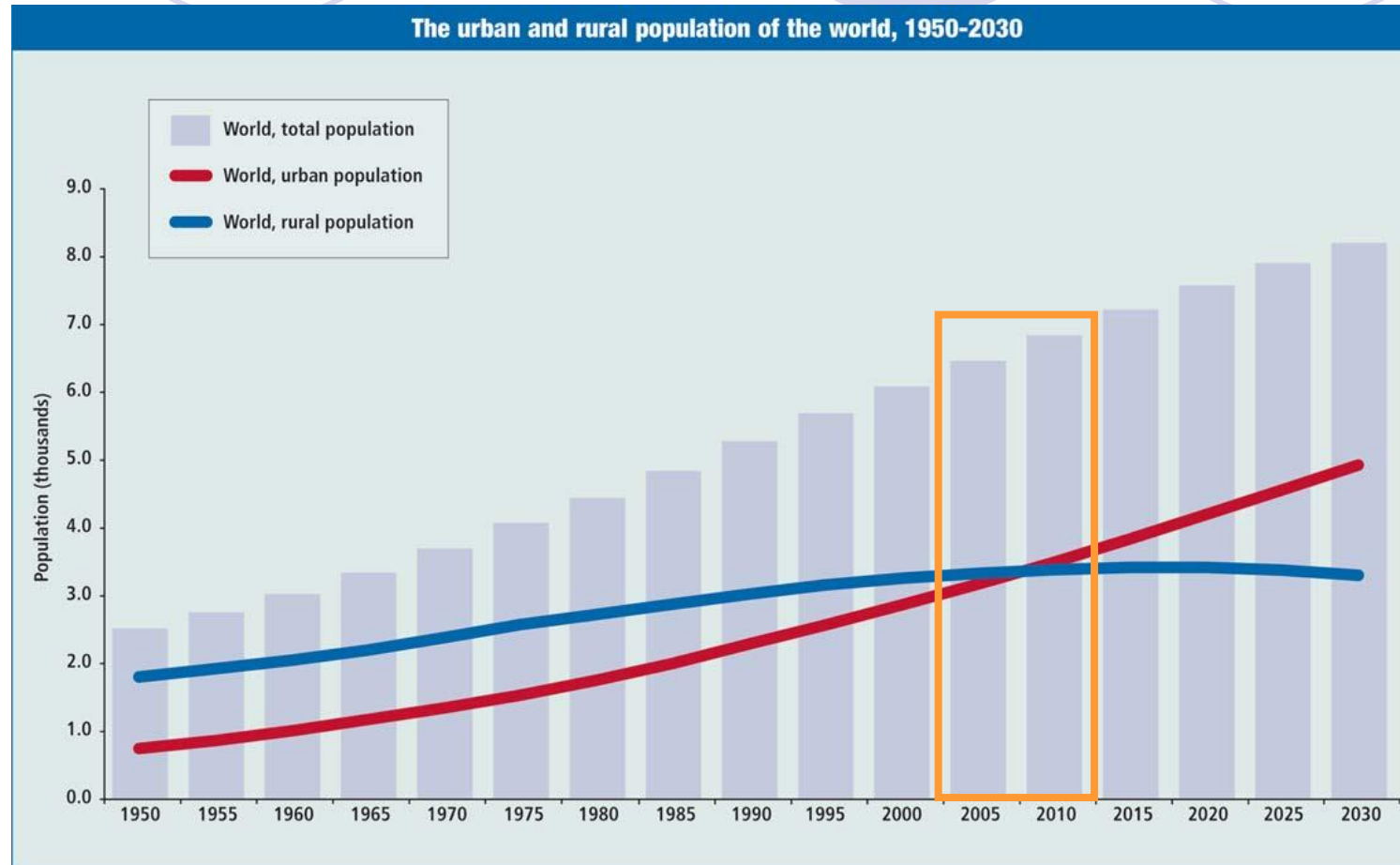
Patients were diagnosed based on epidemiological, clinical and serological confirmation (ELISA HIV-1 and HIV-2 tests and Western-blot, with voluntary counseling and testing). Data was collected through the Epidemiological Surveillance System (SIVIGILA), HIV/AIDS trimester program reports and through HIV/AIDS treatment cohort reports. Opportunistic diseases were clinically, microbiologically and pathologically diagnosed. Collected data was compiled in Excel and then analyzed with SPSS v.17.0[®].





Co-Infección **Chagas /VIH** y su importancia en América Latina y a nivel Mundial

Patrones Mundiales de Migración



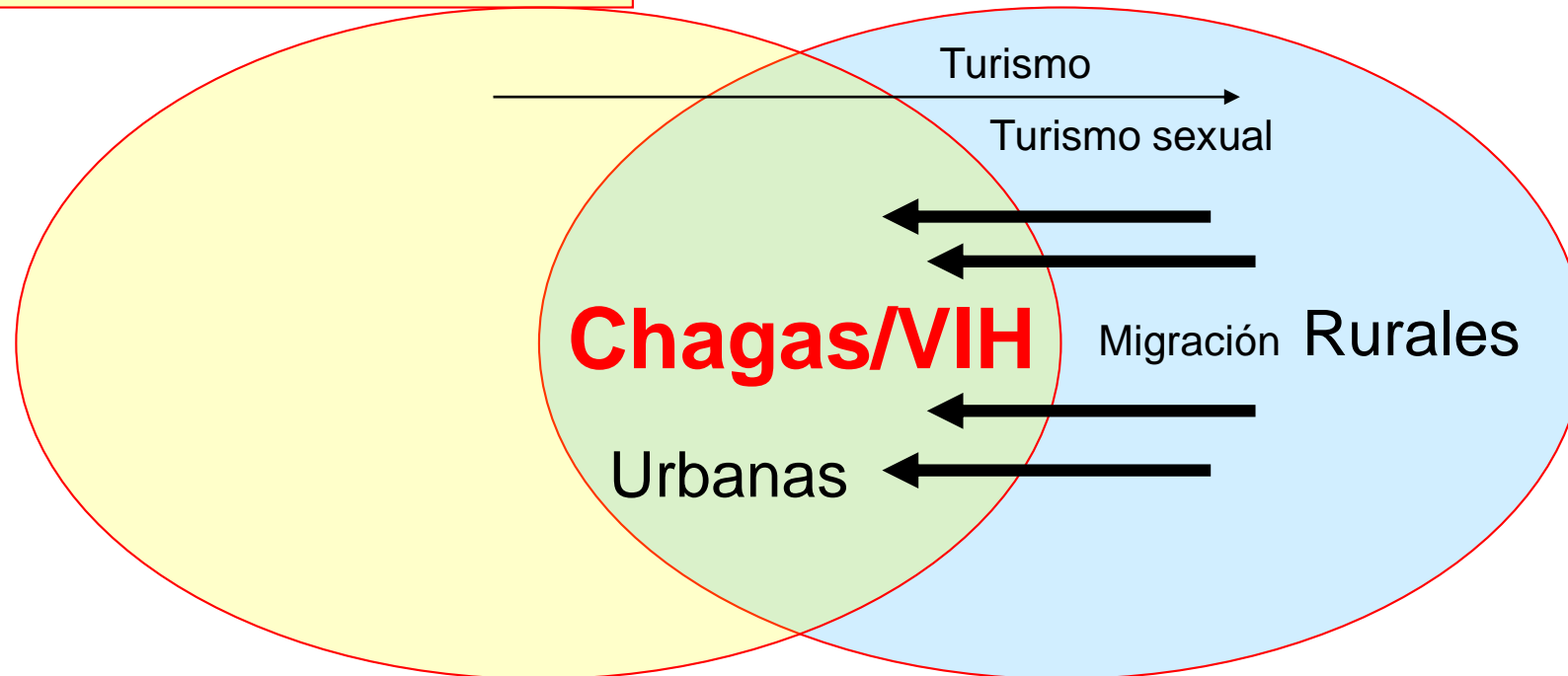
World Urbanization Prospects: 2005 Revision

Solapamiento Geográfico



Trypanosoma cruzi infection occurs primarily in rural regions, and HIV infection occurs primarily in urban regions...
Clinical Infectious Diseases 2007; 45:1208–13

Zonas de Alta Prevalencia de VIH



Zonas de Alta Prevalencia de Chagas

Solapamiento Geográfico

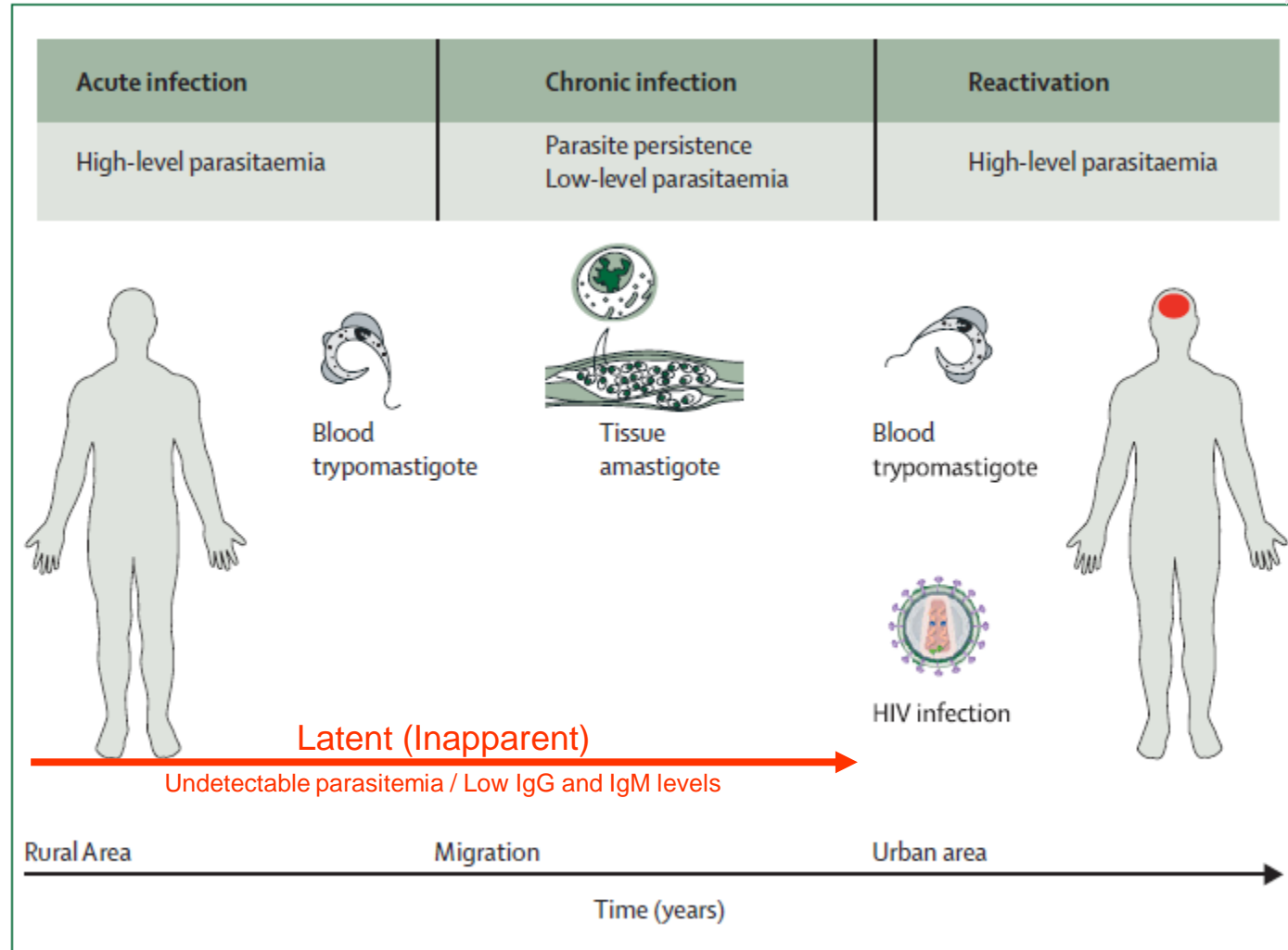
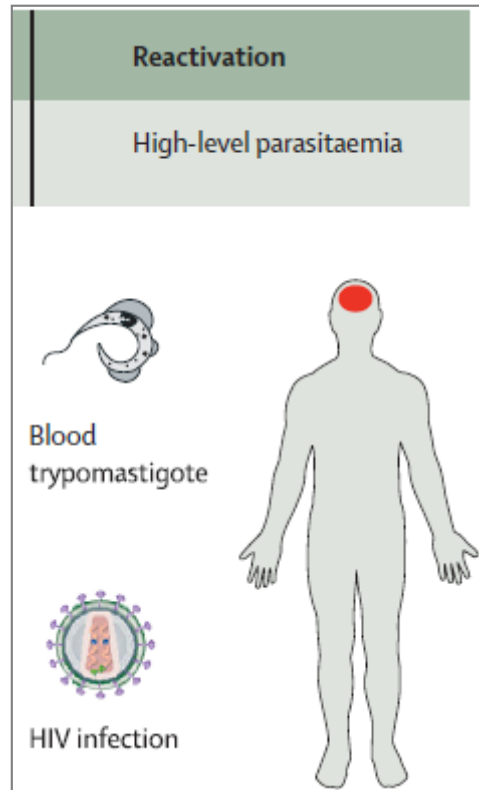


Figure 3: Chronology and natural history of HIV and Chagas disease co-infection

Reactivación



Reactivation of Chagas disease:
Typically among those with
CD4 counts <200 cells/ml



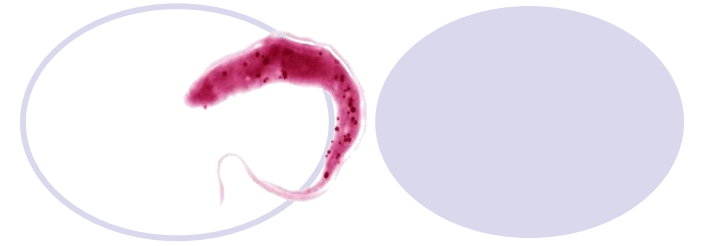
CNS dominates the clinical picture (>50%)

Meningoencephalitis

Heart its also affected as a result (up to 45%)

Myocarditis

CNS disease & reactivation



- acute meningoencephalitis
- brain mass (*brain chagoma*) with symptoms and signs of
 - headache,
 - fever,
 - cognitive changes,
 - seizures,
 - hemiparesis, and
 - aphasia

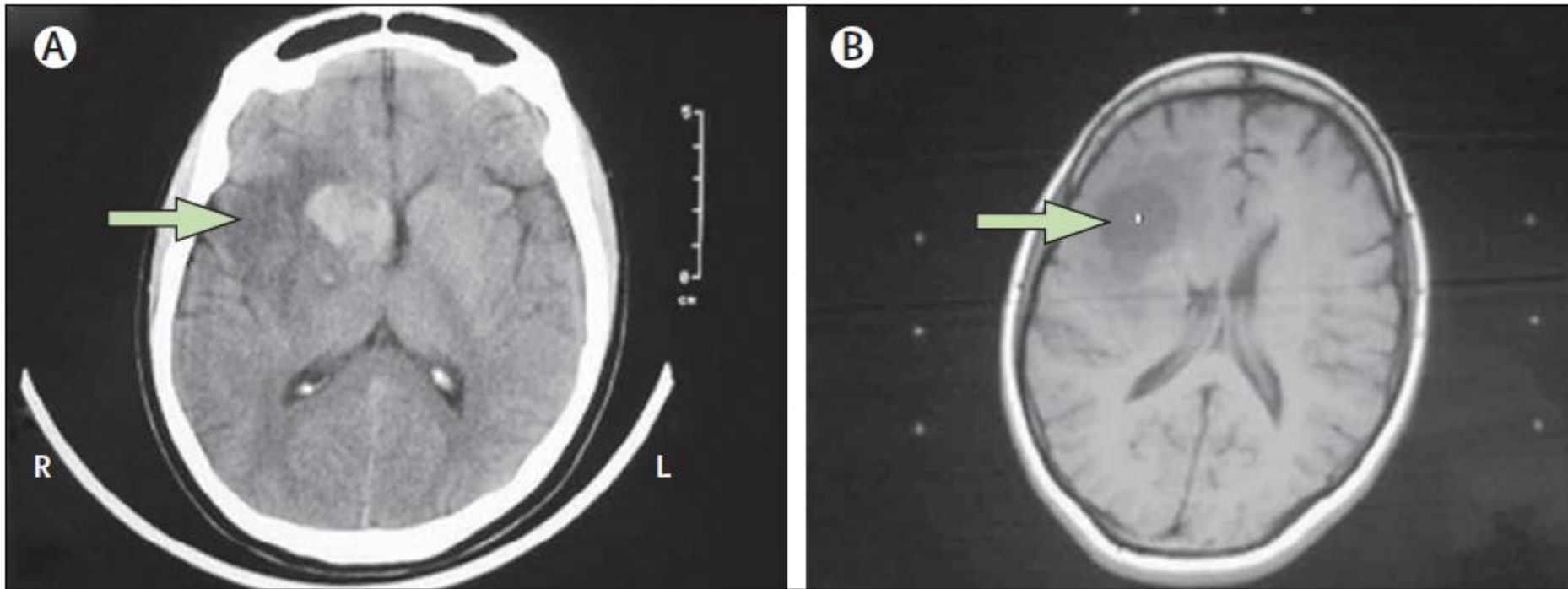


Figure 1: CT scans of the patient's head

Initial tomography (A) showing a space-occupying lesion in the right basal ganglia with some areas of enhancement and surrounding vasogenic oedema. Follow-up tomography (B) after therapy showing a small calcification and an area of encephalomalacia. Affected area indicated by arrows.

Lancet Infect Dis. 2009 May;9(5):324-30.

Chagasic encephalitis in HIV patients: common presentation of an evolving epidemiological and clinical association.

Diazgranados CA, Saavedra-Trujillo CH, Mantilla M, Valderrama SL, Alquichire C, Franco-Paredes C.

Case description

- A 26-year-old woman presented to an outpatient clinic in July, 2003, complaining of progressive headache and left-sided weakness.
- She was born in a rural area of the Department of Quindio in Colombia and had lived for several years at the rural town of Cartagena del Chaira (Department of Cauqueta).
- In May, 2002, her HIV RNA viral load was 222.000 copies per μL and her CD4+ T-lymphocyte count was 189 cells per μL .
- She was then lost to follow-up until July, 2003.
- Her physical examination revealed a temperature of 38.5°C and left-sided hemiparesis. She was admitted to the hospital, and a head CT showed a space-occupying lesion in the right basal ganglia with some areas of enhancement with surrounding vasogenic oedema (figure 1). A presumptive diagnosis of toxoplasma encephalitis was made...
- She was readmitted to the hospital and underwent craniotomy with cerebrospinal fluid (CSF) sampling and brain biopsy.
- Histopathology of the brain biopsy revealed acute and chronic inflammation with areas of necrosis, haemorrhage, and astrocytic gliosis.
- *T. cruzi* serology (indirect immunofluorescence IgG) was positive.

Radiologic characteristics of CNS masses in HIV-positive patients

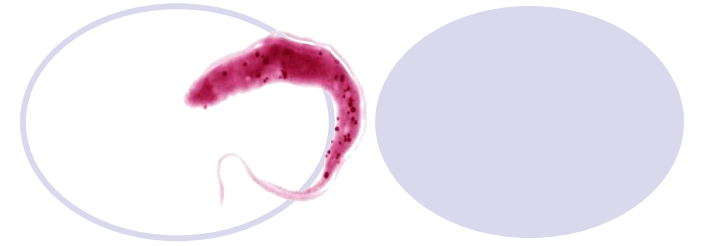
- Enhancement with contrast:
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 - Lymphoma: ring or diffuse enhancement
 - Tuberculoma: diffuse enhancement
- Non enhancing:
 - Cryptococcoma
 - PML
- Number of lesions:
 - Toxoplasmosis: **multiple lesions**
 - Lymphoma: single or multiple lesions
 - Tuberculoma: single or multiple



Other tropical infections and HIV

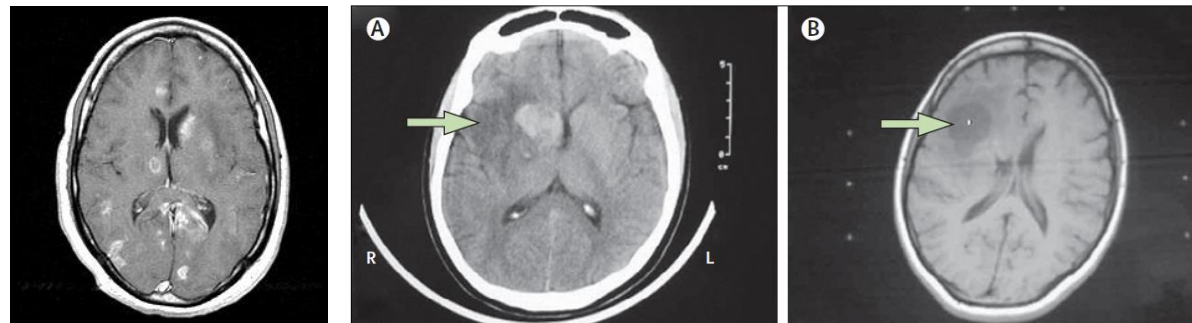
- Measles
 - Coinfection appears to increase risk of death from measles
- Paracoccidioidomycosis
 - Seen in Central and South America
 - Pulmonary and oral mucosal disease, lymph nodes
 - Rare, maybe lower than expected because of co-trimoxazole use
- *Trypanosoma cruzi* (Chagas disease)
 - Reactivation, CD4<200
 - Mimics cerebral toxoplasmosis

CNS disease & reactivation

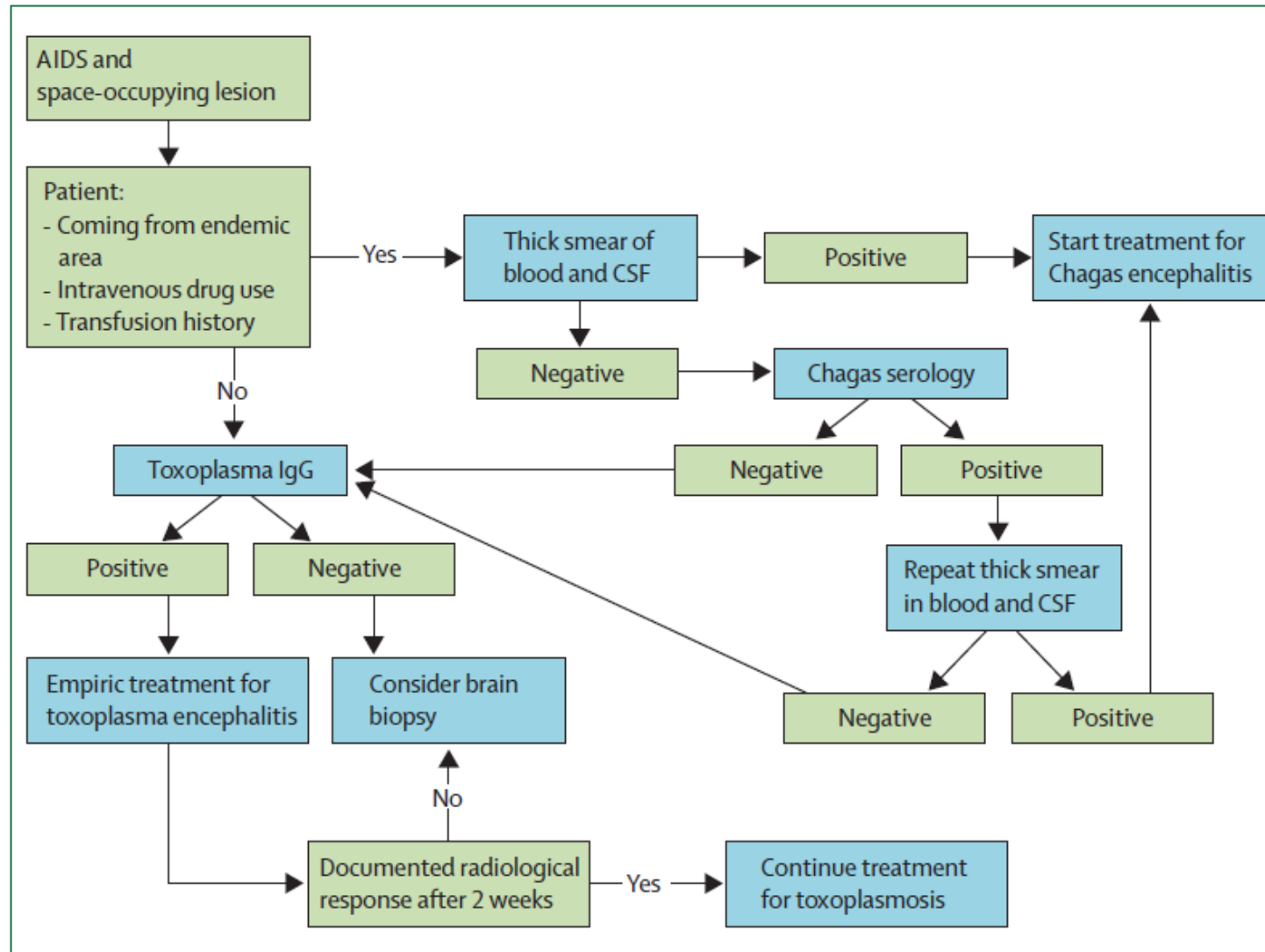


● Neuroimaging

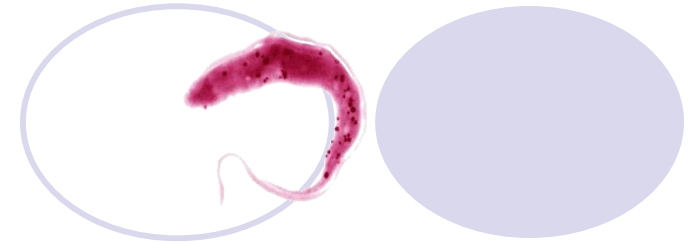
- single or multiple hypodense,
- subcortical lesions with or without enhancement, and
- occur mainly in the white matter



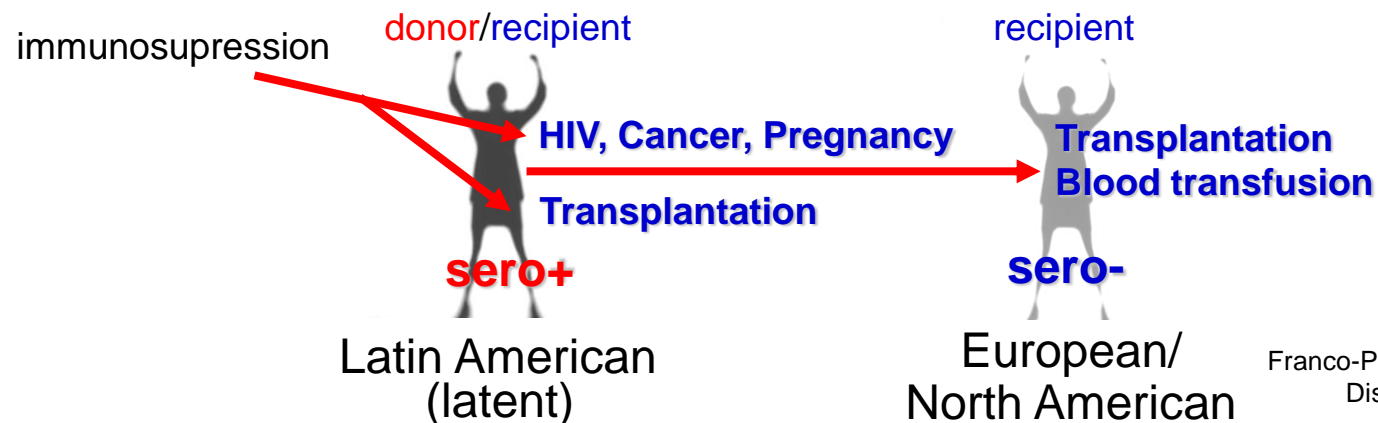
Diagnostic approach to the neurological reactivation of Chagas disease in HIV-infected patients



Chagas Disease and Migration



- *Trypanosoma cruzi* and immunosuppression
 - Reactivation of latent infection in immunosuppressed individuals, such as the HIV-infected and transplant recipients
 - Reactivates from the donated organ or in a previously infected host due to immunosuppression in transplant recipients
 - Transmitted through blood transfusion.

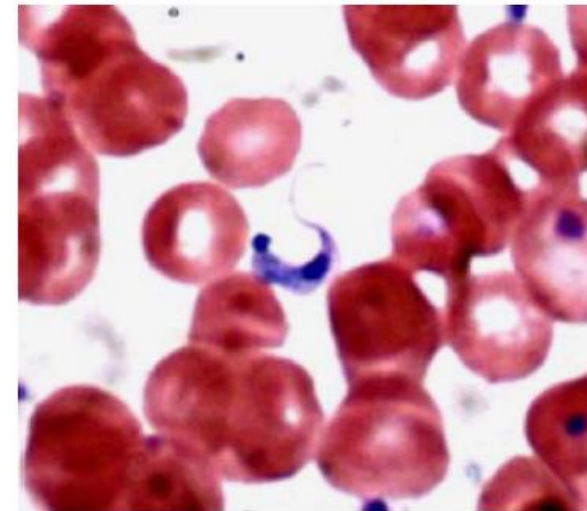


Chagas Disease and Immunosuppression



• Reactivation Clinical Features:

- Myocarditis (acute)
- **Meningoencephalitis**
- Dermatologic lesions associated to the use of high dose corticosteroids
- Clinically, cutaneous Chagas disease may produce
 - indurated erythematous plaques with necrosis
 - erythematous papules
 - nodules
 - panniculitis
 - skin ulcerations.



Franco-Paredes C, et al. Int J Infect Dis. 2010 Mar;14(3):e189-96

Figure 1. Detection of a trypomastigote of *Trypanosoma cruzi* in a peripheral blood smear in a transplant recipient at our institution, acquired from the donor through the graft.⁶

