

## **Necrosis cerebral letal en infección primaria por VIH**

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### **Artículo completo**

In November, 2004, a 31-year-old man was admitted to our hospital with a prominent morbilliform rash, pharyngitis, and a fever (40°C). He had been well until 2 weeks earlier, when he developed a fever, rash, and diarrhoea. HIV serology from 4 days earlier was negative. Neurological examination on admission was normal. However, 3 days later, he became lethargic and had a tonic-clonic seizure, necessitating intubation and mechanical ventilation. There was no evidence of hypoxia or hypotension. HIV screening tests done on admission were positive, indicating seroconversion. HIV western blot was indeterminate; p24 antigen was more than 200 pg/mL, plasma HIV-1 RNA was greater than 500 000 copies per mL, and peripheral blood lymphocytes were  $4.6 \times 10^9$ /L, with 621 CD4-positive cells per  $\mu$ L, and 2759 CDS-positive cells per  $\mu$ L. CT of the brain without contrast was normal, and lumbar puncture showed 217 cells per mL (96% lymphocytes). Culture of blood and cerebrospinal fluid, serology, and PCR did not demonstrate active infection with herpes simplex virus, varicella zoster virus, Epstein-Barr virus, cytomegalovirus, JC virus, *Borrelia burgdorferi*, *Treponema pallidum*, mycobacteria, other bacterial pathogens, fungi, or toxoplasma. Cerebrospinal fluid HIV-1 RNA was greater than 500 000 copies per mL. MRI of the brain showed massive diffuse cortical and laminar necrosis (figure). 6 days after admission, the western blot was positive for HIV-1, and p24 antigen had disappeared.

Despite treatment with zidovudine, lopinavir, efavirenz, and dexamethasone, the patient died 11 days after admission. At that point,

plasma HIV-1 RNA had declined to 114 168 copies per mL, and peripheral blood showed 307 CD4-positive cells per  $\mu\text{L}$  and 407 CD8-positive cells per  $\mu\text{L}$ . Sequences of the HIV-1 reverse transcriptase and protease genes obtained from plasma and cerebrospinal fluid samples revealed no mutations associated with drug resistance and identified the strain as subtype B (accession numbers AJ889842, AJ889843, and AJ889844). At autopsy, the brain showed severe ischaemic neuronal damage, with widespread necrosis in both hemispheres, cerebellum, and brain stem. In the viable zones, discrete mixed perivenous infiltrates were present, with negative immunohistochemistry for CD20, CD3, CD4, CD8, CD68, and syndecan. There was no postmortem evidence of opportunistic infection.

The clinical syndrome of primary HIV infection was described 20 years ago.<sup>1</sup> CNS invasion by HIV-1 early in the course of infection is common and has been supported by many cerebrospinal fluid studies.<sup>2</sup> Although one early report describes a fatal case of brain involvement during probable primary HIV infection, T-lymphocyte subset data was not reported.<sup>3</sup> HIV stimulates cytotoxic T-lymphocytes (CTL) responses in recently infected people. The CTL response initially follows the rise of HIV in the blood, and when that response reaches a peak the virus level falls.<sup>4</sup> In our patient, brain necrosis coincided with the development of CDS-positive lymphocytosis and the disappearance of p24 antigen in the blood. Thus, CTL response rather than HIV virus infection itself may be the cause of brain necrosis; this could not be confirmed postmortem because of extensive necrosis and dexamethasone therapy. Recently, Markowitz et al reported rapid progression in a case of primary multidrug resistant HIV infection.<sup>5</sup> Our case is a reminder that even in the absence of resistance mutations, HIV can rapidly kill.

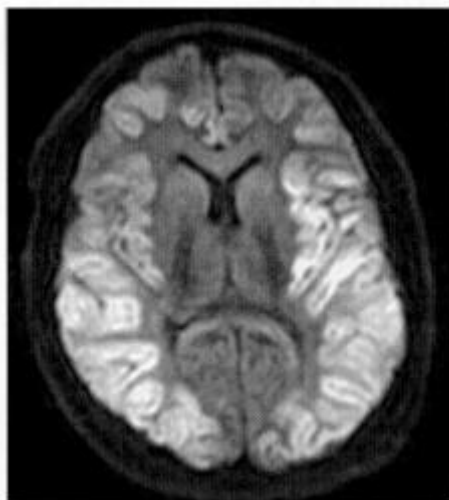


Figure: MRI of the brain (diffusion-weighted image)  
The cortex of the brain is diffusely hyperintense, a reflection of the severe disturbance of the diffusion of the protons in the cells, due to cytotoxic oedema.

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### **[Photograph]**

Figure: MRI of the brain (diffusion-weighted image)

The cortex of the brain is diffusely hyperintense, a reflection of the severe disturbance of the diffusion of the protons in the cells, due to cytotoxic oedema.

### **[Reference]**

#### References

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