Diffuse bilateral pattern

HIV encephalopathy

HAND: HIV associated neurocognitive disorders

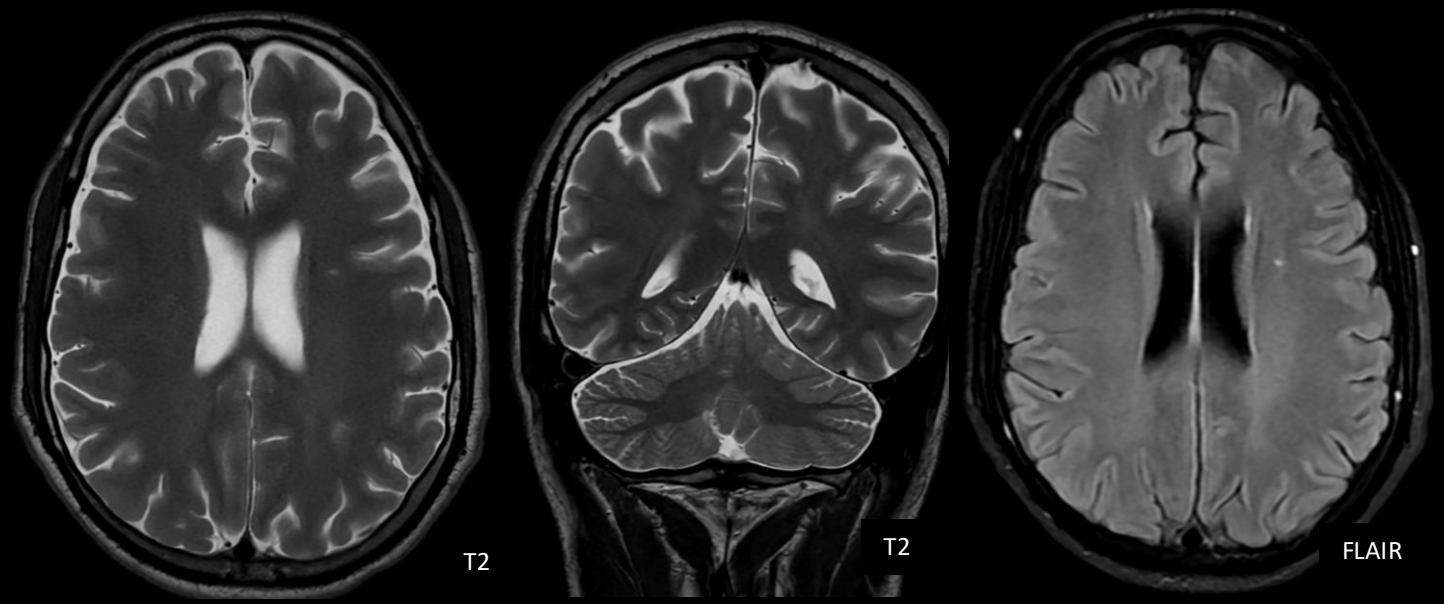
CD4 between 200-500

Prevalence 25 % of HIV patients

HIV enters CNS and causes chronic inflammation. **Antiretroviral therapy (ART) do not cross the blood brain barrier BBB.**

Asymptomatic on early stages → Cognitive symptoms on advanced stages

Leukoencephalopathy due to axonal degeneration and diffuse demyelination.



32-year-old patient with a history of HIV. Increased signal is seen on T2 and FLAIR in deep bilateral periatrial white matter (WM) associated to global brain involutional changes.

Imaging findings

T2-FLAIR: hiperintensity in deep bilateral white matter (WMA)

T1 iso o hipointensite

Symmetric progressive cerebral

atrophy.

Improvement in abnormal signal with treatment

Spectroscopy, diffusion tensor imaging (DTI) y arterial spin label (ASL) → may show early response signs associated with treatment.

Focal pattern
Toxoplasmosis

Caused by intracellular parasite infection of toxoplasma gondii.

In HIV patients with CD4<100, reactivation of latent infection occurs, generating focal encephalitis.

CNS-Toxo: compatible clinical syndrome, identification of one or more lesion by imaging on CT or MRI and detection of parasite in clinical samples

Imaging findings

Multiple intra-axial lesions from 2 to 3 cm in diameter, with annular contrast enhancement, marginalized by vasogenic edema.

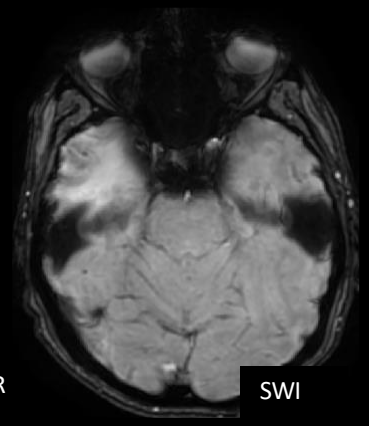
Single lesion in 15-20% of cases

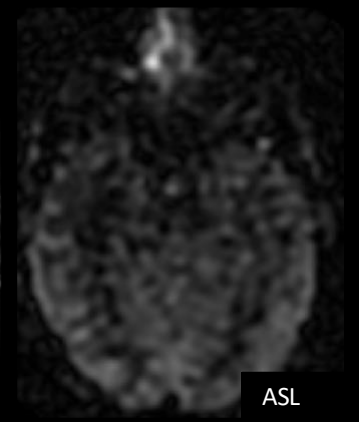
Most common locations: WM, thalamus, subcortical white matter and cerebellum.

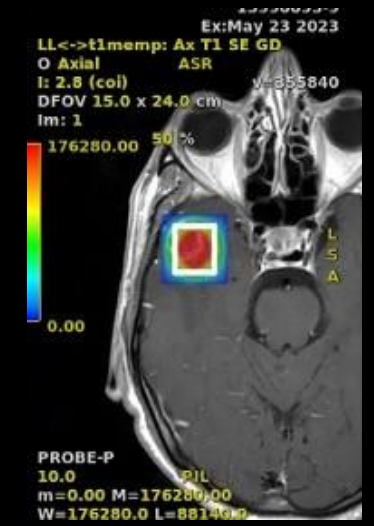
If CD4 <50 it may not enhance.


T2


FLAIR

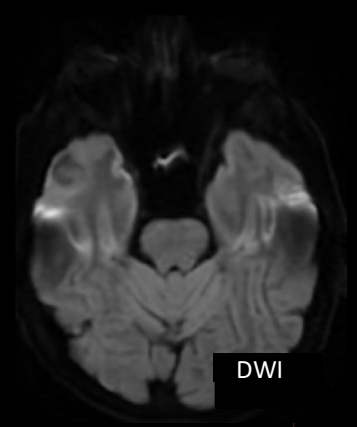

SWI

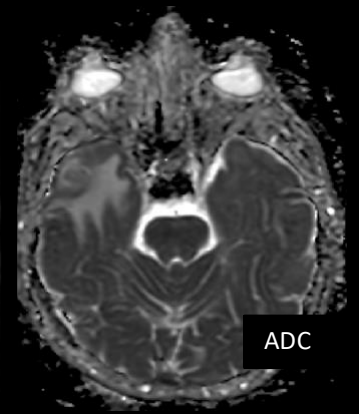

ASL

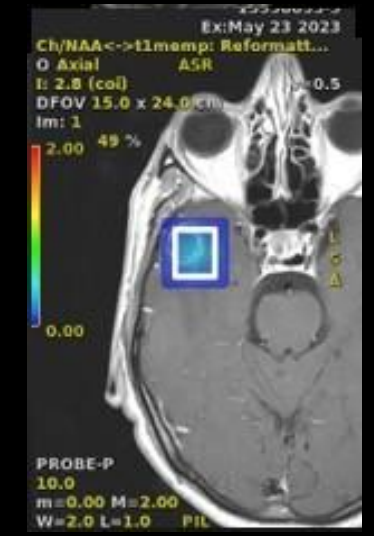


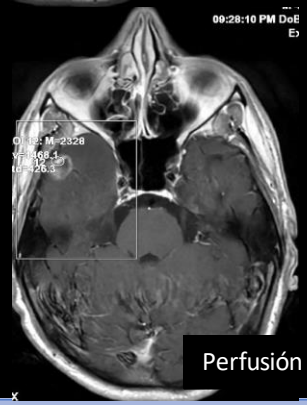

T1

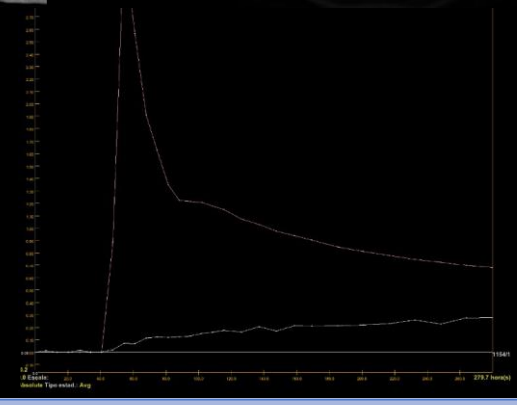

T1 GD

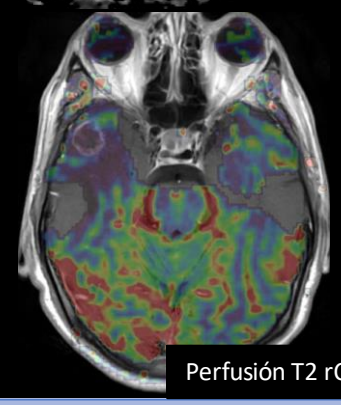

DWI


ADC




Perfusión T1



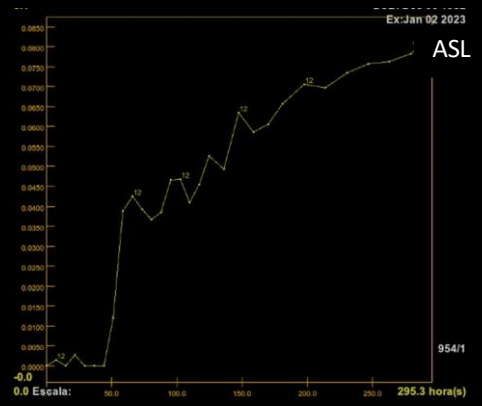

Perfusión T2 rCVB

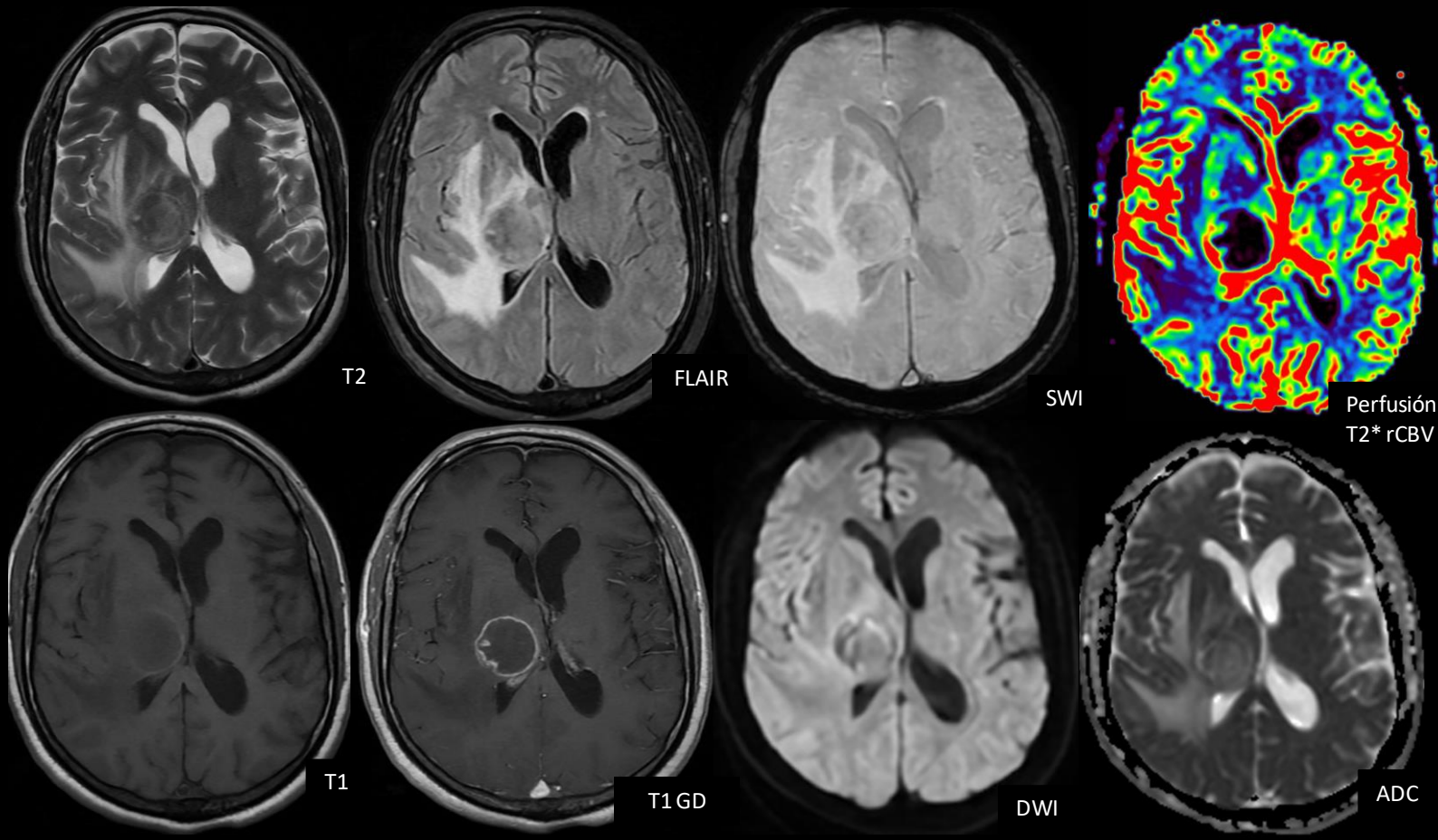
Patient with a history of HIV, with CD4 of 45. Presents a single right basal temporal lesion, hypointense on T2, with ring enhancement with gadolinium, marginalized by vasogenic edema with minimal intralesional magnetic susceptibility. T1 perfusion shows an inflammatory curve. There is no increase in rCBV in T2* perfusion. Spectroscopy (MRS) is represented in color maps, showing high intralesional lipid/lactate (LL) (upper image) without an increase in Choline over N Acetyl L Aspartate (Cho/NAA) greater than 2 times (lower image).

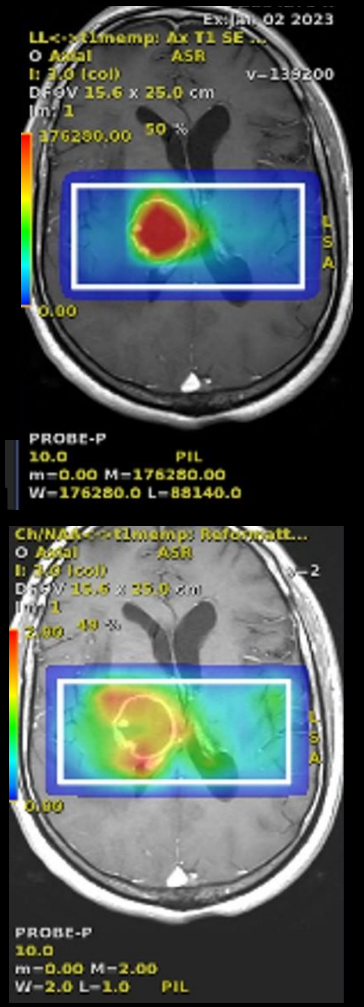
Focal pattern
Toxoplasmosis

MRI findings

- T2 target sign
- Eccentric target sign in T1 Gd.
- Specific, but only seen in a third of cases.







Patient with a history of HIV, with a single right thalamocapsular lesion, hypointense on T2 with target sign on T2, marginalized by vasogenic edema with minimal intralesional magnetic susceptibility. Mild spontaneous signal hyperintensity on T1, with ring enhancement with gadolinium, showing eccentric target sign. T1 perfusion also shows an inflammatory curve. Increased rCBV in peripheral T2* perfusion. The spectroscopy (MRS) is represented in color maps, showing high intralesional LL (upper image), with a slight increase in Cho/NAA two times higher in the periphery of the lesion (lower image). The patient showed a pseudotumoral presentation of toxoplasmosis.