Limbic Onset of Neurosarcoidosis: a challenging Neurological diagnosis for a Systemic Disease

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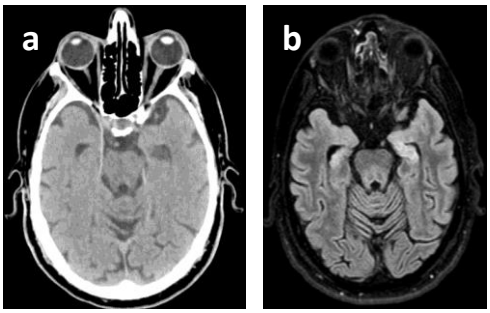
Objectives: Neurological symptoms may indicate neurosarcoidosis, even in the absence of systemic signs. *We hereby report a diagnostically challenging case of systemic sarcoidosis initially presenting with radiological features suggestive of limbic encephalitis, later evolving into diffuse granulomatous encephalopathy.*

Figure 1: Initial CT (a) and brain MRI (b)



Materials and Methods: A 57-year-old man with no prior neurological history presented with acute memory loss, disorientation and gait instability, progressively worsening over several weeks. Initial brain CT revealed a hypodense area in the left hippocampus, suggestive of subacute ischemia (***Figure 1a***) . Brain MRI showed bilateral mesial temporal hyperintense FLAIR lesions with diffusion restriction and contrast enhancement, highly suggestive of limbic encephalitis (***Figure 1b***) . High-dose IV methylprednisolone (1 g/day × 5) was administred, inducing partial improvement and MRI regression (***Figure 2a***). A comprehensive workup (CSF, CT, PET-CT, serology, lymph node biopsy) was performed.

Results: In the following weeks, neurological status worsened and MRI showed bilateral progression to temporo-polar, fronto-basal, and cingulate regions (***Figure 2b-d***). Paraneoplastic tests were negative and ACE levels were normal, likely due to corticosteroid therapy.EBUS-TBNA demonstrated non-caseating granulomas, supporting neurosarcoidosis; PET-CT confirmed systemic involvement. A second steroid course and IVIG achieved limited benefit, while infliximab therapy led to marked cognitive and functional improvement with radiological resolution. The patient was discharged to intensive rehabilitation in improved condition.

Figure 2: MRI progression, with initial improvement (a) and subsequent worsening (b-d)

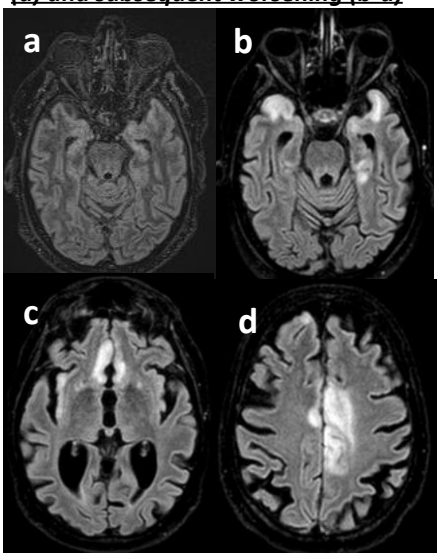
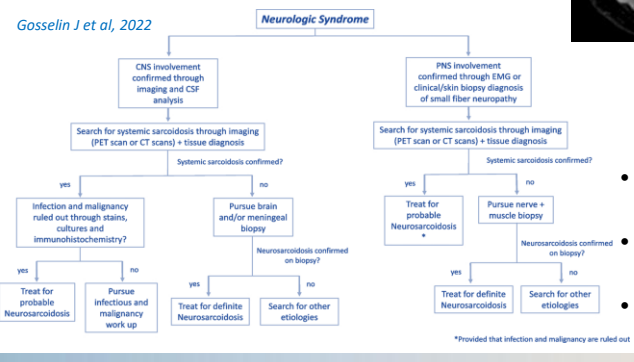


Figure 3: Proposed Neurosarcoidosis work-up algorithm



Discussions and Conclusions:

"Looks like encephalitis, behaves like sarcoidosis"

- Neurosarcoidosis can **mimic limbic encephalitis**
- **Granulomatous pathology** holds the diagnostic key
- **Team-based, multimodal evaluation** makes the difference