

Diagnostic complexity in concurrent neurodegeneration and neurovascular pathology - a report of 2 cases



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Introduction

- The high prevalence of chronic cardiovascular risk factors and diseases often leads to a variety of neurovascular involvement.
- With concurrent increasing rates of neurodegenerative disorders and enhanced understanding of overlapping pathologies, current diagnostic criteria may be inadequate and clinical presentations and diagnoses of cognitive disorders is expected to become more complex.
- We describe 2 cases to illustrate this complexity.

Case 1 – Lewy Body Dementia vs Stroke vs HIV

50 year-old Chinese male with rapidly progressive cognitive decline over 6 months.

Baseline medical factors:

- HIV diagnosed in 2018 virally suppressed on 1st-line ART and compliant to meds
- Nadir CD4 >200
- No history of opportunistic infections
- recreational drug use (ICE)
- treatment-resistant Hypertension with episodes of hypertensive emergencies
- recurrent stroke and TIA despite secondary prevention (Left hemisphere)

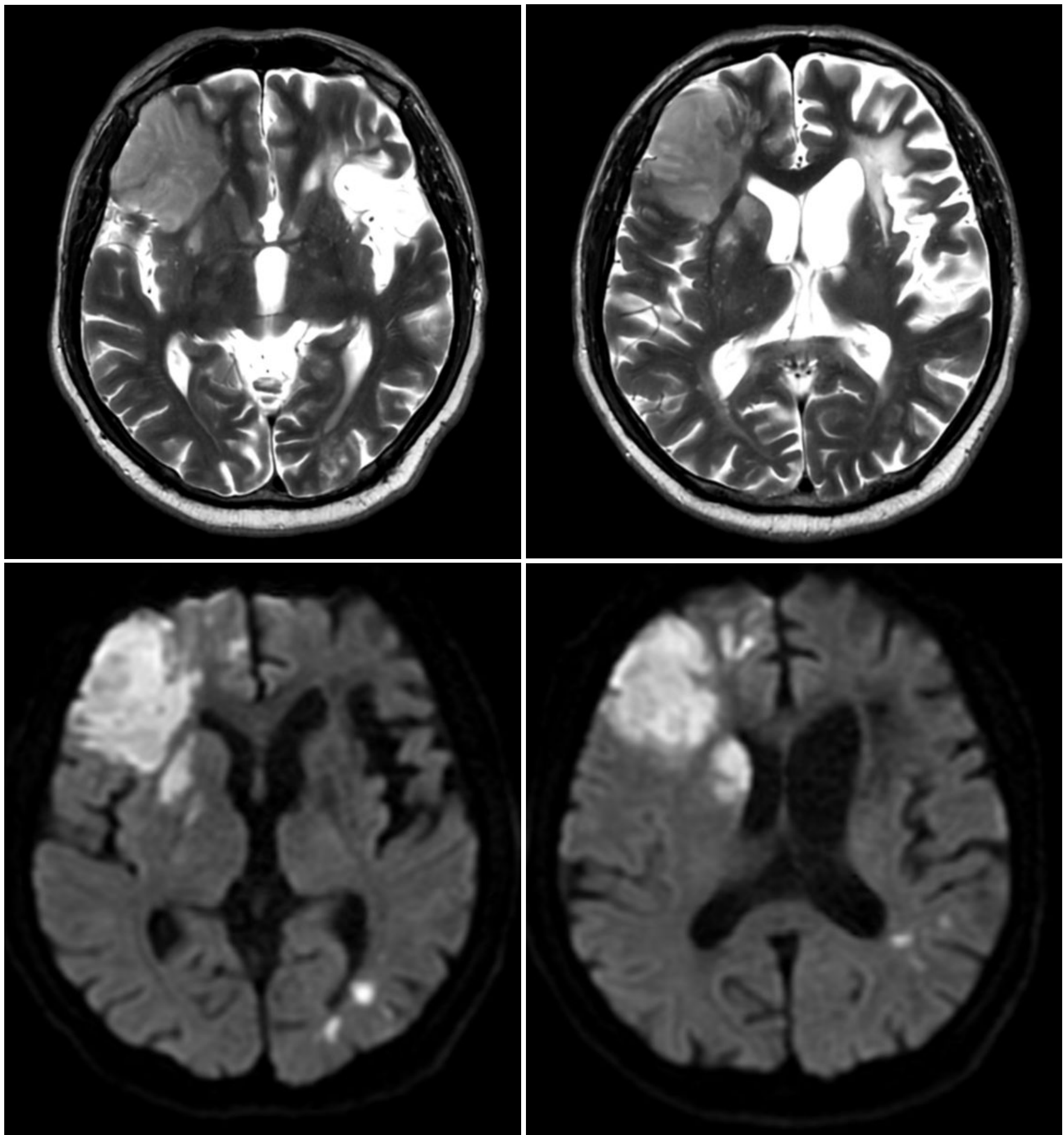
Best baseline state:

Was employed and attended clinic independently up to October 2024

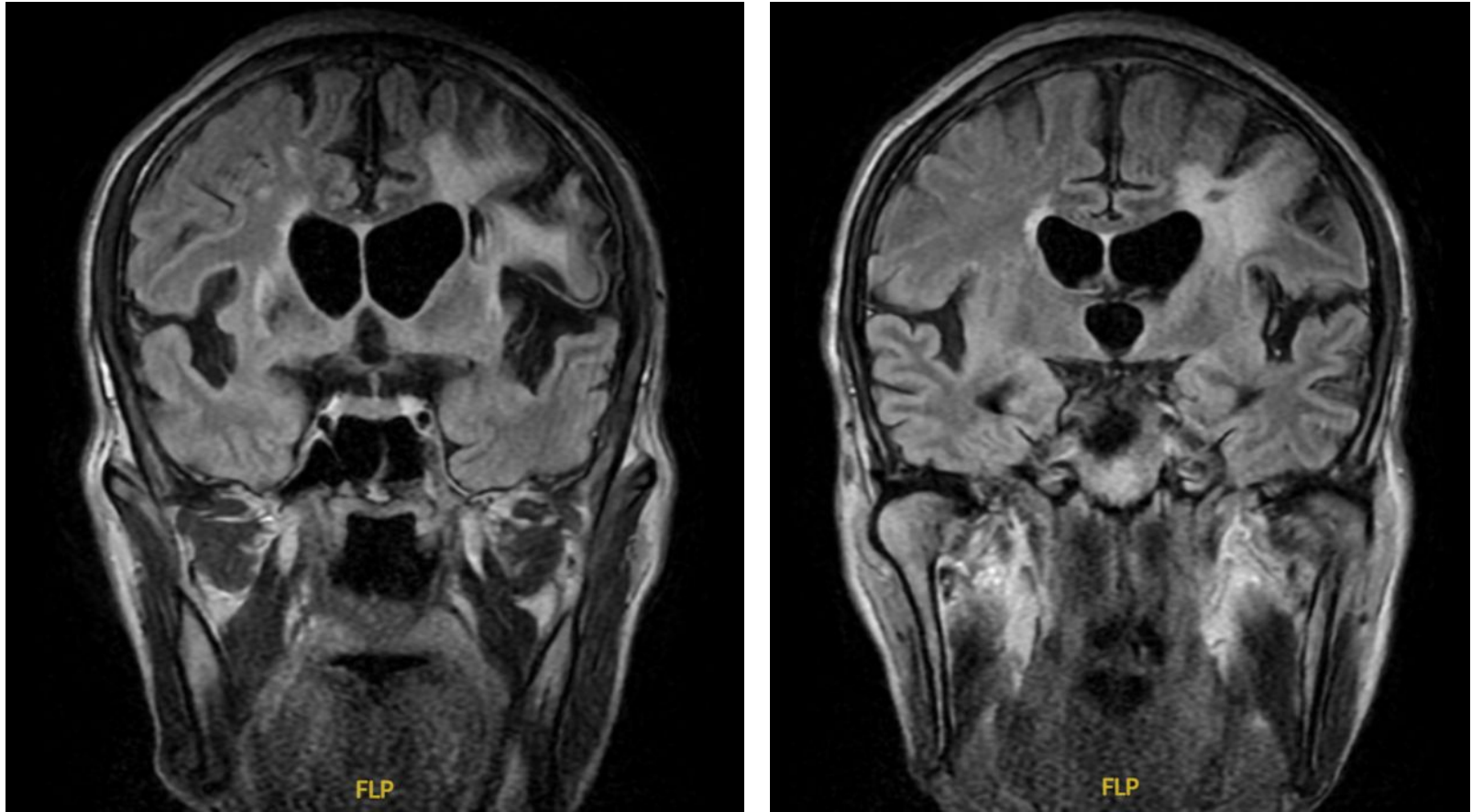
March 2025

Acute altered and fluctuating mental state
Brought to hospital by police and ambulance for abnormal behavior in public
Inconsistent self-report of drug use just prior to admission
Urine toxicology positive for methamphetamines

MRI Brain done as part of delirium work-up showed bilateral strokes of likely cardioembolic source



Significant images showing acute and chronic strokes in T2 and DWI sequences of MRI Brain done in March 2025



Coronal images from October 2025 showing periventricular white matter changes not related to old stroke

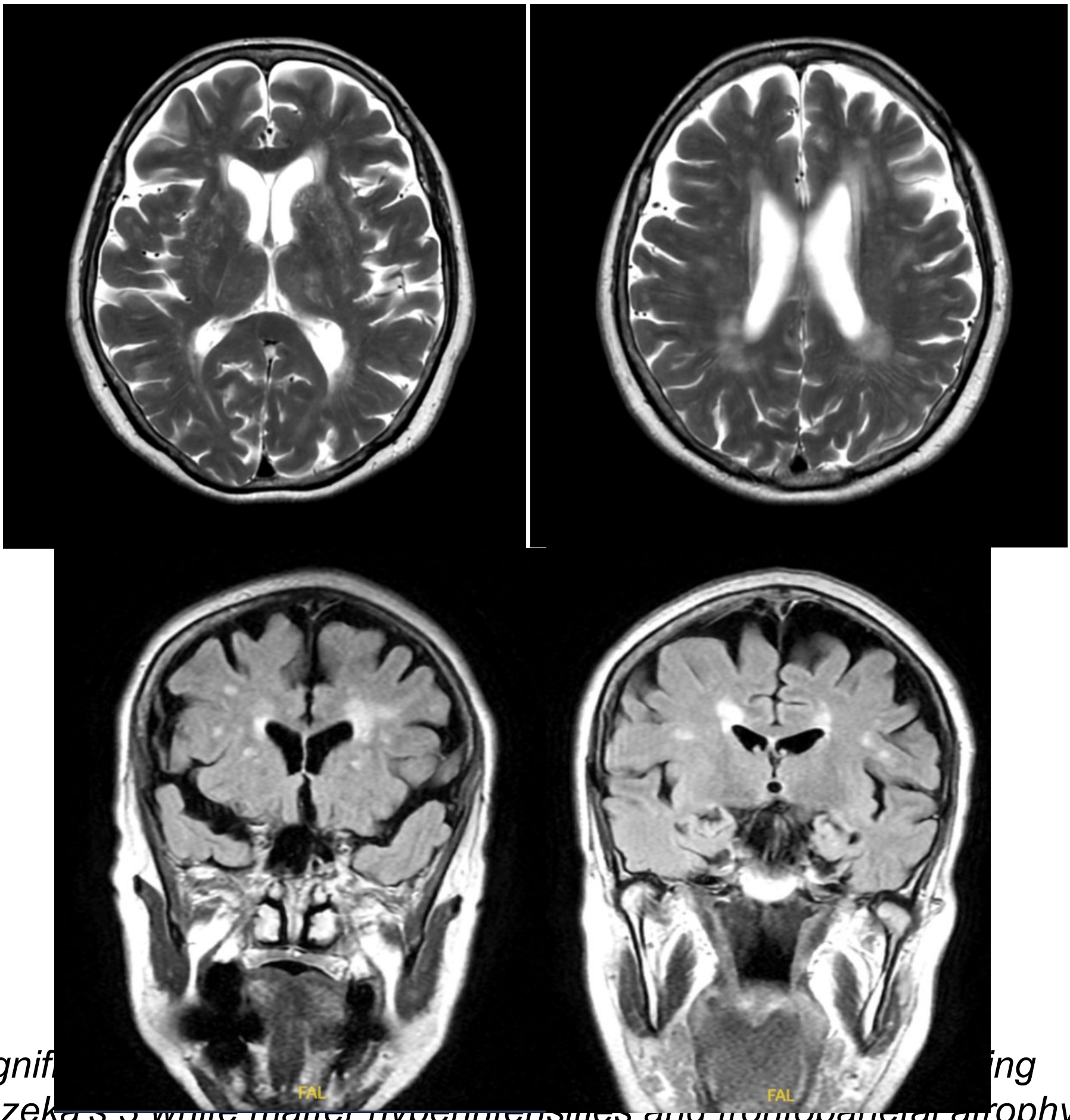
Progress from March to October 2025

- good initial physical recovery from stroke with gradual decline to chair/bedbound status and nasogastric tube feeding from August onwards
- mild bilateral parkinsonism, with sensitivity to multiple antipsychotics, even tardive dyskinesia
- MOCA = 5/30 and MMSE = 18/30 at 1 month post-stroke with gradual global decline and behavioral disturbances
- Fluctuating psychiatric symptoms of depressed mood, auditory and visual hallucinations, paranoid beliefs resistant to multiple psychotropics
- Excluded other causes of rapidly progressive dementia

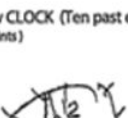
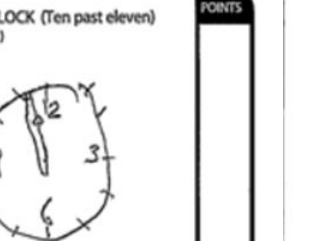
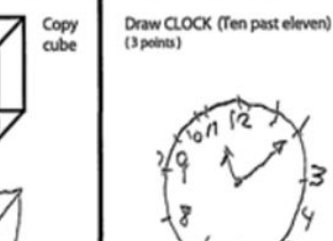
Case 2 – Vascular Depression vs Alzheimer's

71 year-old premorbidly high-functioning Chinese female who presented with 1 year history of functional and social decline.

Mini Mental State Exam score was borderline at 26/30
Concurrently detected Alzheimer's biomarkers in cerebrospinal fluid - **pTau/Abeta 423 ratio = 0.053**



Significant images showing white matter hyperintensities and nonparietal atrophy

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