

Thalamic Stroke in a Young Adult: A Diagnostic Challenge

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INTRODUCTION

Thalamic strokes are an uncommon pathology, but recent studies suggest they are relatively more frequent in young adults, especially in the paramedian territory.¹

These infarcts often present **cognitive** and **behavioral symptoms**², which may mimic inflammatory disorders, resulting in diagnostic delays or unnecessary investigations. Furthermore, their often **subtle clinical onset** increases the likelihood of misinterpretation in acute care settings.

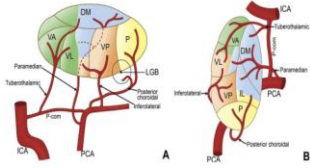


Fig. 1 Schematic diagram of lateral view (A) and dorsal view (B) of four major thalamic arteries and the nuclei they irrigate².

CASE STUDY

We report the case of a **20-year-old** female who presented to our emergency department five hours after the onset of **drowsiness, cognitive slowing**, and transient **visual disturbances**.

Her medical history included celiac disease and seasonal allergic rhinitis, and she was on transdermal estrogen-progestin therapy.

- **Neurological examination**: fluctuating level of consciousness, reduced emotional expression, apathy, speech impairment, absence of focal motor or sensory deficits.
- **EEG**: bilateral temporal EEG abnormalities
- **CT brain scan**: negative

Preliminary **differential diagnosis**: considering her age, autoimmune background, and EEG findings, an inflammatory or autoimmune etiology was initially suspected.

- **Brain MRI**: **left paramedian thalamus**
 - DWI hyperintense lesion
 - corresponding hypointensity on ADC maps
 - T2-FLAIR hyperintensity
 - MRA: hypertrophy of thalamoperforating arteries
- **Thrombophilic and autoimmune screening**: negative
- **Cardiological rhythm study** though Holter ECG: negative
- **Cardiological study** through transcranial bubble test, transthoracic and transesophageal echocardiography: **tunnel-like patent foramen ovale (PFO) with massive right-to-left shunt**

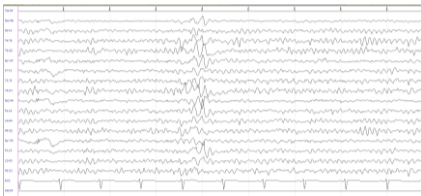


Fig. 2 EEG of the patient in the emergency department.

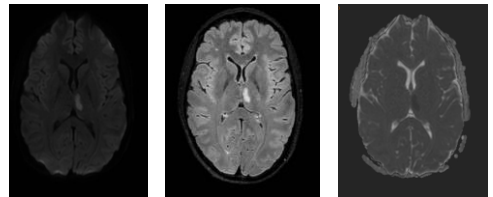


Fig. 3 Brain MRI of the patient. For left to right: DWI, FLAIR and ADC maps

DISCUSSION & FOLLOW-UP

High-resolution MRI plays a crucial role in the differential diagnosis in such cases.

The presence of a PFO, together with estrogen therapy, supported the hypothesis of **paradoxical embolism** (RoPE score = 7), a recognized mechanism in cryptogenic stroke in the young. The patient was initiated with antiplatelet therapy and was considered a suitable candidate for PFO closure.

At the 3-month follow-up, she had resumed normal daily activities (modified Rankin Scale score of 1), although excessive daytime sleepiness persisted, accompanied by episodes of derealization followed by headache.

CONCLUSIONS

This case illustrates the **diagnostic challenges** of thalamic stroke in young patients and the key role of MRI in identifying deep cerebral infarcts. It also highlights how the **insidious presentation of paramedian thalamic strokes** can lead to diagnostic delays, reinforcing the importance of considering this diagnosis in this epidemiological subgroup and the need for early advanced neuroimaging.

REFERENCES

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