

INTERACTN CASE

# The case of a 70-year-old woman presenting with sudden onset apathy and amnesia

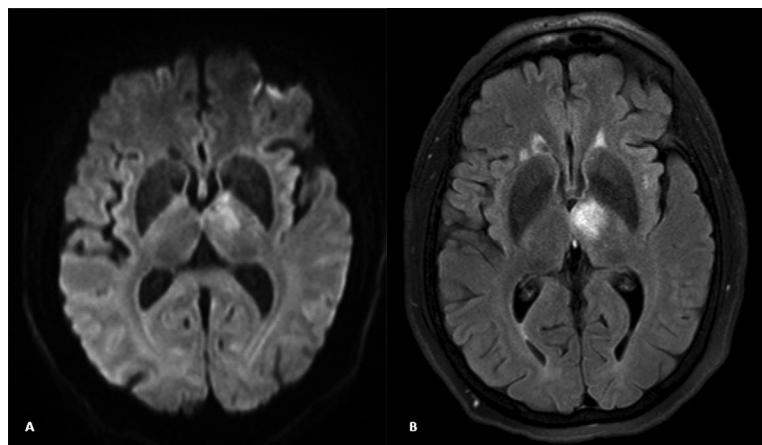
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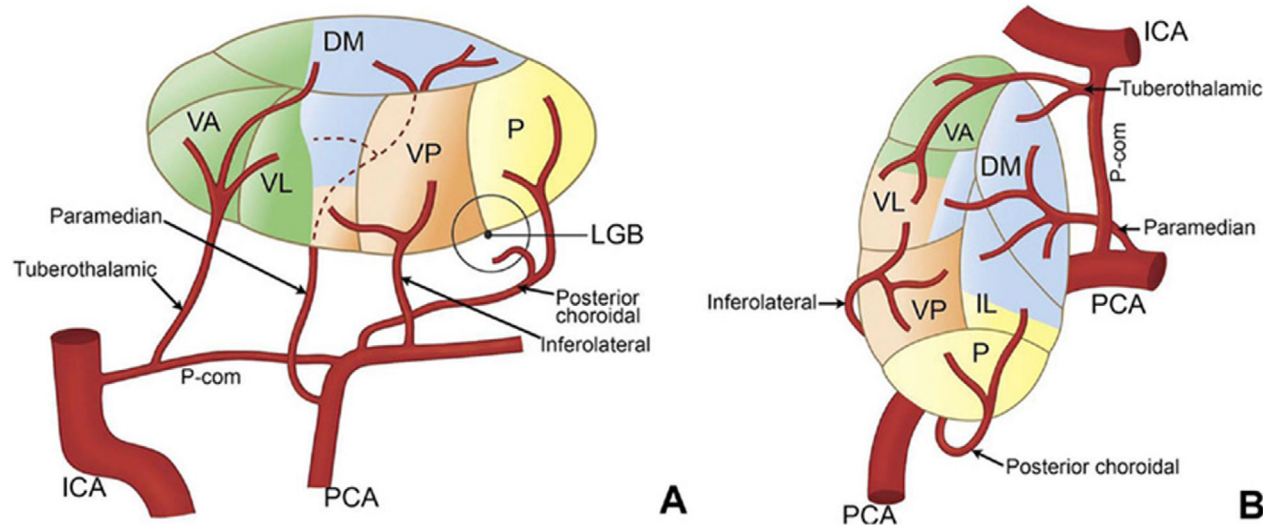
## Summary of Case

A 70-year-old woman developed sudden onset apathy and amnesia eight days prior to presentation. She presented to the emergency department at the request of her family. She had no concerns. She exhibited no apparent physical neurologic abnormalities. Her family noted that she was often unable to recall where she had been and what she

had done. Brain MRI revealed a small area of restricted diffusion in the left anterolateral thalamus consistent with a tuberothalamic (polar) artery subacute infarct (Fig. 1). This case demonstrates the importance of the thalamus in regulating memory and behavior, including evidence by formal neuropsychiatric testing. The tuberothalamic artery supplies the reticular nucleus, the mamillothalamic tract, part of the ventral lateral and dorsomedial nuclei, and the



**Figure 1.** MRI revealing left-sided subacute anterior thalamic infarct and right-sided acute inferomedial cerebellar infarct. (A) Diffusion-weighted image (DWI) and (B) fluid-attenuated inversion recovery (FLAIR) sequence showing a subacute infarct of the anterior thalamus, tuberothalamic artery territory.



**Figure 2.** The tuberothalamic artery supplies the reticular nucleus, mamillothalamic tract, lateral and dorsomedial nuclei, and lateral thalamic pole. Occlusion produces an “anterior thalamic behavioral syndrome” with perseveration, apathy, and amnesia. Amnesia results from disconnection of anterior thalamic nuclei and the hippocampus, as well as the amygdala and anterior nuclei. Image courtesy of Dr. Shuo Li, with permission.<sup>4</sup>

lateral aspect of the thalamic pole (Fig. 2). Damage to this territory produces a unique “anterior behavioral syndrome” marked by perseveration, apathy, and amnesia. The amnesic component is secondary to disconnect between the anterior thalamic nuclei and the hippocampus via the mammillothalamic tract, as well as disruption of the amygdala and anterior nuclei. Noted changes of previously reported left anterolateral thalamic infarcts included: asponaneity, perseverations, monotone voice, temporal disorientation, decreased visual and verbal memory, and comprehension. In most reported cases, patients’ cognition recovered almost completely within months.<sup>1–7</sup>

*Diagnosis:* Anterior behavioral syndrome – acute tuberothalamic artery ischemic stroke.

### Take-Home Points

- The anterior thalamus is important in regulating memory and behavior.
- Vascular lesions can result in acute behavior changes.
- Vascular anatomy is important in understanding stroke mechanism.

### References

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