

Case Report: Diabetes Insipidus in mTBI

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The Event

Case: 36 year old woman with PCOS and obesity

- Mechanical Fall from Standing
- Hit back of head on filing cabinet
- Initial symptoms: mild headache and nausea

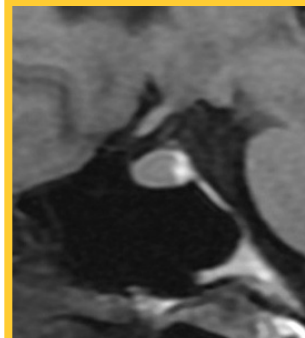
NO	NO	YES
LOC	PTA	Dazed

Aftermath

- Day 2: Increased thirst and urination
- Month 2: Drinking 2-3 gallons of water daily
- Month 3: **Imaging**
- Month 4: Started on high dose DDAVP

Labs	➤ FSH	Normal
	➤ LH	Normal
	➤ TSH	Normal
	➤ Cortisol	Normal
	➤ UOsm	Low

**Normal Posterior
Pituitary
Hyperintensity**



MRI	➤ Absence of posterior pituitary bright spot
	➤ Thickening of pituitary stalk

Even a mild mechanism of traumatic brain injury can result in pituitary damage.

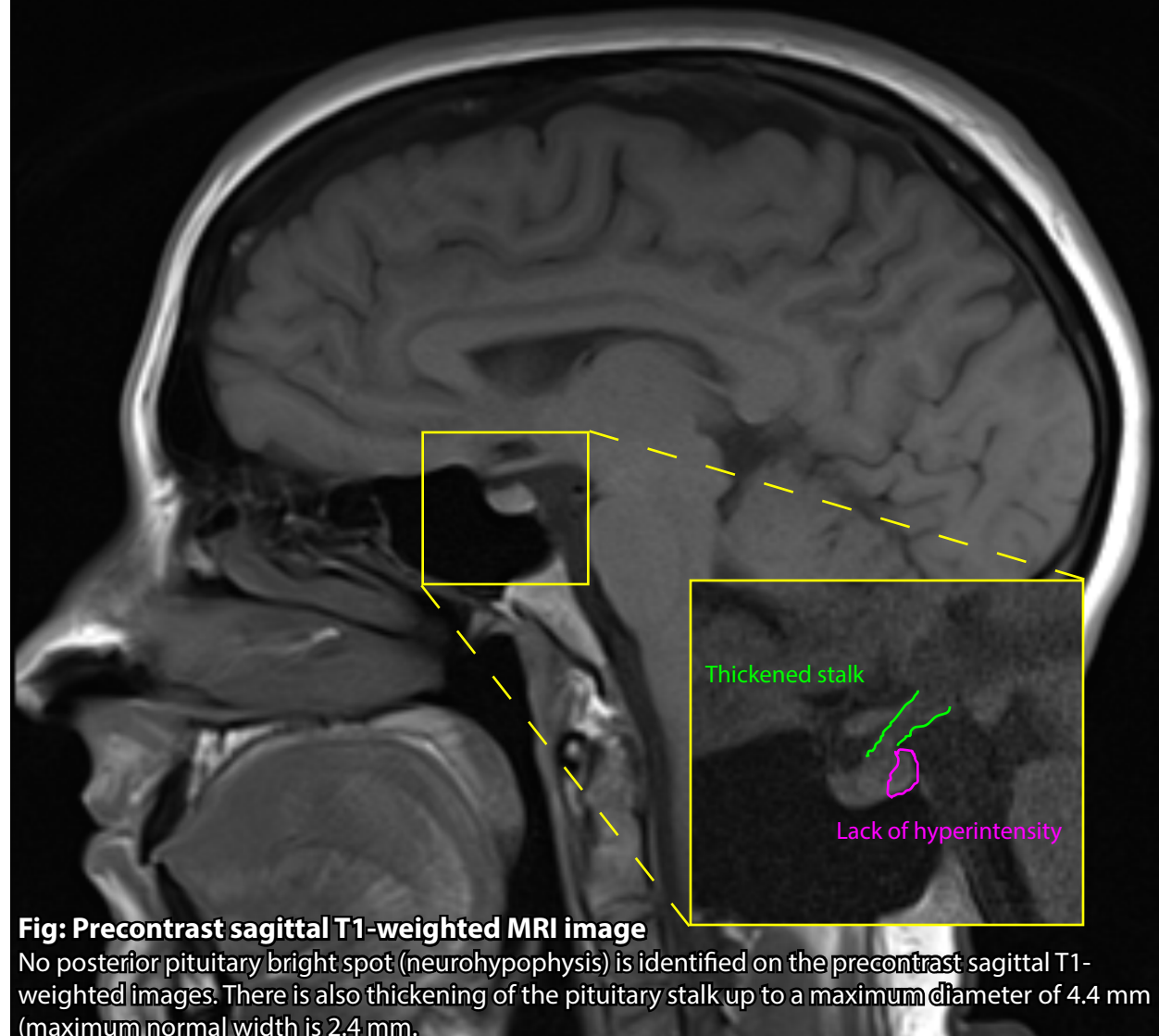


Fig: Precontrast sagittal T1-weighted MRI image

No posterior pituitary bright spot (neurohypophysis) is identified on the precontrast sagittal T1-weighted images. There is also thickening of the pituitary stalk up to a maximum diameter of 4.4 mm (maximum normal width is 2.4 mm).

Prognosis

Her symptoms improved but did not resolve, requiring high dose DDAVP over 9 months post injury. It is likely that her central diabetes insipidus will be permanent.

Discussion

The pituitary gland is very vulnerable to trauma. Permanent DI can be found in moderate to severe TBI with lower GCS and the presence of cerebral edema. There are a few reported cases of mild TBI with permanent DI, but they involved loss of consciousness¹ or the need for hospitalization.²

Takeaways

- Pituitary dysfunction in mild TBI cannot be ruled out and can be permanent.
- Screening for pituitary dysfunction after mild TBI should be considered if clinically indicated and pituitary imaging can be obtained to evaluate for gross structural abnormalities.

References

- Chou, Y.-C., Wang, T.-Y., Yang, P.-Y., Meng, N.-H., & Chou, L.-W. (2009). Permanent central diabetes insipidus after mild traumatic brain injury. *Brain Injury: [BI]*, 23(13-14), 1095–1098.
- Karakilic, E., & Ahci, S. (2019). Permanent central diabetes insipidus after mild head injury. *BMJ Case Reports*, 12(5). <https://doi.org/10.1136/bcr-2018-228737>
- Image: Case courtesy of Assoc Prof Frank Gaillard, Radiopaedia.org, rID: 9878

