Heads Up!: A Case of Post-Traumatic Pituitary Hemorrhage

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Introduction

Head trauma is a common chief complaint in many Emergency Department.[1] A small subset of patients presenting with head trauma have intracranial hemorrhages (ICH), often not recognized until a CT scan is ordered. Of the different types of ICH, a pituitary hemorrhage is a rare, but possibly devastating, traumatic brain injury. Risk factors for a pituitary hemorrhage include the presence of a pituitary adenoma. A major concern with patients presenting with pituitary hemorrhage is the risk of developing signs and symptoms of pituitary apoplexy, otherwise known as pituitary gland failure due necrosis of the pituitary gland from rapid expansion within the sella and lack of resulting blood flow to the pituitary.[2] In this case, we will discuss the finding of such a hemorrhage in an otherwise healthy female presenting to the ED for head trauma with a persistent headache.

Case Description

A 23 y.o. female with no reported PMHx presented for headache, lightheadedness, and jaw pain after an assault by her partner. The patient was punched and kicked in the face. She denied loss of consciousness, vomiting, or blurry vision. On exam, the patient was noted with swelling and ecchymosis over the right eye and right temporal scalp. She had no focal neurologic deficits.

A CT scan of the brain without contrast showed a focal hyperdensity within the pituitary gland. During the patient's ED stay, she continued to complain of a persistent headache and lightheadedness. She became hypotensive with minimal response to IV fluids. She was then given hydrocortisone with improvement in BP. The patient was admitted to the ICU with Neurosurgery and Endocrinology teams following.

Imaging

CT Head without contrast showed a focal hyperdensity within the pituitary gland measuring 1.2 cm x 0.8 cm x 0.9 cm, which was thought to represent a focal hemorrhage versus a hyperdense pituitary mass.

An ***MRI pituitary gland with & without contrast*** showed a low T2 signal lesion involving the posterior pituitary gland, corresponding to the hyperattenuating lesion seen on the prior CT. This could represent an atypical pituitary adenoma with possible concomitant pituitary hemorrhage/early apoplexy.

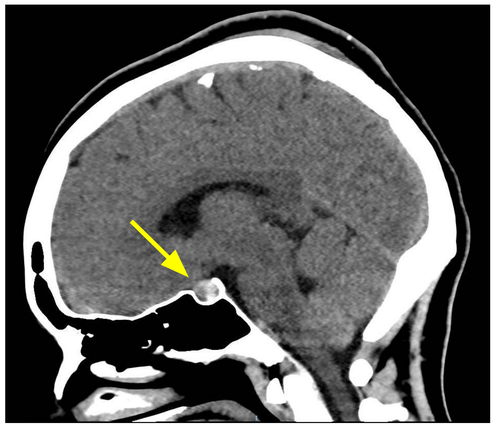

Image 1: Sagittal view of the pituitary hemorrhage (arrow) on CT Head without contrast.

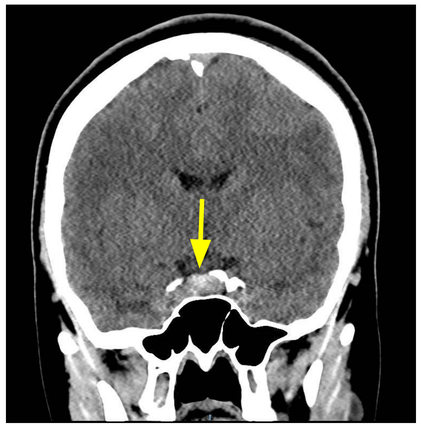

Image 2: Coronal view of the pituitary hemorrhage (arrow) on CT Head without contrast.

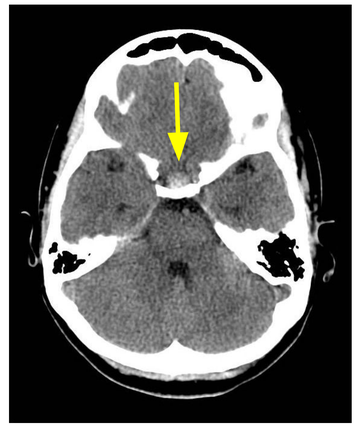

Image 3: Axial view of the pituitary hemorrhage (arrow) on CT Head without contrast.

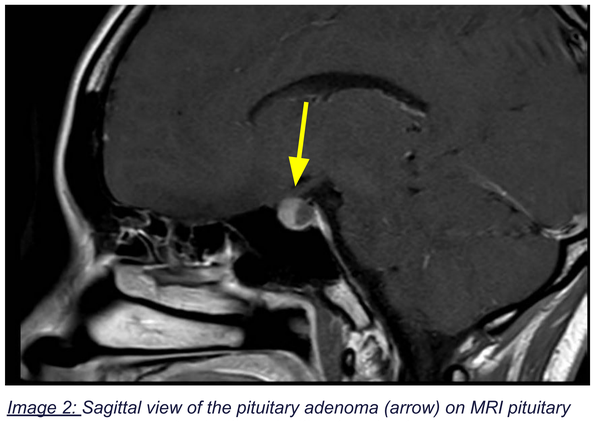

Image 2: Sagittal view of the pituitary adenoma (arrow) on MRI pituitary gland with and without contrast.

Clinical Course

Approximately 24 hours into her inpatient stay, the patient received an MRI showing an atypical pituitary adenoma with possible concomitant small pituitary hemorrhage. A full panel of hormonal tests relating to pituitary function were obtained with the only abnormal result being a mildly low ACTH.

After 48 hours, the patient remained vitally stable without need for redosing of stress dose steroids. She had improved headaches and lightheadedness and was discharged home to follow up with Neurosurgery outpatient to discuss mass resection.

Discussion

- 81% of patients do not know they have pituitary adenomas and have no endocrine issues prior to incidental discovery.[3] These adenomas can grow insidiously, reaching large sizes before revealing themselves via hemorrhage or apoplexy.
- Pituitary hemorrhage is more common than apoplexy. However, as a hemorrhage expands, it raises pressure within the sella turcica and cuts off blood supply to the pituitary gland, causing necrosis, or apoplexy.[4]
- The most common symptoms of pituitary hemorrhage/apoplexy are severe headaches, visual changes (i.e. diplopia), oculomotor nerve palsies, nausea/vomiting, and altered mental status.[5] However, symptoms of any form of pituitary hormone dysfunction can result.
- Approximately 70% patients with pituitary apoplexy will be hypotensive.[6] These patients should be treated with stress-dose steroids.
- Patients with concern for post-traumatic pituitary pathology should receive an urgent MRI to confirm the presence of a mass. CT scans are only 21-28% conclusive in diagnosing masses.[7]
- The majority of patients with pituitary hemorrhage or apoplexy make a full recovery. However, close follow-up is required.

Conclusion

- In patients with head trauma, consider traumatic pituitary hemorrhage and/or apoplexy, especially with nausea/vomiting, visual changes and/or oculomotor nerve palsies.
- Once identified, these patients must be closely monitored for signs and symptoms of pituitary apoplexy, including, most commonly, secondary adrenal insufficiency manifesting as hypotension.
- These patients should receive an urgent MRI as CT may not clearly identify a mass.
- Admit these patients with Neurosurgery and Endocrinology teams closely following.

References

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