Quiz 27

Pituitary Apoplexy

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This quiz is being published on behalf of the Education Committee of the SNACC.
1. A 59 Y/O MALE PATIENT IS SCHEDULED FOR EMERGENT TRANSPHENOIDAL RESECTION OF PITUITARY TUMOR. HE PRESENTED WITH SEVERE HEADACHE AND VISION LOSS. WHICH OF THE FOLLOWING STATEMENTS IS FALSE REGARDING THE POSSIBLE DIAGNOSIS OF THIS PATIENT:

A. Pituitary Apoplexy.
B. Sellar metastases hemorrhage.
C. Sheehan’s syndrome.
D. Aneurysmal rupture.
A. Pituitary apoplexy.

Pituitary Apoplexy is a rare medical emergency associated with intrasellar hemorrhage/infarction, characterized by sudden onset of headaches, visual disturbance and altered mental status.
B. Sellar metastases hemorrhage.

Apoplexy in a sellar metastases is rare and could be indistinguishable from pituitary tumor apoplexy, and should be suspected in a patient with other primary cancer.

C. Sheehan’s syndrome.

Sheehan’s syndrome occurs in postpartum females whereby they develop necrosis of the pituitary. Pituitary gland is usually enlarged in pregnancy and hence reacts to decreased blood flow secondary to hypovolemia/shock secondary to postpartum hemorrhage. Usually present with symptoms of hypopituitarism.

Patients with aneurysmal rupture, especially internal carotid artery, usually can mimic a pituitary apoplexy as they develop sudden headache, stiff neck, oculomotor palsies and altered mental status. Bilateral oculomotor palsies are more common with pituitary apoplexy and unusual with an aneurysmal rupture. Correct diagnosis can be made by angiographic studies.

2. A 65Y/ FEMALE PATIENT WITH HISTORY OF OBESITY, HYPERTENSION WAS BROUGHT TO THE HOSPITAL AFTER COMPLAING OF HEADACHE. A CT FINDINGS SUGGEST PITUITARY APOPLEXY. CHARACTERISTIC FEATURES SUGGESTIVE OF PITUITARY APOPLEXY ARE ALL EXCEPT:

A. Severe headache.
B. Unilateral visual field defect
C. 3rd Cranial Nerve Palsy
D. Altered mental status.
Severe headache is the earliest and the most common in almost 100% of the patients. It is usually retroorbital, but can be diffuse or in the frontal region and usually accompanied with nausea and vomiting. The potential mechanisms could be meningeal irritation, dura-mater compression, enlargement of sellar walls, or involvement of the superior division of the trigeminal nerve in the cavernous sinus.

B. Unilateral visual field defect

Upward enlargement of the pituitary gland leads to compression of the optic chiasma and leads to visual field defects and decreased visual acuity. Bitemporal hemianopia occurs in 75% of the patients.
C. 3rd Cranial Nerve Palsy

Enlarging pituitary mass can compress the cavernous sinus and laterally and can cause cranial nerve palsies in almost 70% of the patients with 3rd cranial nerve involvement in nearly 50% of the patients. Ipsilateral mydriasis and ptosis occur because of 3rd nerve involvement.

Rajashekar et al- UK guidelines
Chang et al, pituitary apoplexy, Arq Neuropsiquiatr 2009;67(2-A)
D. Altered mental status

Patients with pituitary apoplexy can also present with altered mental status secondary to extravasation of blood into the subarachnoid space. Other possible causes could be Obstructed hydrocephalous, an increased intracranial pressure, acute adrenal insufficiency leading to profound hypotension and hypoglycemia.

Rajasekharan et al
Chang et al. pituitary apoplexy, Arq Neuropsiquiatr 2009;67(2-A)
3. Pituitary apoplexy usually occurs in patients with preexisting adenomas. Precipitating factors include all except:

A. Coronary Artery Bypass Surgery.
B. Pre-operative pituitary function testing is considered safe.
C. Anticoagulant.
D. Systemic hypertension.

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Pituitary apoplexy can be precipitated secondary to reduced blood flow to the pituitary. Any condition resulting in fluctuations in blood pressure as in cardiac surgery, may lead to pituitary infarction.
B. Preoperative pituitary function testing is considered safe

Pituitary apoplexy may develop after dynamic testing for preoperative assessment using gonadotrophin-releasing hormone, thyrotropin-releasing hormone, corticotrophin-releasing hormone and insulin tolerance test, which could range from benign to a serious event leading to permanent neurological deficits. Pituitary apoplexy can develop as soon as 2 hrs to within 3 days of the testing. Hence not considered safe.

C. Anticoagulants.

Patients with pre-existing pituitary adenomas may develop apoplexy if they are on any anticoagulants or receive one as in cardiac/vascular surgery.

Acute increase in blood flow to the pituitary can increase the risk of pituitary apoplexy. Systemic hypertension was by far the commonest precipitating factor - 26%. The likelihood of developing apoplexy increases with coexisting surgical stress, hemodynamic instability and presence of anticoagulant.

4. A 62 YEAR Y/O FEMALE PATIENT IS ADMITTED TO THE NICU WITH SUDDEN ONSET OF HEADACHE AND INABILITY TO SEE. PITUITARY APOPLEXY IS SUSPECTED. THE PATIENT SHOULD HAVE ALL THE TESTS **EXCEPT**: 

A. **Evaluation of the endocrinal status**
B. **MRI of head**.
C. **Lateral x-ray of the head**.
D. **Thorough opthalmic examination**
A. Evaluation of the endocrine status.

Majority of the patients who present with pituitary apoplexy have deficiency of one or more of the anterior pituitary hormones. Patients with low prolactin levels suggest high intrasellar pressures and are the least likely to recover from hypopituitarism after surgery. 70% of the patients develop acute ACTH deficiency. Thyrotrophin in 50% and gonadotrophin in 75% of the patients may be deficient. Hyponatremia is usually either due to SIADH or hypocortisolism.

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B. MRI of the head

MRI of the head is usually the diagnostic test of choice to confirm pituitary apoplexy, it also helps elucidate detailed soft tissue expansion, extension into cavernous or carotid space.
C. Lateral X-ray of the head.

Even though MRI is diagnostic of an apoplexy, in an urgency/emergency CT scan is initially done to rule out intraparenchymal or subarachnoid hemorrhage because of any vascular pathology. Hyperdense blood with expanding sellar mass may be seen, however absence of blood does not preclude apoplexy. Lateral X-ray of the head is usually not diagnostic of pituitary apoplexy.

Pituitary apoplexy should be suspected in any patient presenting with headache and any degree of visual impairment. Visual acuity, visual field defects and ocular muscle testing should be done. Visual defects could range from bitemporal hemianopsia, central scotoma, isolated nasal defects or generalized restricted vision.
5. A 55 year old male is brought to the ED with H/O headache, nausea and vomiting. He has H/O pituitary tumor. All are true about his management and outcome **except**:

A. Steroid treatment is essential in the early period
B. Early surgical decompression has better outcomes
C. Hormone replacement is essential post apoplexy
D. Surgery is the only treatment for pituitary apoplexy
A. Steroid treatment is essential in the early period

Acute adrenal insufficiency results in patients with pituitary apoplexy leading to hemodynamic instability and even death. Hence patients should receive replacement- 100-200 mg of hydrocortisone followed by 2-4 mg per hour infusion until the acute phase has passed. Dose of hydrocortisone should be then reduced and continued orally.

B. Early surgical decompression has better outcomes

Acute visual impairment improved after early trans sphenoidal pituitary surgery in 53-89%. Cranial neuropathies and endocrinial dysfunction also improved with early decompression

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C. Hormone replacement is essential post apoplexy

Patients will almost always (80%) of the time, require hormone replacement after pituitary apoplexy. Growth hormone deficiency is most common. Patients tend to receive long term corticosteroids (60-80%), thyroid hormone (50-60%), testosterone in men (60-80%) and desmopressin (10-25%). All patients should have annual biochemical pituitary function assessment.

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D. Surgery is the only treatment for pituitary apoplexy

Surgery is not the only option for patients with pituitary apoplexy. Patients without any visual defects and deteriorating consciousness can be managed conservatively with steroids and fluids. Medical management with bromocriptine in patients with prolactinoma can yield good results. Only development of new compressive symptoms should prompt surgical treatment.

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