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A Case of Pituitary Apoplexy Complicating the Management of Sepsis

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Introduction:

Pituitary apoplexy is a condition of sudden hemorrhage into the pituitary gland, usually at the site of a pituitary adenoma, occurring in 8% of pituitary macroadenomas. The clinical presentation of pituitary apoplexy varies based upon the timing and mechanism of pituitary mass expansion towards the optic nerve or hypothalamus, as well as the hormonal function of the neoplasm and remaining pituitary gland tissue. Nearly all patients present with headache (97%), and fewer patients present with visual field impairment (71%). Pituitary apoplexy acutely disrupts the hypothalamic-pituitary-adrenal (HPA) axis, and may lead to relative adrenal insufficiency in septic shock, with a high mortality if not recognized and treated.

Case:

We present the case of a 47 year-old woman who was brought to the Emergency Department with substernal chest pressure. Her past medical history was significant for uncontrolled insulin-dependent diabetes and more recently been unsuccessfully treated with oral antibiotics for a labial abscess.

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Two days prior to admission she awoke suddenly from sleep with a severe, throbbing frontal headache. She did not experience vision changes, nausea/vomiting, or weakness. Later that day she began to experience chest pressure and left arm pain and it was at this time that she sought medical help.

Her physical exam was significant for a large left labial abscess, central obesity, enlargement of the dorsocervical fat pad, and increased terminal hair growth. Antibiotics and intravenous fluid resuscitation were initiated for sepsis thought to be due to the abscess and a urinary tract infection. A head CT scan without contrast was negative for acute intracerebral hemorrhage. Due to the nature of her chest pain and elevated troponin T test (0.10 ng/mL), a heparin infusion was started until a coronary angiogram could be performed the following day, which showed normal coronary arteries. Anticoagulation was then discontinued, and her chest pressure resolved by the end of hospital day one.

On hospital day two her headache worsened. A repeat stat CT head without contrast showed interval development of a heterogeneous soft-tissue mass in the sella abutting the inferior margin of the optic chiasm. Sellar abnormalities were not appreciated on her initial head CT scan. A follow up contrast-enhanced MRI later that day revealed acute pituitary hemorrhage within a pituitary macroadenoma measuring

2.0x1.5x1.5cm, without signs of optic nerve compression. Ophthalmology evaluation found subchronic bilateral proliferative diabetic retinopathy and cataracts but no signs of optic nerve edema and no focal visual field deficits.

On hospital day three the patient became progressively more lethargic, tachycardic, and febrile. By that evening, she no longer responded to questions and vital signs were significant for worsening hypotension. The medical ICU team was notified and emergently initiated intravenous vasopressors for blood pressures as low as 53/28. She had a Glascow Coma Scale score of 3 and she was emergently intubated. A stat CT head without contrast showed no changes from the CT performed the previous day. Antibiotics were broadened and more aggressive intravenous fluid resuscitation was initiated. Intravenous dexamethasone (2mg) was given for suspected adrenal insufficiency. Intravenous vasopressors were tapered off within the following six hours. She became more alert by the following morning and was extubated without complications. She was then transferred to the Gynecology service for the remainder of her hospitalization and underwent incision and drainage of the labial abscess suspected to be the source of her sepsis.

Discussion:

Our patient suffered from a pituitary hemorrhage in the setting of sepsis, which likely then led to acute relative adrenal insufficiency. Some physical exam findings concerning for Cushing's Syndrome were present, which increases the risk of relative adrenal insufficiency. Due to the acuity of her condition, empiric treatment for relative adrenal insufficiency was initiated before a cosyntropin stimulation test could be performed. Subsequent CT imaging of her abdomen did not reveal an adrenal mass. In this case, dexamethasone was chosen over hydrocortisone for treatment as it is also the standard agent for management of vasogenic edema in brain tumors.

Conclusion:

In the setting of sepsis, life threatening lethargy and hypotension may result from relative adrenal insufficiency. Prior studies do not support the routine use of steroids in sepsis; however, recognition and treatment of relative adrenal insufficiency in patients with pituitary apoplexy may lead to rapid neurologic and hemodynamic improvement in sepsis.