Case Report

Apoplexy in pregnancy

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ABSTRACT

Headache during pregnancy is a common complaint in the emergency room. In pregnancy, pituitary disorders include both hormone active and hormone inactive tumors. Apoplexy may be the first clinical presentation of an underlying pituitary tumor. Red flag signs of presenting symptoms, to be assessed for identifying life-threatening etiology. Various pathophysiological mechanisms have been passed for pituitary apoplexy in pregnancy. Magnetic resonance imaging of the brain is the gold standard investigation. The mainstay of management is the initiation of steroids. Transnasal transsphenoidal removal of the tumor is the definitive treatment that requires a multidisciplinary approach. The indications of surgery are the presence of symptoms due to compression and endocrine abnormalities; however, gestational period should be taken into consideration. We report a case of headache in antenatal women who presented to our emergency room diagnosed with pituitary apoplexy managed with steroids and early surgery, and discharged with good clinical outcome. We recommend a methodical approach to common symptoms that assist in diagnosing forgotten etiology.

Keywords: Headache in pregnancy, Pituitary apoplexy, Steroids in pregnancy, Visual disturbances in pregnancy

Pituitary disorders in pregnancy are a clinical challenge. It encompasses conditions such as hormone inactive and hormone active pituitary adenomas, pituitary apoplexy, and hypophysitis. However, pituitary insufficiency can occur as a complication in any of the above disorders [1]. Emergency room physicians should have a high index of suspicion for the probability of pituitary disease in antenatal women, even though limited case reports have been declared. We report a case of pituitary apoplexy in a pregnant woman who presented to the emergency room with complaints of headache. It is a common complaint with forgotten etiology which is easily missed and management requires a multidisciplinary approach.

CASE REPORT

A 25-year-old antenatal mother with gestational age of 27 weeks presented to our emergency room with complaints of bifrontal headache associated with blurring of vision for the past 1 week with no relieving and aggravating factors. No history of fever, vomiting, neck stiffness, neck pain, or diplopia present. In the past, she has undergone a lower segment caesarean section 2 years back. The previous antenatal and postnatal periods were uneventful. At present, the patient was on iron and folic acid supplements.

On general examination, the airway was patent, breathing, and circulation components were within normal limits, Glasgow coma scale was 15/15 and bilateral pupils were 3 mm equally reactive to light. On systemic examination, the central nervous system higher mental functions were within normal limits. Among cranial nerves, optic nerve-bedside visual field tested by confrontation method revealed peripheral field loss. Other cranial nerves showed no evidence of palsy. Motor and sensory systems were within normal limits. Other systems showed no abnormality detected.

The investigations showed random blood sugar of 120 mg/dl. The uterus was corresponding at 28 weeks of gestation with a fetal heart rate of 120/min. The pain score was assessed using a visual analog scale of 7/10. Blood workup done revealed Prolactin levels: 60.08ng/ml, Luteinizing hormone: 0.22mIU/mL, Thyroid stimulating hormone: 2.18 mcgU/mL, FreeT4: 0.82 mg/dl, and Estradiol: 11220 pg/ml.

Magnetic resonance imaging (MRI) of the brain showed sellar and suprasellar lesions compressing optic chiasma. AXIAL SWI (susceptibility weighted image) shows focal blooming within the pituitary gland suggestive of hemorrhage. SAGITAL

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T1-weighted image shows enlarged pituitary with suprasellar extension showing areas of hyperintensity within it corresponding to early sub-acute hemorrhages. CORONAL T2-weighted image shows areas of hypointensity within the enlarged pituitary gland confirming the areas of acute to early subacute hemorrhages. SAGITTAL T1-weighted post-contrast image shows peripheral enhancement within the enlarged gland showing hemorrhages (Fig. 1).

A diagnosis of headache secondary to pituitary apoplexy was made and the patient was treated with the first dose of intravenous steroids. An endocrinologist opinion was obtained for further steroid administration. Neurosurgeon and otorhinolaryngologist opinion sought. The patient was planned for transnasal trans-sphenoidal microscopic pituitary space-occupying lesion excision after getting obstetrician clearance. Ophthalmologist opinion was obtained and peripheral scotoma was observed. She underwent surgery after taking the necessary consents and risk explanation. Post-surgery, the patient was monitored in the intensive care unit. The post-operative period was uneventful with mild bleeding from the nose. IV steroids were tapered. The patient was discharged with oral steroids.

DISCUSSION

Pituitary apoplexy is defined as a syndrome characterized by headache, vomiting, visual impairment, ophthalmoplegia, altered mental state, and panhypopituitarism which occurs in 1.2–2.8% of patients with neoplasm. It is due to acute hemorrhagic infarction in the setting of pre-existing pituitary adenoma or physiologically enlarged gland [2]. A community-based cross-sectional study done by Fernadez *et al*. concluded that apoplexy was the first clinical manifestation of previously undiagnosed pituitary adenoma in 60–80% of cases [3]. It has a male preponderance with a gender ratio of 2:1 [4]. In pregnancy, normal pituitary gland volume increases due to hyperplasia of prolactin cells [5]. This leads to jeopardy of the blood supply to the gland both due to overgrowth and compression of vessels supplying the gland [2].

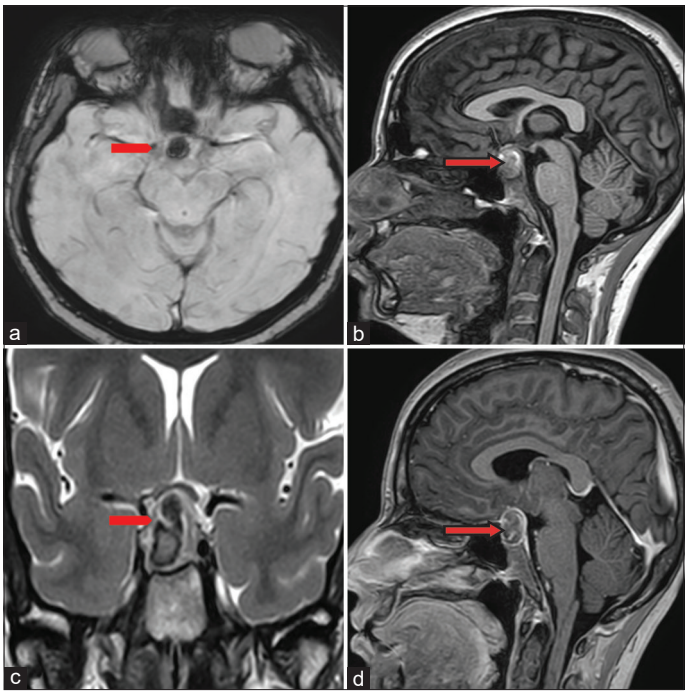

Figure 1: MRI images of the patient (a) AXIAL SWI; (b) SAGITAL T1; (c) CORONAL T2; and (d) SAGITAL T1

Systemic hypertension, anticoagulation therapy, coagulopathies, estrogen therapy, radiation therapy, major surgery, in particular, coronary artery bypass surgery, pregnancy, and head trauma are the precipitating events for pituitary apoplexy [6]. An analysis of retrospective studies done by Zhu *et al*. concluded that the following symptoms occurred in their descending order headache (86%), visual disturbances (62%), vomiting (40%), extraocular palsies (25%), and diplopia (7%). Other symptoms including amenorrhea, fever, cushingoid appearance, and altered menstrual cycle occurred in less number [6]. Based on the existing literature, the earliest and most frequent symptom of pituitary apoplexy is sudden and severe headache (94%), which is usually retroorbital, but can be bifrontal, suboccipital, or diffuse in location [7]. Headache is often accompanied by nausea and vomiting due to meningeal irritation, raised intracranial pressure, hypothalamic dysfunction, and or adrenal insufficiency. Involvement of the optic nerves and compression of chiasma or optic tract can cause visual field defects, reported in 42% of cases specifically bitemporal hemianopsia.

Guidelines recommend checking various hormonal levels, electrolytes (serum sodium and potassium), and renal and liver function tests. Prolactin levels are inconclusive in pregnancy; however, lower the prolactin level, the lesser the chance of recovery from hypopituitarism. MRI brain with contrast is the investigation of choice for pituitary apoplexy; however, computed tomography can also be done but it lacks sensitivity [8]. Although gadolinium appears to be safe, it crosses the placenta in both directions. Gadolinium contrast agents enter the fetal circulation; from here, they are filtered by the fetal kidney and then excreted into the bladder which empties into the amniotic fluid [7]. Most common abnormality in MRI was suprasellar and intrasellar mass with varying intensities in T1- and T2-weighted images according to the stages of hemorrhage. The compression of nearby structures is identified by T2-weighted images [8].

Acute secondary adrenal insufficiency leads to hypocortisolaemia requiring prompt replacement of corticosteroids. Hydrocortisone 100–200 mg as an intravenous bolus followed either by 2–4 mg per hour intravenous infusion or by 50–100 mg six hourly intramuscular injections should be initiated in the emergency room [9]. Multidisciplinary approaches with the neurosurgical team, endocrinology team, and obstetrics team are required. Early decompression of the tumor is required when symptoms due to compression of the tumor occur. However, a recent case series by Kato *et al*. suggested a multidisciplinary team approach regarding the decision about the timing and need of surgery which also includes obstetricians and neonatologists. The endoscopic transnasal transsphenoidal approach is a widely used surgery for pituitary adenoma [10]. A recent case series has been published regarding pituitary apoplexy in pregnancy among which the definitive treatment, transnasal transsphenoidal removal

of the tumor was planned electively considering the gestational period [11]. The indications for early surgery need to be well established. The risks versus benefits of early surgery versus conservative management need a team approach considering the gestational age.

CONCLUSION

Headache is a common symptom in the emergency room and a checklist of red flag signs should be always enquired. A methodical approach helps to establish the etiology. Identification of pituitary apoplexy and initiating the first dose of steroids is the mainstay therapy in the emergency room. The intuition about few and far between etiology is of utmost importance in the emergency room.

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