A Mysterious Case of Severe and Sudden Onset Headache During Pregnancy

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BACKGROUND

- Sudden and severe headache can be a challenging condition in pregnancy.
- Pituitary apoplexy is a very rare cause of headache and is defined as an acute haemorrhage and/or infarction in the pituitary gland.
- Principal symptoms:
  - Sudden headache (97%)
  - Nausea (80%)
  - Loss of visual fields (71%)[1]
- Patients presenting with an apoplexy usually have an underlying pituitary adenoma, but it has also been described on a physiologically enlarged pituitary gland without pre-existing lesion during pregnancy.[2]
- Increased size of the pituitary during pregnancy is due to hyperplasia and hypertrophy of the lactotroph cells by estrogen stimulation, and by their transformation to pregnancy cells producing prolactin.[3]
- Rapid identification of pituitary apoplexy is critical to treat or exclude possibly-associated endocrine disturbances and to ensure maternal and fetal well-being.

OBJECTIVE

We report a rare case of sudden and severe headache related to pituitary apoplexy in pregnancy and review relevant literature.

CLINICAL CASE

- A 33 year-old woman G6P3A2 at 39 weeks of gestation presents with sudden onset of severe headache.
- Previous pregnancies were complicated by gestational hypertension and preeclampsia.
- Clinical presentation at 1st admission:
  - Severe and sudden bilateral headache started 24 hours before admission.
  - Nausea and dizziness.
  - No head trauma reported.
  - Blood pressure and preeclampsia work-up were normal, so the patient was discharged.
- Clinical presentation at 2nd admission:
  - Residual headache and syncope.
  - Biochemical work-up still normal.
  - Complete neurological exam showed meningeal irritation and retinal exudate.
  - Cranial nerve evaluation normal.
  - Lumbar puncture normal.
  - A cerebral CT scan showed a prominent and slightly hyperdense pituitary gland of 12 mm in contact with the optic chiasma.
  - An MRI performed 7 days after headache onset confirmed sellar central haemorrhagic infarction and pituitary hyperplasia compatible with sub-acute pituitary apoplexy (Figure 1).
  - Visual fields were normal.
  - No endocrine insufficiency was demonstrated (Table 1).
- Labour was induced at 40 weeks under hydrocortisone coverage.
- A healthy 3.6 kg baby boy was delivered.
- Breastfeeding without problem.
- Follow-up at 2 months postpartum:
  - Endocrine work-up was normal (Table 1).
  - MRI showed an important regression of pituitary size with a central remnant cyst of 6 mm without underlying lesion (Figure 2).

LITERATURE REVIEW

- Literature search conducted using with Pubmed, Medline and Embase from 1960 to 2014 (MeSH: pituitary diseases, pregnancy, pituitary apoplexy; non-MeSH: apoplexy).
- 33 cases of pituitary apoplexy during pregnancy were found (4 as abstracts only) and 3 other cases were reported in our centre over the last 4 years (in press).
- Median maternal age was 28.5 years.
- 14 women (42.4%) were known to have a pituitary lesion before pregnancy, half with pre-pregnancy macroadenoma/macroprolactinoma.
- Median gestational age at symptoms onset was 24 weeks, and 3 cases were diagnosed postpartum.
- 46.8% were treated surgically, 28.0% received bromocriptine or cabergoline and 65.5% needed hormone replacement (Figure 3).

DISCUSSION

- Pituitary apoplexy is a very rare cause of sudden headaches in pregnancy and should be treated as a medical emergency because of possible hormone insufficiency.
- Pituitary apoplexy usually happens in an underlying lesion.
- We only found two other cases of pituitary apoplexy in the literature that occurred in a physiologically hypertrophic gland during pregnancy.[2,4]
- The patient had no consequent pituitary hormone deficiency.

CONCLUSION

- Pituitary apoplexy is a rare cause of severe and sudden headache during pregnancy.
- It can occur without an underlying pituitary lesion.
- It is imperative to search for endocrine disturbances and start appropriate hormone replacement when necessary, since apoplexy can impair pituitary function.

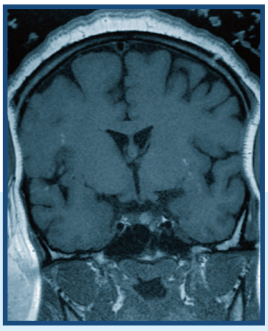

Figure 1. ***Cerebral MRI at 39 weeks of gestation: pituitary gland of 13 x 23 mm with central necrosis without optic chiasm compression.***

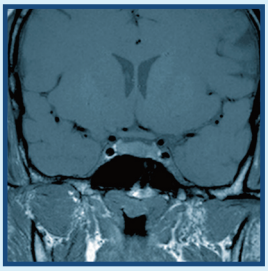

Figure 2. ***MRI at 2 months postpartum: regression of the pituitary gland that looks normal without underlying lesion except for a central cyst of 6 mm.***

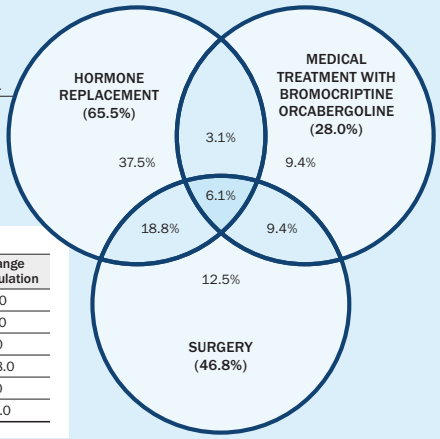

Figure 3. ***Apoplexy during pregnancy: summary of the different treatments needed in the 33 reported cases in the literature.***

References

1. Randeva HS, Schoebel J, Byrne J, Esiri M, Adams CB & Wass JA. Classical pituitary apoplexy: clinical features, management and outcome. Clinical Endocrinology. 1999;51(2):181.
2. Krull I, Christ E, Kamm C P, Ganter C & Sahli R. Hyponatremia associated coma due to pituitary apoplexy in early pregnancy: a case report. Gynecological Endocrinology. 2010;26(3): 197-200.
3. Karaca Z, Tanriverdi F, Unluhizarci K & Kelestimur F. Pregnancy and pituitary disorders. European Journal of Endocrinology. 2010:162;453-75.
4. Murao K, Imachi H, Murayama T & Ishida T. Hemolysis, elevated liver enzymes, and low platelet count (HELLP) syndrome with pituitary apoplexy. Fertility and Sterility 2011;96(1): 260-1.

Table 1. **Endocrine biochemical results**

	At apoplexy diagnosis - 40 weeks gestation	10 weeks postpartum	Reference range in general population
TSH (mUI/L)	1.64	0.56	0.35-5.50
FT4 (pmol/L)	12.3	14.2	10.0-23.0
Prolactin (ug/L)	391	13.5	3.0-29.0
Cortisol (nmol/L)	475	310	119.0-618.0
ACTH (pmol/L)	12.5	–	2.0-11.0
IGF-1 (ug/L)	253	–	95.0-320.0