Pituitary Apoplexy

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No Financial Interest
FIGURE 5-2  Microscopic anatomy of retina. (From Melloni BJ: What's new, Abbott Laboratories, Abbott Park, Ill.)
NEUROLOGIC
Cavernous sinus containing carotid artery & cranial nerves III, IV, V₁, V₂ & VI

Optic chiasm

Pituitary gland

Pituitary stalk

Carotid artery
Pituitary Tumor (non-apoplexy)

- 65-year-old woman noted slow progressive visual loss OS x 2 months
- Normal acuity, color, pupils and fundus exam
Bitemporal Hemianopia
Free margin of tentorium

Diaphragma sellae

Optic nerve

Internal carotid artery

Oculomotor nerve

Attached margin of tentorium

Dorsum sellae

Sup. petros. sinus
Visual Recovery after Decompression of Pituitary Macroadenoma

- 113 patients who underwent transsphenoidal decompression for pituitary tumor
- Most noticeable improvement of acuity was within 1 week
- Most dramatic field improvement 1 week to 1 month
- In the inferior temporal quadrant improvement appeared within 1 month
- The superior temporal visual field recovered over 6 months

Ji Woong Chang, Jae Ho Jung, Yoen-hee Lee, NANOS meeting 2013
Pituitary Apoplexy

• Acute expansion of a pituitary adenoma or nonadenomatous gland, from infarction or hemorrhage
• Headache in 95%, frequently retro-orbital, nausea and vomiting
• Sudden from stretching of the dura mater in the walls of sella supplied by the meningeal branches of cranial nerve V
Pituitary Apoplexy

- Visual symptoms, altered mental status, and hormonal dysfunction due to acute hemorrhage or infarction of pituitary gland
- Pituitary adenoma usually present
- Both acuity and visual field loss from chiasm and ocular motility from cavernous sinus involvement
Pituitary Apoplexy Causes

- Predisposing factors include endocrine stimulation tests, bromocriptine treatment, head trauma, pregnancy, and pituitary irradiation
- Administration of gonadotrophin-releasing hormone, long-term bromocriptine therapy
- Induction chemotherapy for AML, after cardiac bypass surgery and high altitude
Pituitary Apoplexy

Hemorrhagic

Ischemic

Sheehan’s Syndrome
Ischemic Pituitary Apoplexy

- A 69-year-old man, 3 days after coronary artery bypass noted a severe headache and visual loss in both eyes
  - Visual acuity of 20/50-2 OD, 20/25-2 OS
  - Color vision abnormal OU
  - Pupils are equal and symmetric, RAPD OD
  - Normal optic nerves and retina OU
Bitemporal Hemianopia
Ischemic Apoplexy

Pituitary Ring Sign

necrosis

Gad
The “Pituitary Ring Sign”: An MRI Sign of Pituitary Apoplexy

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ABSTRACT
Purpose: To describe a magnetic resonance imaging (MRI) sign of pituitary apoplexy.
Methods: The cranial MRI scans of 3 patients with pituitary apoplexy were retrospectively reviewed.
Results: All 3 patients displayed a distinctive MRI sign of an enlarged pituitary gland with peripheral gadolinium enhancement surrounding a hypointense gland.
Conclusions: The “pituitary ring sign” can aid in the early diagnosis and treatment of pituitary apoplexy.

Ischemic Apoplexy

Pituitary Ring Sign
Sheehan’s (Ischemic pituitary apoplexy)

- A 40-year-old woman with severe headache and diplopia after hypotension from a postpartum uterine hemorrhage
- Examination showed a very photophobic patient in severe headache
- Visual acuity, color and confrontational fields normal
- Pupils equal with normal reactivity
- 2 prism diopter left hypertropia
- Normal fundus
Contrasted T1 MRI with Gadolinium
Sheehan’s Syndrome

• Normally, the pituitary gland hypertrophies in pregnancy
• This hypertrophy combined with locally released factors mediate vascular spasm and renders the pituitary more susceptible to infarction from compromised blood flow
Sheehan’s (Ischemic pituitary apoplexy)

- In 1937 Sheehan reported 11 cases of women who died during childbirth or immediately thereafter, all had necrosis of the pituitary.
- Nontumerous gland precipitated by postpartum blood loss with spasm of the arterioles supplying the adenohypophysis.
Hemorrhagic Apoplexy

- 68-year-old man with painful diplopia for 1 week
- Normal acuity, color, visual field and fundus
- Pupil involving left 3rd nerve palsy
Non-contrasted T-1 weighted MRI
Treatment

- Medically stabilize the patient
- Electrolytes, glucose, and pituitary hormones
- High-dose hydrocortisone (hypopituitarism)
- Administer appropriate endocrinologic replacement
- Transsphenoidal surgical decompression
The variability in the visual presentation in patients with optic pathway compression may be misdiagnosed if finding other than bitemporal hemianopsia.
THE END