Apoplectic lymphocytic hypophysitis

Case report

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Pituitary apoplexy has not been reported in the setting of lymphocytic hypophysitis. The authors present the case of a woman with sudden vision loss and headache. Magnetic resonance imaging revealed focal hemorrhages in a sellar lesion with suprasellar extension. The results of histopathological analysis were consistent with lymphocytic hypophysitis.

KEY WORDS • lymphocytic hypophysitis • pituitary apoplexy

SUDDEN headache, vision loss, and ophthalmoplegia from pituitary hemorrhage or infarction characterize pituitary apoplexy,1,3,6–8 and MR imaging of the brain often demonstrates a pituitary mass with heterogeneous signal due to the presence of blood.7 Apoplexy typically occurs in a previously unrecognized pituitary adenoma, but it can also occur when the pituitary gland is normal. Various precipitating factors have been reported including medication, radiotherapy, surgery, anticoagulation therapy, head trauma, and pregnancy.1,6

Lymphocytic hypophysitis is a rare inflammatory disorder of the pituitary gland, occurring more often in women. The disorder often becomes manifest late in pregnancy or the postpartum period.2,4,5,9,10 It can present as a pituitary mass causing hypopituitarism and visual disturbances. The neuroimaging characteristics may be identical to those of a pituitary adenoma, and histological examination is generally required to differentiate the two.4,5 Lymphocytes and plasma cells with varying numbers of eosinophils, neutrophils, and macrophages are observed with light microscopy. There may be destruction of the pituitary parenchyma, and the results of immunohistochemical analysis may be positive for T and/or B cells.8

We present the case of a pregnant woman with pituitary apoplexy in the setting of lymphocytic hypophysitis.

Case Report

History. This previously healthy, primigravida 26-year-old woman at 6 months gestation noted a sudden “fog” in her left eye associated with headache on awakening. The right eye was asymptomatic. She did not initially seek medical attention for the visual disturbance; however, over the following 4 weeks the headaches progressively worsened to the extent that they woke her at night.

Examination. On neuroophthalmological examination 1 month after onset, she was comfortable. Her visual acuities were 20/30 in the right eye and 1/200 in the left eye. Based on testing with Ishihara pseudoisochromatic plates color vision was normal in the right eye, but the patient could identify only two of three primary colors with the left eye. No proptosis or ptosis was noted. A left relative afferent pupil defect was present. Results of ocular motility, slit lamp, and neurological examinations were normal. Goldmann perimetry revealed a relative temporal visual field defect respecting the vertical midline in the right eye and a nasal island of preserved vision in the left eye (Fig. 1).

Enhanced MR imaging demonstrated a 1.5 × 1.5 × 2.3-cm mass arising from the pituitary fossa and extending into the suprasellar cistern compressing the optic chiasm. A region of bright signal consistent with old hemorrhage was present posteriorly (Fig. 2). Endocrinological evaluation (Table 1) was significant for low TSH and follicle-stimulating hormone and high T4, prolactin, and somatomedin C.

Operation and Histological Analysis. Pituitary apoplexy was diagnosed and the patient underwent urgent resection of the mass. Frozen section analysis revealed anterior pituitary tissue with a mononuclear inflammatory cell infiltrate consistent with lymphocytic hypophysitis (Fig. 3). Necrotic tissue was removed, leaving normal appearing pituitary tissue. Immunohistochemical analysis of permanent sections revealed predominantly CD45RO-positive T lymphocytes and a few L26-positive B cells. The results of kappa and lambda light chain immunoglobulin immunostaining testing were negative.

Postoperative Course. Treatment with intravenously administered corticosteroids was initiated. Her visual acuities and fields improved marginally on postoperative Day 1. Two weeks later her vision had returned to normal and her fields were nearly full, with a residual central bitemporal hemianopsia. The prednisone was tapered to 15 mg/day over a 6-week period and the patient’s vision declined to 20/60 in the left eye with worsening of her bitemporal hemi-

Abbreviations used in this paper: MR = magnetic resonance; TSH = thyroid-stimulating hormone.
anopsia. The prednisone was then increased to 60 mg/day, and within 3 days her vision returned to 20/20 and her visual fields improved as well. She had an uncomplicated vaginal delivery 1 week later. A repeated MR image obtained 2 weeks later revealed reduction of the sellar mass measuring 1\,\times\,1\,\times\,1\,\text{cm} adjacent to the chiasm, without mass effect. Prednisone was successfully tapered after delivery. Her endocrinological abnormalities returned to normal within 6 months. The patient had an uncomplicated second pregnancy 2 years later.

Discussion

The most common pituitary mass is an adenoma but other lesions include metastases, granulomas, cysts, and inflammations. Lymphocytic hypophysitis is an inflammatory presumably autoimmune disorder that typically presents with headache, pituitary disturbances, and visual loss in a peripartum patient. Magnetic resonance imaging and computerized tomography scanning reveal an enhancing, homogeneous sellar mass with or without suprasellar extension. The clinical and radiographic presentation can be identical to pituitary adenoma, and often histological analysis is necessary to distinguish lymphocytic hypophysitis.

Endocrinological abnormalities are usually found at the time of diagnosis in lymphocytic hypophysitis. Thoudou, et al., described 16 patients in whom hyperprolactinemia occurred in six (38%), diabetes insipidus in three (19%), elevated growth hormone in one (6%), and an elevated T4 in two (12%). Chronically many patients require modest-to-complete pituitary hormone replacement; however, two of their 16 patients had normal pituitary function after treatment. Kristof, et al., reported on four of seven patients in whom hormone replacement was stopped after treatment. Cheung, et al., reported on two of three patients with return of normal pituitary and menstrual function. Our patient had elevated prolactin, somatomedin C, and T4 and low TSH. These levels subsequently normalized after corticosteroids were stopped postpartum and she required no hormone replacement.

Lymphocytic hypophysitis is frequently steroid responsive, leading some authors to suggest a trial of corticosteroid agents in characteristic presentations; however, biopsy sampling is required in most patients. If lymphocytic hypophysitis is confirmed on frozen section analysis, total resection may be unnecessary, thus potentially avoiding permanent pituitary dysfunction. Some patients do not respond to corticosteroid therapy and further deterioration may require more extensive surgery. Meanwhile, signs and symptoms may return in those who do respond after discontinuation of therapeutic corticosteroid administration, anywhere from days to months later. Our patient had recurrent vision and visual field loss during corticosteroid tapering, which promptly resolved when the dosage was increased.

Following treatment, neuroimaging usually reveals an improvement or resolution of the pituitary enlargement; however, some patients have no change despite corticosteroid therapy. Thoudou, et al., reported on four of 16 patients in whom there was no change in the size of the mass or symptoms. Kristof, et al., reported one of seven patients in whom MR imaging demonstrated no improvement. Our patient had a significant reduction in the size of

<table>
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<th>Test</th>
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<tr>
<td>sodium (mmol/L)</td>
<td>137</td>
<td>135–143</td>
</tr>
<tr>
<td>HCG (IU/L)</td>
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<tr>
<td>LH</td>
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<td></td>
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<tr>
<td>FSH (U/L)</td>
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<td>T4 (µg/dl)</td>
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<td>4.7–11.1</td>
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<tr>
<td>TSH (U/ml)</td>
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<td>0.5–5.0</td>
</tr>
<tr>
<td>prolactin (ng/ml)</td>
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<tr>
<td>cortisol (µg/dl)</td>
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<td>5–25</td>
</tr>
<tr>
<td>somatomedin C (ng/ml)</td>
<td>635</td>
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* FSH = follicle-stimulating hormone; HCG = human chorionic gonadotropin; LH = luteinizing hormone.
Apoplectic lymphocytic hypophysitis

her pituitary gland but it remained larger than normal without compression of the anterior visual pathway.

Conclusions

The patient presented had a history of sudden vision loss and headache without ophthalmoplegia. This was associated with a heterogeneous pituitary mass consistent with hemorrhage based on MR images. Histopathological analysis confirmed a diagnosis of lymphocytic hypophysitis. To our knowledge, pituitary apoplexy has not been reported in the setting of lymphocytic hypophysitis and should be considered in the differential diagnosis of pituitary apoplexy.

References


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Fig. 3. Photomicrograph showing the junction of normal pituitary tissue (open arrow) and mononuclear cell infiltrate (closed arrow), consistent with lymphocytic hypophysitis. H & E, original magnification × 10.