Transient Cerebrospinal Fluid Rhinorrhea, Blurred Vision, And Headache As Presenting Symptoms Of Pituitary Adenoma

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Pituitary adenoma rarely is associated with cerebrospinal fluid (CSF) rhinorrhea. A case with this unusual presentation is described and demonstrates how large, nonsecretory pituitary adenomas can have subtle signs and symptoms.

Case Report

A 40-year-old man requested a routine physical examination at his family physician's office. He had been in good health throughout his life but mentioned an unusual occurrence during a commercial airline flight 6 weeks prior to the visit. Soon after takeoff he noticed clear fluid that looked like tears draining from his left nostril. When he blew his nose to clear the drainage, he developed blurred vision in his left eye and a moderate headache. The blurred vision made it difficult to read a magazine but was not accompanied by scotoma or obvious loss of peripheral vision. He asked the flight attendant for two aspirin and took a nap for 1 hour. Upon awakening, the headache had resolved. The blurred vision was slightly better and returned to normal within an hour.

One week later the patient gently blew his nose and had similar blurring of his vision that lasted only 10 minutes. After that episode, he did not experience nasal drainage, headache, or blurred vision, but he consciously avoided blowing his nose.

Findings of initial physical and neurologic examinations were normal, including visual field confrontation testing, visual acuity testing, and funduscopic examination. No nasal drainage was noted. The lateral view of a sinus radiograph series showed enlargement of the sella turcica with loss of the anterior portion of the floor of the sella and an apparent soft tissue density bulging into the sphenoidal sinus (Figure 1).

A computed tomographic scan of the brain revealed a 3.6- by 2.7-cm intrasellar mass extending inferiorly into the sphenoidal and posterior ethmoidal region and superiorly beneath the optic chiasm (Figures 2 and 3). Formal visual field testing showed a subtle superior bitemporal hemianopia. A preoperative endocrine evaluation was unremarkable, including normal thyroid-stimulating hormone, prolactin, and cortisol levels.

During transsphenoidal resection, the anterior wall of the sella turcica was noted to be totally eroded from the floor of the sella to the floor of the frontal fossa, and the tumor filled most of the

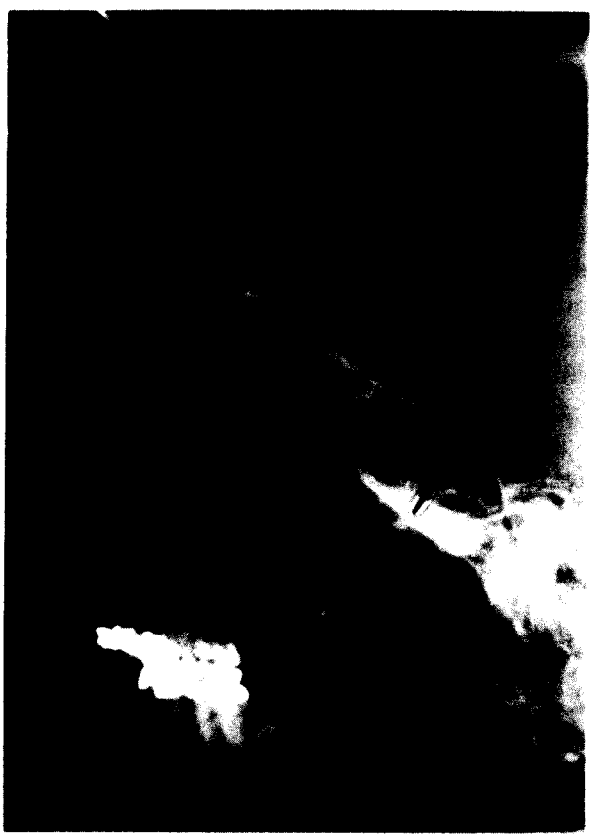

Figure 1. Lateral view of the sella turcica.

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Figure 2. Axial computed tomographic scan at the level of the pituitary mass.

Figure 3. Coronal computed tomographic scan at the level of the sphenoid sinus.

sphenoidal sinus. The tumor had eroded through the dura posteriorly to expose the right posterior clinoid process. All grossly visible tumor was successfully removed, and the dural defect was repaired with rectus fascia. The pituitary gland was spared after it was separated from the tumor. Bone from the anterior wall of the sphenoidal sinus was used to reconstruct the sellar floor, and the sellar and sphenoidal spaces were packed with fat and adsorbable gelatin sponge (Gelfoam™).

The pathology laboratory determined the tumor to be a pituitary adenoma. Immunohistochemical stains for prolactin, growth hormone, and corticotropin production were negative. The postoperative course was uneventful, with no visual symptoms or CSF leak.

Gadolinium-enhanced magnetic resonance imaging of the brain 1 year after surgery revealed a residual tumor mass measuring roughly 2 cm in length by 1 cm wide. The patient underwent radiation therapy and suffered transient dysarthria and balance disturbance 2 months later. These symptoms were attributed to radiation necrosis of the frontal lobes. The patient recovered and has been free of symptoms for the ensuing 12 months.

Discussion

Pituitary tumors are classified by histologic findings and hormone secretion. More than 90 percent of pituitary tumors are adenomas histologically, and 80 to 90 percent of these pituitary adenomas secrete hormones. Secretory pituitary adenomas generally present with symptoms of hormone excess, such as galactorrhea, amenorrhea, impotence, acromegaly, or the Cushing syndrome.

Nonsecretory pituitary adenomas, on the other hand, are often very large at the time of diagnosis. Symptoms, such as decreased vision[1,2] and headaches, commonly result from their size. CSF rhinorrhea is distinctly uncommon as a presenting symptom despite the large size and frequent extension of the tumor into the sphenoidal sinus.

Rothrock, et al.[3] described 1 patient with a large pituitary adenoma whose presenting symptom was bacterial meningitis after 10 years of intermittent clear nasal drainage. Nutkiewicz, et al.[4] described a patient with a chromophobe adenoma that was diagnosed after 3 years of intermittent CSF rhinorrhea and 10 years of amenorrhea following cessation of birth control pills. In a search of published reports in 1973, Fager[5] found only seven case reports of CSF rhinorrhea in untreated pituitary adenoma. He postulated that the tumor acts as a stopper or plug that prevents such leaks. CSF leaks more commonly occur following surgical or radiation therapy of pituitary adenoma, including nine of 400 cases described by Fager.

In the present case, the history strongly suggests a transient CSF leak, possibly induced by

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cabin pressure change during an airliner takeoff. Either nose blowing or the pressure change increased tumor pressure on the optic chiasm, causing blurred vision and headache. Because the patient did not seek medical attention initially, the nasal fluid could not be tested to prove that it was CSF; however, unilateral clear fluid from the nose almost certainly represented CSF considering the patient's subsequent surgical findings.

The patient had no symptoms of hormone excess because the adenoma was nonsecretory. The pituitary gland had been compressed by the adenoma, but it was spared at surgery and was clinically functioning both before and after the operation. Evaluation of unusual symptoms in this reliable patient led to prompt diagnosis of an uncommon condition.

Large nonsecretory adenomas are generally treated surgically by transsphenoidal resection. Unfortunately, recurrence rates range from 25 to 100 percent in different studies.[6] Consequently, postoperative radiation therapy is used either routinely or at the first evidence of recurrence.

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