Pituitary abscess in a craniopharyngioma

Case report

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A case is reported of a young man with hypopituitarism but no initial evidence of tumor who had several episodes of recurrent aseptic meningitis. At operation an abscess within a craniopharyngioma was drained and tumor tissue removed. After several postoperative episodes of meningitis the patient recovered. A review of four comparable reports is presented.

Key Words: hypopituitarism, abscess, meningitis, craniopharyngioma, brain tumor, pituitary

The formation of an abscess in the pituitary region is recognized but uncommon. We are reporting a case in which an abscess developed in a craniopharyngioma.

Case Report

This 34-year-old man was first seen in June, 1969, with a 10-month history of diminution of sexual activity, asthenia, lack of appetite, and the continuous voiding of large amounts of urine (7 L/24 hrs). Headache and subjective loss of vision in the left eye also had developed and lately he had had a fever reaching 38.5°C.

Examination. The patient was rather fat and palid with a hypopituitary aspect. He had slight bitemporal hemianopsia without any abnormality in visual acuity or optic discs. The remaining general and neurological examination was normal. Routine blood tests were normal. Urine density was 1.002, with elimination of 15 mg of 17-ketosteroids and 7.5 mg of hydroxycorticosteroids in 24 hours. The EEG was normal. Plain skull films were also normal except for thinning of the floor of the sella turcica. Neither the pneumoencephalogram nor the carotid angiogram showed any significant abnormality. However, examination of the lumbar cerebrospinal fluid (CSF) revealed 84 cells/ml (93% lymphocytes) and 150 mg% of proteins with positive globulin reactions. The hypopituitarism and meningeal reaction were treated symptomatically with hormones and antibiotics. However, the meningeal irritation continued intermittently for several months. Hyperthermia, headaches, vomiting, neck rigidity, and other meningeal signs were the main features of these episodes, which were not modified by the antibiotic therapy. Diabetes insipidis was also present but was controlled by Pitressin. Several general examinations including eye, ear, nose, and throat failed to demonstrate a septic focus. The CSF showed a progressive increase of cells and proteins but without any evidence of microorganisms (Fig. 1). From October, 1969, to February, 1970, he was relatively asymptomatic but at the beginning of February he developed pronounced visual deterioration. Visual acuity dropped to 1/6 in the left

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eye, while he could only count fingers with the right eye. He had a bitemporal hemianopsia, and the optic discs were pale. Pneumoencephalography now demonstrated a large mass in the sella occluding the basal cisterns and displacing the anterior part of the third ventricle upward (Fig. 2); at this time there were only 12 cells/mL but the protein content was still 130 mg%.

Operation. On February 23, 1970, the chiasmatic region was exposed through a right frontal craniotomy. The arachnoid showed signs of reaction. In the sella there was a protruding mass compressing the optic chiasm; thick pus was released by incision of the capsule. Solid tumor tissue was removed with the capsule.

Histological Examination. Study of the removed tissue demonstrated a typical craniopharyngioma (Fig. 3). In the bacteriological study of the pus, no organisms could be identified.

Postoperative Course. The immediate postoperative period passed without any complications. Examination of the CSF 10 days after operation was negative. Two months after the operation there was another episode of meningeal inflammation; 1600 cells/ml and 320 mg% of protein were present in the CSF (Fig. 1). Intensive treatment with antibiotics and corticosteroids was reinstated. New clinical and radiological searches for a focus of infection were unrevealing. Gradually the patient improved although the increase of cells and proteins in the CSF continued for some months. At examination 14 months after the operation (April, 1971) there were no symptoms of meningeal irritation; the CSF then showed 7 cells/ml and 100 mg% of protein. Vision had improved. The patient remained on replacement hormone therapy. No further signs of meningeal irritation have appeared since, and the CSF has not shown an increase of cells. Due to visual deterioration, headaches, and hypersomnia, a second operation was performed (December, 1971). A large cyst with xanthochromic fluid was emp-
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tied and a thick tumor capsule removed with a good immediate result.

Discussion

The development of such an abscess may be due to a direct extension of adjacent infections, such as sphenoidal sinusitis, osteomyelitis of the floor of the sella, or infections of other sinuses, or may be transmitted through the bloodstream. Several intrinsic lesions of the pituitary gland may favor the development of infections. Postpartum pituitary necrosis has been mentioned. It is also interesting that tumors of the pituitary gland may also undergo secondary infection.

There are two other examples of craniopharyngiomas with abscess formation reported. Riser, et al., described a case with an episode of meningeal irritation lasting for 3 months, which receded with antibiotic therapy. Several months afterward, due to the development of visual impairment together with sella destruction, the patient was operated on and was found to have an abscess within a craniopharyngioma. In the patient cited by Montrieul, et al., the symptoms and signs of a pituitary tumor were quite clear and in the operation pus and necrotic tissue filled the typical craniopharyngioma.

As far as we know, our case is the sixth reported of a histologically verified pituitary tumor associated with a pyogenic abscess. Three of the cases had pituitary adenomas and the other three craniopharyngiomas. The main features of these six patients are summarized in Table 1.

In the cases of Asenjo and Montrieul, et al., there was no evidence of infection and the pituitary abscess was found at operation; in the other four patients the symptoms and signs of meningeal infection came first and the pituitary tumor was recognized later at operation or necropsy.

The infection may be very acute, developing in the course of a few days as a fulminating meningitis or related to infection of the cavernous sinus. On the other hand, the meningeal infection may follow a more subacute or chronic evolution as in the case of Riser, et al., and in our own. In our patient, who had a definite hypopituitary syndrome, we discovered the meningeal infection accidentally. This pattern has been also emphasized by Emile, et al., who reported a case...
### Summary of six cases of pituitary tumor associated with pyogenic abscess

<table>
<thead>
<tr>
<th>Author, Year</th>
<th>Age, Sex</th>
<th>Duration</th>
<th>Septic Focus</th>
<th>Symptoms Duration</th>
<th>Signs of Preop Infection</th>
<th>Abscess Pus</th>
<th>Operation</th>
<th>Postop Meningitis</th>
<th>Tumor Histology</th>
<th>Signs of Symptoms and Signs</th>
<th>Result</th>
<th>Postop Meningitis</th>
<th>Operation</th>
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<td>Aseijo (1950)</td>
<td>44 M</td>
<td>3 yrs</td>
<td>fronto-maxillary sinusitis</td>
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<td>-</td>
<td>-</td>
<td>removal</td>
<td>none</td>
<td>chromophobe adenoma</td>
<td>none</td>
<td>recovered</td>
<td>none</td>
<td>removal</td>
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<td>Whalley (1952)</td>
<td>50 M</td>
<td>2 days</td>
<td>sphenoidal sinusitis (necropsy)</td>
<td>fulminating meningitis</td>
<td>headache, 3rd nerve, palsy, normal CSF</td>
<td>+</td>
<td>-</td>
<td>+</td>
<td>chromophobe adenoma</td>
<td>menigitis, none, hemorrhage</td>
<td>died</td>
<td>none</td>
<td>+</td>
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<td>Villiers</td>
<td>57 M</td>
<td>several days</td>
<td>sphenoidal sinusitis</td>
<td>fulminating meningitis</td>
<td>headache, 3rd nerve, palsy, normal CSF</td>
<td>+</td>
<td>removal</td>
<td>-</td>
<td>chromophobe adenoma</td>
<td>none</td>
<td>recovered</td>
<td>-</td>
<td>+</td>
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<td>46 F</td>
<td>3 mos</td>
<td>trauma, nasal, nasal region?</td>
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<td>+</td>
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<td>negative</td>
<td>recovered</td>
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<td>repeated meningitis</td>
<td>none</td>
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<td></td>
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<td>negative</td>
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<tr>
<td>Obobecro &amp; Blazquez (1972)</td>
<td>34 M</td>
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<td>none</td>
<td>+</td>
<td>+</td>
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<td>negative</td>
<td>negative</td>
<td>negative</td>
<td>recovered</td>
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<th>Result</th>
<th>Postop Meningitis</th>
<th>Operation</th>
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<tr>
<td>died</td>
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<tr>
<td>recovered</td>
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<tr>
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<tr>
<td>died</td>
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of pituitary abscess without tumor or sphenoidal sinusitis; this patient had five episodes of meningitis with sterile cerebrospinal fluid during an 8-month period.

In three of the six cases reviewed there was clear evidence of sinus infection. In the other three no such evidence for localized infections was found, but this does not mean that they did not exist; the difficulty of recognizing infections of the sphenoidal sinus as the cause of a cavernous sinus syndrome or pituitary abscess has been emphasized.

The prognosis in patients with this association of pituitary tumor and abscess is very unfavorable; three of the six died and two had postoperative meningitis.

References


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