Recurrent Cyst of the Pituitary: 26-Year Follow-Up from First Decompression

Case Report

ROBERT RASKIND, M.D., HOWARD A. BROWN, M.D., AND JACOB MATHIS, M.D.
Departments of Neurological Surgery, The Permanente Medical Group, Kaiser Foundation Hospital, Oakland; and University of California School of Medicine, San Francisco, California

Among the few reported arachnoid cysts of the pituitary region, there appears to be no instance of recurrence necessitating a second operation. The rarity of these cysts and the still greater rarity of long periods of postoperative observation have prevented formulation of a reliable concept of their prognosis. In the case described here, the lesion recurred 24 years after surgical decompression. Changes in visual acuity and visual fields led to a second operation, from which the patient recovered well and has been in good health for \( 2\frac{1}{2} \) years.

Case Report

In March, 1941, this 34-year-old man noted patchy loss of vision. Examination showed bitemporal hemianopsia (Fig. 1), slight pallor of the optic discs, and 20/20 vision in both eyes. Skull films showed enlargement and ballooning of the sella turcica. Left facial palsy had been present since the patient was 10 years old. Blood count, urinalysis, and serological tests for syphilis showed no abnormality. The cerebrospinal fluid pressure was normal; the fluid contained no cells, but the total protein content was 70 mg/100 ml, and the gold curve was 0112210000.

First Operation. On April 4, 1941, through a right transfrontal craniotomy, the dura was elevated from the floor of the anterior cranial fossa down to the sphenoid ridge and then incised, bringing both optic nerves and the chiasm into view. A large cyst with a blue dome was seen projecting between the optic nerves. When the cyst capsule was incised clear fluid was released, and excellent decompression of the optic nerves and chiasm was obtained. The cyst appeared to be of the arachnoid in the sella turcica.

Postoperative Course. The visual fields returned promptly to normal and the vision remained 20/20 (Fig. 2). During the subsequent 23 years the patient was seen often by various ophthalmologists. The vision remained 20/40 and 20/30, readily correctable with lenses to 20/20 bilaterally, and the visual

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![Fig. 1. Preoperative visual fields, March 1941: classic bitemporal hemianopsia.](image)
fields were full. In October, 1950, small superior temporal quadrant scotomata were noted bilaterally, with slight enlargement of the blind spot, but vision was correctable to 20/20 in both eyes (Fig. 3). In 1962 the vision was 20/40 and 20/30, correctable to 20/20, and the visual fields were said to be full.

Second Admission. On routine examination in December 1964, visual acuity was 20/50 and 20/20; the vision of the right eye could not be corrected, and the bitemporal field was again somewhat diminished. The optic disc appeared slightly pale. The old infranuclear facial weakness was essentially unchanged, and other neurological findings were normal. A plain film of the skull showed the old craniotomy flap and enlargement of the sella turcica. Right carotid angiography under local anesthesia demonstrated elevation of the anterior cerebral artery (Fig. 4).

Second Operation. On January 27, 1965, the right transfrontal craniotomy incision was re-opened to reexpose the optic nerves and chiasm. Thickened, greyish-blue arachnoid bulged between the optic tracts. As the dissection progressed, a protruding cyst could be seen from which approximately 20 ml of clear fluid was withdrawn through a ventricular

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**Fig. 2.** Visual fields full, May, 1941; 7 weeks after right transfrontal craniotomy.

**Fig. 3.** Visual fields, October, 1950: small bilateral superior temporal quadrant scotomata, blind spot slightly enlarged; vision correctable to 20/20.
needle. The cavity was estimated to contain 30 to 40 ml of fluid. Several small specimens of the cyst wall were taken for histologic study. The frontal lobe was allowed to fall back onto the floor of the anterior cranial fossa, and routine closure was carried out.

The hospital course was uneventful, and the patient was dismissed on the 10th postoperative day. The visual acuity gradually returned to 20/30, 20/20 with correction (Fig. 5); there was a small bitemporal scotoma. Except for bronchopneumonia early in 1966, the patient has since then enjoyed good health.

The pathologist reported that the wall of the cyst was composed of a fibrous matrix containing small nests of pituitary cells. For the most part, these were chromophobic, but occasional acidophilic and basophilic cells were identifiable. The lumen was lined with a single cuboidal row of epithelial cells, not significantly different from the acinar cells (Fig. 6).

**Discussion**

This patient's course, over the 27 years that he has had a cyst of the sella turcica, has been extremely benign. Now that the nature of the
lesion has been determined, a transnasal approach would be worth considering should his difficulties recur.

A pituitary cyst lined with a single layer of columnar epithelial cells and containing 28 ml of clear, colorless fluid, not unlike the cyst in our patient and following a similar clinical course, was described by Smith and Bucy in 1953. Similarly benign courses have been reported by Duffy, Frazier and Alpers, and Russell, who observed one suprasellar, one intrasellar, and two dumbbell-type cysts in this region.

Smith and Bucy believed that the lesion in their case was a normal microscopic hypophyseal cyst which had enlarged as a result of increased secretory activity in its wall. It is indeed puzzling that such cysts so rarely attain a size sufficient to produce symptoms and signs. Shanklin in a postmortem study of 100 human pituitary glands found small cysts in 13 specimens. He considered these to be derivatives of Rathke's cleft, and to be either cystic clefts or follicular cysts. Shanklin related these findings in man to follicular cysts having the same characteristics, occurring in amphibians, reptiles, birds, and mammals other than man.

Fager and Carter, who treated five patients with intrasellar epithelial cysts of the pituitary, noted that the fluid was mucoid in four instances, while in one it was liquid brown and contained cholesterol crystals. The lining in two of their cysts was similar to that in our

Fig. 6. Photomicrographs of wall of pituitary cyst. Left: The lumen, lined by a single row of cuboidal cells, is a the upper margin. H. & E. ×300. Right: High-power view of cuboidal cells. H. & E., ×1000.
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patient; in one other, mucus-secreting glands were found. These authors emphasized the benign character and favorable prognosis in these cases, and preferred simple drainage to a radical operation. Fairburn and Larkin\textsuperscript{4} described a cyst of Rathke's cleft which contained approximately 2 ml of thick mucopurulent material, in a cavity 12 mm in diameter. The patient improved after operation and had no signs of recurrence after 3 years.

Ponte\textsuperscript{5} noted hypopituitarism and bitemporal hemianopsia in two of three patients with such cysts; the clinical signs were indistinguishable from those of chromophobe adenoma of the hypophysis. Fager and Carter\textsuperscript{4} also observed some hypopituitarism in one case, as did Fairburn and Larkin\textsuperscript{4} in their case. Our patient showed no evidence of endocrine disturbance.

Summary

Other reports have emphasized the benign course and good results from surgical decompression of a pituitary cyst. We have reported a case with the unusually long follow-up period of 26 years and have pointed out that often this lesion may be clinically and radiographically indistinguishable from a chromophobe adenoma.

References

8. Russell, D. S. (cited by Smith and Bucy, see ref. 12).