The Empty Sella Syndrome*

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PITUITARY tumors often encroach upon and compress the nearby optic nerves and chiasm causing a variety of visual deficits. Chamlin, et al., reported visual field defects in 86%, optic atrophy in 50%, and impaired visual acuity in 32% of these patients with neoplasms of the pituitary. Since these patients may become totally blind if not treated, the primary objective of treatment is to relieve the pressure on the visual pathways by operative decompression, irradiation, separately or in combination. The success of treatment is measured by the degree of improvement in visual function that can be objectively determined and recorded.

Deterioration in visual function after treatment is usually assumed to indicate recurrence of tumor. However, on rare occasions, no tumor is found when the enlarged sella is explored surgically. This condition has been called the "empty sella syndrome," and is a rare complication. We are reporting three cases of this syndrome encountered at the University of California San Francisco Medical Center.

Case Reports

Case 1. A 56-year-old woman was hospitalized in January, 1949, because of a 6-month history of headache and blurring vision without diplopia.

Examination. Upon admission examination disclosed a left temporal hemianopsia and a right upper temporal quadrant defect. Visual acuity on the right was 20/200 and on the left was 20/100. Both optic discs were pale. X-rays of the skull demonstrated an enlarged sella.

First operation. On January 22, 1949, a right frontal craniotomy revealed a large cystic chromophobe adenoma, which was partially removed. The patient received postoperative radiation in a total dose of 3600 R at midplane through two lateral portals.

Initially there was some postoperative improvement in the right temporal visual field; visual acuity also improved to 20/40 on the right and 20/100 on the left (Fig. 1). However, in November, 1950, visual acuity had deteriorated to 20/70 on the right and 20/200 on the left. A large right central scotoma appeared in the right field. There was no further progression of visual loss until July, 1952, when examination disclosed further loss of vision in the right nasal field.

Second operation. An exploratory operation in July, 1952, showed that both optic nerves were white and thin and surrounded by arachnoidal adhesions. The right optic tract appeared normal. No tumor was found in the sella.

Postoperatively, vision in the right eye continued to deteriorate. The patient saw hand motion with her right eye in November, 1952, and had only light perception in September, 1953. The condition of her left eye remained stable with a visual acuity of 20/200 and a total temporal hemianopsia. The patient has not returned for follow-up examination since 1954.

Case 2. This 58-year-old woman, first seen in 1964, had a history of acromegaly of more than 20 years' duration. In 1949 she had had a course of x-ray therapy to the pituitary, the dosage being unknown. Because of failing vision, she subsequently had received an additional 4317 R in 1962 and 1740 R in 1963.

Examination. At examination in 1964, the patient had only faint light perception in the left eye, and acuity in the right eye was limited to finger counting only. There was a complete right temporal hemianopsia. Data from previous eye examinations were not available. Funduscopic examination revealed bilateral optic atrophy. She had the typical features of acromegaly. The sella was enlarged and its floor depressed (Fig. 2). Left carotid angiography showed the left internal carotid artery

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displaced laterally and the carotid siphon distorted (Fig. 3). A pneumoencephalogram showed a slightly enlarged left temporal horn and a possibly elevated anterior portion of the third ventricle.

Operation. A left frontotemporal craniotomy was done on July 14, 1964. Marked atrophic changes were seen in the left frontal and temporal lobes. The medial portion of the left lesser sphenoid wing and left anterior clinoid process had been destroyed. The large sella was empty; there was no evidence of tumor. The left optic nerve sagged into the ballooned sella; the right optic nerve was not visualized. On reviewing the pneumoencephalograms, there seemed to be some air in the sella, which had not been noted preoperatively.

After operation there was no improvement in visual function. The patient has been