Transsphenoidal chiasmapexy for correction of posthypophysectomy traction syndrome of optic chiasm

Case report

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Postoperative improvement occurred as a result of transsphenoidal chiasmapexy in a patient with posthypophysectomy visual loss. Traction injury of the optic chiasm may have been caused by a deficient diaphragma sellae and inadequate packing and repair of the sella floor. A cartilaginous seal is recommended.

KEY WORDS □ optic chiasm □ traction syndrome □ chiasmapexy □ sella turcica □ transsphenoidal

DELAYED progressive visual impairment occurring after both transcranial and transsphenoidal surgery for pituitary adenoma has been described.6,7 Traction injury of the optic chiasm and its prevention and correction have been amply documented by Olson, et al.4 We are reporting a case of posthypophysectomy visual loss that probably occurred because of a deficient diaphragma sellae and a deviation from our usual method of repair of the sella turcica floor.

Case Report

A 60-year-old woman with known carcinoma of the breast metastatic to the vertebrae and left chest wall presented with intractable pain.

First Operation. On November 11, 1975, she underwent transsphenoidal microsurgical hypophysectomy without complications. The sella turcica was small with a relatively wide diaphragma sellae. The arachnoid was opened allowing us to see a mobile flapping optic chiasm. Fascia lata and subcutaneous fat was left in the sella to support the chiasm and a larger piece of fat was used to fill the sphenoid sinus. No attempt was made to place an oversized graft of cartilaginous septum to form a new floor for the sella turcica.

First Postoperative Course. The patient’s early postoperative course was uneventful and she had significant pain relief within 1 week. Approximately 10 days postoperatively she complained of a fleeting bitemporal blurring of vision; this improved on Decadron therapy. Ophthalmological consultation and tangent screen and perimetry testing revealed a bitemporal hemianopsia to color without any abnormalities of central vision or acuity.
FIG. 1. Charts delineating the patient’s visual field loss on December 10, 1975 (upper), December 15, 1975 (center), and January 5, 1976 (lower).

FIG. 2. Postoperative fractional pneumoencephalogram with tomography shows no evidence of arachnoidal herniation.

Because of the possibility of a postoperative suprasellar blood clot, an angiogram was done, which showed no elevation or depression of the anterior cerebral artery as it lay over the optic nerves. The patient was discharged 1 day later. On December 10, she noticed a progressive bitemporal visual field loss (Fig. 1 upper). She was again given Decadron, but had no significant improvement. On December 15, repeat tangent screen examination disclosed a profound bitemporal hemianopsia that narrowed her visual field remarkably (Fig. 1 center).

**Second Operation.** The patient was readmitted, and the following day underwent transsphenoidal exploration of the sella turcica. There was viable fat present in the sphenoid sinus but little remained in the sella turcica itself. Fascia lata was found adherent to the periphery of the floor of the sella and after that was removed, it was obvious that the optic chiasm was glued to the left side of the sella floor. By means of careful microdissection, the adhesions were lysed and the chiasm was elevated with fascia lata and bone strips; an oversized portion of the cartilaginous septum was then inserted through the remainder of the sella floor to provide a seal.

**Second Postoperative Course.** As no visual improvement occurred within 48 hours postoperatively a fractional pneumoencephalogram with tomography was done (Fig. 2). Within 1 week, she showed steady but gradual improvement in visual fields. By January 5, 1976, marked improvement in her bitemporal hemianopsia and acuity was evident and has persisted (Fig. 1 lower).

**Discussion**

Since 1969, when we first performed transsphenoidal microsurgery, in almost all cases we have followed the technique of Hardy and Wigser² for packing the sella and repair of the floor. In our experience with more than 80 cases of pituitary adenomas, craniopharyngiomas, and hypophysectomies performed transsphenoidally, postoperative visual impairment has been avoided.

On occasion, it has been difficult to place an oversized piece of septal cartilage within the confines of the remaining sella floor. For this reason and encouraged by Collins'
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results we have packed the sella and sphenoid sinus with subcutaneous fat in 10 patients. Although we have confirmed the viability of the lipomatous graft and no major cerebrospinal fluid (CSF) leakage has ensued, herniation of the sella portion of the graft into the sphenoid sinus remains a possibility. In the patient reported here, a small, insufficiently packed sella turcica and sphenoid sinus probably led to the traction injury and thus the development of adhesions between the chiasm and sella floor.

In the future, we plan a return to the fascia lata, muscle or subcutaneous fat, and the septal cartilage technique for elevating the optic chiasm after transsphenoidal decompression. Packing the sphenoid sinus with fat may provide additional protection against CSF leakage.

References


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