

PREOPERATIVE DIAGNOSIS: , Large and invasive recurrent pituitary adenoma.,POSTOPERATIVE DIAGNOSIS:, Large and invasive recurrent pituitary adenoma.,OPERATION PERFORMED: , Endoscopic-assisted transsphenoidal exploration and radical excision of pituitary adenoma, endoscopic exposure of sphenoid sinus with removal of tissue from within the sinus, harvesting of dermal fascia abdominal fat graft, placement of abdominal fat graft into sella turcica, reconstruction of sellar floor using autologous nasal bone creating a cranioplasty of less than 5 cm, repair of nasal septal deviation, using the operating microscope and microdissection technique, and placement of lumbar subarachnoid catheter connected to reservoir for aspiration and infusion.,INDICATIONS FOR PROCEDURE: , This man has undergone one craniotomy and 2 previous transsphenoidal resections of his tumor, which is known to be an invasive pituitary adenoma. He did not return for followup or radiotherapy as instructed, and the tumor has regrown. For this reason, he is admitted for transsphenoidal reoperation with an attempt to remove as much tumor as possible. The high-risk nature of the procedure and the fact that postoperative radiation is mandatory was made clear to him. Many risks including CSF leak and blindness were discussed in detail. After clear understanding of all the same, he elected to proceed ahead with surgery.,PROCEDURE: ,The patient was placed on the operating table, and after adequate induction of general anesthesia, he was placed in the left lateral decubitus position. Care was taken to pad all pressure

points appropriately. The back was prepped and draped in usual sterile manner.,A 14-gauge Tuohy needle was introduced into the lumbar subarachnoid space. Clear and colorless CSF issued forth. A catheter was inserted to a distance of 40 cm, and the needle was removed. The catheter was then connected to a closed drainage system for aspiration and infusion.,This no-touch technique is now a standard of care for treatment of patients with large invasive adenomas. Via injections through the lumbar drain, one increases intracranial pressure and produces gentle migration of the tumor. This improves outcome and reduces complications by atraumatically dissecting the tumor away from the optic apparatus.,The patient was then placed supine, and the 3-point headrest was affixed. He was placed in the semi-sitting position with the head turned to the right and a roll placed under the left shoulder. Care was taken to pad all pressure points appropriately. The fluoroscope C-arm unit was then positioned so as to afford an excellent view of the sella and sphenoid sinus in the lateral projection. The metallic arm was then connected to the table for the use of the endoscope. The oropharynx, nasopharynx, and abdominal areas were then prepped and draped in the usual sterile manner.,A transverse incision was made in the abdominal region, and several large pieces of fat were harvested for later use. Hemostasis was obtained. The wound was carefully closed in layers.,I then advanced a 0-degree endoscope up the left nostril. The middle turbinate was identified and reflected laterally exposing the sphenoid sinus ostium. Needle

Bovie electrocautery was used to clear mucosa away from the ostium. The perpendicular plate of the ethmoid had already been separated from the sphenoid. I entered into the sphenoid., There was a tremendous amount of dense fibrous scar tissue present, and I slowly and carefully worked through all this. I identified a previous sellar opening and widely opened the bone, which had largely regrown out to the cavernous sinus laterally on the left, which was very well exposed, and the cavernous sinus on the right, which I exposed the very medial portion of. The opening was wide until I had the horizontal portion of the floor to the tuberculum sella present., The operating microscope was then utilized. Working under magnification, I used hypophysectomy placed in the nostril., The dura was then carefully opened in the midline, and I immediately encountered tissue consistent with pituitary adenoma. A frozen section was obtained, which confirmed this diagnosis without malignant features., Slowly and meticulously, I worked to remove the tumor. I used the suction apparatus as well as the bipolar coagulating forceps and ring and cup curette to begin to dissect tumor free. The tumor was moderately vascular and very fibrotic., Slowly and carefully, I systematically entered the sellar contents until I could see the cavernous sinus wall on the left and on the right. There appeared to be cavernous sinus invasion on the left. It was consistent with what we saw on the MRI imaging., The portion working into the suprasellar cistern was slowly dissected down by injecting saline into the lumbar subarachnoid catheter. A large amount of this was removed.

There was a CSF leak, as the tumor was removed for the upper surface of it was very adherent to the arachnoid and could not be separated free., Under high magnification, I actually worked up into this cavity and performed a very radical excision of tumor. While there may be a small amount of tumor remaining, it appeared that a radical excision had been created with decompression of the optic apparatus. In fact, I reinserted the endoscope and could see the optic chiasm well., I reasoned that I had therefore achieved the goal with that is of a radical excision and decompression. Attention was therefore turned to closure., The wound was copiously irrigated with Bacitracin solution, and meticulous hemostasis was obtained. I asked Anesthesiology to perform a Valsalva maneuver, and there was no evidence of bleeding., Attention was turned to closure and reconstruction. I placed a very large piece of fat in the sella to seal the leak and verified that there was no fat in the suprasellar cistern by using fluoroscopy and looking at the pattern of the air. Using a polypropylene insert, I reconstructed the sellar floor with this implant making a nice tight sling and creating a cranioplasty of less than 5 cm., DuraSeal was placed over this, and the sphenoid sinus was carefully packed with fat and DuraSeal., I inspected the nasal passages and restored the septum precisely to the midline repairing a previous septal deviation. The middle turbinates were then restored to their anatomic position. There was no significant intranasal bleeding, and for this reason, an open nasal packing was required. Sterile dressings were applied, and the operation was

terminated.,The patient tolerated the procedure well and left to the recovery room in excellent condition. The sponge and needle counts were reported as correct, and there were no intraoperative complications.,Specimens were sent to Pathology consisting of tumor.