

Two-Stage Resection of a Giant Pituitary Adenoma Presenting with Visual and Memory Disturbances

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Introduction

Giant pituitary adenomas can be challenging to resect because complete removal through a single approach carries significant risks of vascular or hypothalamic injury and postoperative endocrine dysfunction. A staged surgical strategy—combining transsphenoidal and transcranial approaches—can facilitate maximal safe resection while minimizing complications and preserving pituitary function

Methods

This report describes the diagnostic evaluation, staged surgical management, and postoperative follow-up of a patient with a giant pituitary adenoma.

Results

A 52-year-old man presented with atypical visual sensations and memory impairment. Ophthalmologic examination revealed no visual field deficits, and baseline hormonal evaluation was normal. Brain MRI demonstrated a giant left-sided pituitary adenoma with frontal extension, midline shift, and invasion of the left cavernous sinus (Knosp grade 3, Modified Hardy E-IV).

An initial endoscopic transnasal transsphenoidal surgery was performed to obtain histological diagnosis and decompress the optic chiasm, achieving partial resection of the intrasphenoidal and sellar components. Minor postoperative hemorrhage occurred and was managed conservatively.

Two years later, MRI showed progression of the residual tumor. A second-stage resection via left fronto-pterional craniotomy, using a transcortical approach, resulted in gross total removal.

At five-month follow-up, MRI demonstrated no residual tumor and endocrine function was preserved. The patient had returned to full-time work, reporting only minimal residual forgetfulness.

Conclusion

This staged surgical approach enabled complete resection of a giant pituitary adenoma while preserving pituitary function. This case also highlights an unusual presentation dominated by cognitive and subjective visual symptoms, which largely resolved following definitive tumor removal.

		Preop	1d postop	5mo postop	2 years postop	5mo postop (2nd resection)
TSH	(0.270 – 4.20 mU/L)	1.85	1.39	1.59	2.38	1.78
T3	(3.1-6.8 pmol/l)	4.6	4.4	5.19	-	-
T4	(12.9-21.4 pmol/L)	17.4	24.3	20.2	19.5	-
LH	(1.7-8.6 U/L)	5.1	2.5	6.5	6.3	-
FSH	(1.5-12.4 U/L)	7.2	4.6	6.4	6.6	5.7
Prolactine	(4.0-15.2 ug/L)	16.5	12.4	13.5	12.5	13
Testosterone	(6.680-25.700 nmol/L)	15.700	3860	598 (193-740 ng/dL)	-	-
ACTH	(7.2-63.3 pg/ml)	31.9	30.5	22.8	9.2	-
Cortisol	(133-537 nmol/L)	401	567	12.8 (4.8-19.5 ug/dL)	1.8 (4.8-19.5 ug/dL)	12.7
GH	(0.03-2.47 ug/L)	0.14	0.40	0.61	0.29	-
IGF-1	(75-203 ug/L)	126	160	112	128	132

Table 1 – Endocrine function pre- and post-operatively (after first and second resection)

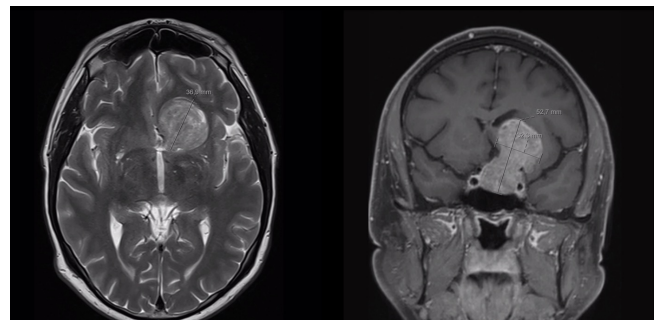


Figure 1 – MRI Imaging at time of diagnosis

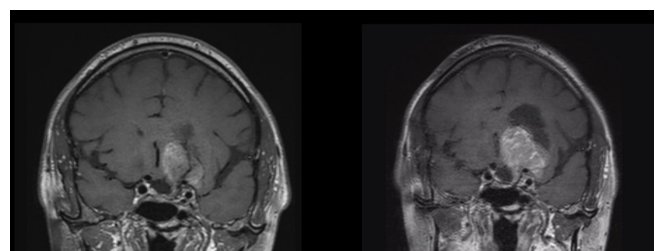


Figure 2 – MRI Imaging 5 months postoperatively (Left) and 2 years postoperatively (Right) showing progression of the residual tumor

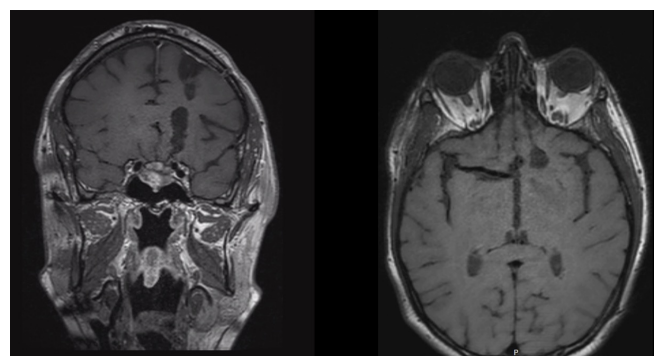


Figure 3 – MRI Imaging 5 months postoperatively after second resection using a transcortical approach, resulting in gross total removal