



Surgical Outcomes of Primary versus Revision Transsphenoidal Resection for Pituitary Adenomas at a High-Volume Center

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Introduction

- Pituitary adenomas are relatively common tumors managed by skull base surgeons, with a prevalence rate of 16.7% in the general population¹. Sub-total resection can occur when the tumor is particularly difficult, there is cavernous sinus invasion or there is relative inexperience of the surgical team². The objective of this study was to compare the surgical outcomes of primary transsphenoidal resection (TSR) of pituitary adenomas versus revision surgery of subtotally resected tumors at a high-volume brain tumor center.

Methods

The authors retrospectively reviewed the medical records of 503 consecutive patients who had undergone TSR for a pituitary adenoma at our institution from 2007 to 2015. Two categories of patients were established: 1) those who underwent a primary TSR at our institution and 2) those who underwent a revision TSR at our institution after having undergone a primary TSR at an outside institution.

Category 1 Patients

Pituitary adenoma diagnosis

Resection at UTSW

Favorable outcome

Category 2 Patients

Pituitary adenoma diagnosis

Resection at outside institution

Unfavorable outcome

Secondary (repeat/revision) TSR at UTSW (High-Volume Center)

Favorable outcome

Tables & Figures

Patient & Tumor Data

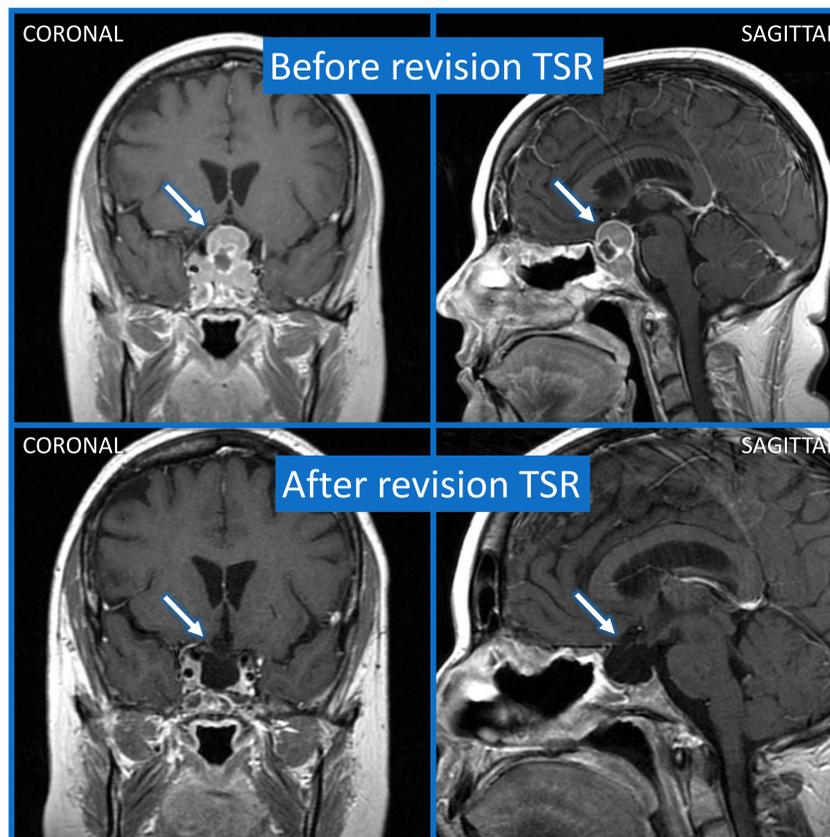
Metric	P-value
Age	0.44
Gender	0.76
BMI	0.69
Tumor Volume	0.23
Hardy Grade Number	0.94
Hardy Grade Letter	0.97
Knosp Grade	0.92

* P-value is a result of the comparison of data between the two categories of patients

Surgical Outcome Data

Metric	P-value
Extent of Resection	0.85
Symptom Resolution	0.69
Hospital Stay (LOS)	0.06
Chronic DI	0.13
Transient DI	0.18
Post-OP CSF Leak	0.10
New Hypopituitarism	0.56
Meningitis	0.29
Neural Deficit	0.29
Epistaxis	0.46
Hematoma	0.80

Coronal/sagittal views of pituitary adenoma before and after revision TSR performed at UTSW



Results

Our cohort consisted of a total of 250 patients. Of these, 89 underwent a Primary TSR (Category 1), 33 underwent a Revision TSR (Category 2), and 128 were not included due to incomplete information on preliminary survey. Statistical analysis revealed a significant similarity between the surgical outcomes and complications of the two categories of patients. Analyzed data included extent of resection (P = .85), resolution of symptoms (P = .69), length of stay ([LOS] P = .06), chronic diabetes insipidus ([DI] P = 0.13), transient DI (P = 0.18), post-operative CSF leak (P = .10), new hypopituitarism (P = .56), meningitis (P = .29), neural deficit (P = .29), epistaxis (P = .46), and suprasellar hematoma (P = .80). All measurements of surgical outcome and post-operative complications did not meet the level of significance to be considered statistically different.

Conclusions

High-volume centers are able to achieve similar surgical outcomes in revision vs. primary TSR despite the challenges that recurrent or residual disease may present². These results suggest that patients who undergo subtotal resections may benefit from referral to a high-volume center for consideration of a repeat resection before radiation or other adjuvant therapies are initiated.

References

- Ezzat S, Asa SL, Couldwell WT, Barr CE, Dogde WE, Vance ML, et al. The prevalence of pituitary adenomas: a systematic review. *Cancer* 2004;101:613–9.
- Przybylowski, C. J., et al. Primary versus revision transsphenoidal resection for nonfunctioning pituitary macroadenomas: matched cohort study. *Journal of Neurosurgery*: 1-8.