Endoscopic Transsphenoidal Resection of Microprolactinomas and Mesoprolactinomas with an Intent to Cure: Assessment of Biochemical Remission and Endocrine Function in 18 Patients

Anni Wong MS; Zachary Scott Mendelson BS; Tareq Azad BS; Jean Anderson Eloy MD; James K. Liu MD

Introduction: Dopamine agonist therapy remains the gold standard of treatment for prolactinomas due to high success rates of normalization of hyperprolactinemia and tumor control. Surgical intervention is typically indicated for those who have failed medical therapy because of drug resistance or intolerance. In some instances, surgery can be considered a primary treatment in those who refuse to be on life-long medical therapy. In this study, we review a series of patients with small prolactinomas treated by endoscopic transsphenoidal surgery with an intent to cure. We report the biochemical cure rate and identify factors that predict a favorable surgical outcome.

Methods: We performed a retrospective study of 18 patients who underwent endoscopic transsphenoidal surgery for small prolactinomas, including 5 microadenomas (<10 mm) and 13 mesoadenomas (10-20 mm). The average tumor size was 10.6 mm (range 5-15 mm). All patients were female with a mean age of 29.6 years (range 15-39). Twelve (66.7%) failed prior medical therapy, and 6 patients (33.3%) chose surgery as their primary treatment without prior medical therapy.

Results: Biochemical remission was achieved in 94.4% (100% in microadenomas, 92.3% in mesoadenomas) with a mean follow-up of 47.0 months. All patients had resolution of symptoms with complete tumor resection and no tumor recurrence. The mean preoperative prolactin level was 135.7 ng/ml (range 33-380.6 ng/ml). The mean prolactin level on postoperative day 1 was 8.9 ng/ml (range: 0.5-31.9 ng/ml). Postoperatively, one patient developed new anterior hypopituitarism, and two patients had delayed epistaxis that required endoscopic cauterization. There were no complications of postoperative CSF leakage, carotid injury, or visual loss.

Conclusions: Endoscopic transsphenoidal surgery by an experienced pituitary team can be considered a safe and potentially curative treatment for small prolactinomas less than 20 mm as an alternative to failed or lifelong medical therapy. Although these early results appear favorable, longer-term follow-up is warranted.

Learning Objectives: By the conclusion of this session, participants should be able to
1) Recognize the role of surgery for prolactinomas
2) Discuss factors that can predict favorable outcomes for prolactinomas
3) Understand indications and patient selection for surgical removal of prolactinomas

References

1. Amar AP, Couldwell WT, Chen JC, Weiss MH: Predictive value of serum prolactin levels measured immediately after transsphenoidal surgery. Journal of neurosurgery 97:307-14, 2002.
2. Babey M, Sahli R, Vajtai I, Andres RH, Seiler RW: Pituitary surgery for small prolactinomas as an alternative to treatment with dopamine agonists. Pituitary 14:222-30, 2011.
3. Liu JK, Couldwell WT: Contemporary management of prolactinomas. Neurosurg Focus 16:E2, 2004.
4. Ogilvie CM, Milsom SR: Dopamine agonists in the treatment of prolactinoma: are they still first choice? Internal medicine journal 41:156-61, 2011.

[Default Poster]

Figure 1: Pre-operative images demonstrating a mesoprolactinoma (13.4mm) in left sellar region. Sagittal (A) and coronal T1-weighted MRI with gadolinium (B) Coronal T2-weighted image of same patient (C). Post-operative images of the same patient dem

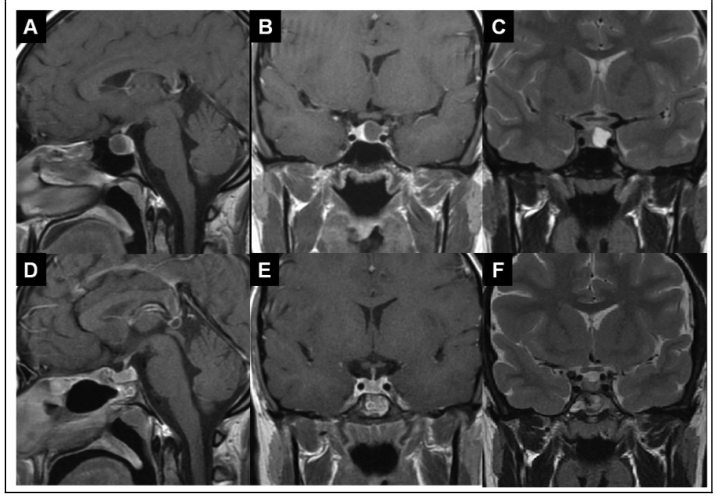

Figure 2: Pre-operative images demonstrating a mesoprolactinoma (15 mm) with optic chiasm compression but no cavernous sinus invasion. Sagittal (A) and coronal T1 weighted MRI with gadolinum (B). Coronal T2-weighted image of the same patient (C). Pos

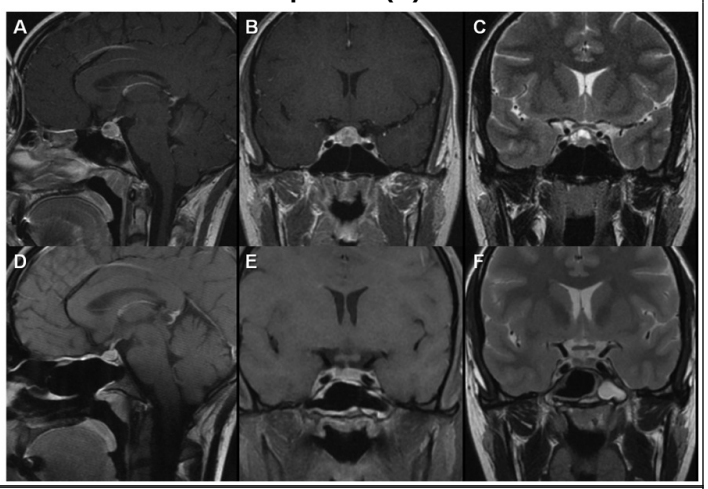

Figure 3: View from endoscope during progressive stages of the operation. Visualization of bony sellar opening is achieved (A). Dural is open and tumor is dissected from normal gland (B). Tumor is removed and peeled off suprasella arachnoid (C &