A National Review Of Outcomes Following Microscopic Versus Endoscopic Transsphenoidal Excision Of Pituitary Adenomas

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Poster #2349
Disclosures

• The authors have no relevant disclosures or conflicts of interests.
• No sources of funding were used to conduct this study.
Introduction

• Endoscopic approaches have gained popularity over the last decade because they allow access to the sellar region with unparalleled visualization and access.

• We conducted a national review of outcomes following microscopic versus endoscopic excision of pituitary adenomas (PAs).
Methods

• Using the 2016 NIS database, we conducted a retrospective cohort analysis of 1,209 patients who underwent either microscopic (N=450) or endoscopic (N=759) PA excision.

• Statistics were conducted using R. Length of stay adjusted (LOS) cost was calculated by dividing the total cost by the number of inpatient days.

• Unpaired two-sample Wilcoxon testing was conducted, with no differences in age, race, or sex between the two groups.
Results

- There were no significant differences in meningitis, vascular injury, vision loss, or death between the microscopic and endoscopic groups.
- Average LOS was significantly different between the two groups (Microscopic: 5.39 ± 10.52 days, Endoscopic: 4.31 ± 6.03 days, p=0.0471).
- The incidence of postsurgical hypopituitarism was higher following microscopic (11.6%) than endoscopic (16.2%) approaches, with odds of developing hypopituitarism significantly higher in endoscopically treated patients (OR: 1.477, 95% CI: 1.04-2.11, p=0.0279).
Results

- Postsurgical CSF leaks developed in 11.8% of patients undergoing microsurgery and 17.4% undergoing endoscopic excision, with odds of developing CSF leak significantly higher in endoscopically treated patients (OR: 1.574, 95% CI: 1.12-2.23, p=0.0103).

- Average LOS adjusted cost was also significant between open versus endoscopic excision (Open: $25,615.43 $18,809.39, Endoscopic: $28,603.19 $20,982.46, p=0.0117).
Discussion

- Endoscopic PA excision was associated with higher rates of postsurgical hypopituitarism, CSF leak, and cost, despite also offering decreased average LOS.
- Further longitudinal studies may help clarify whether these results are related to more aggressive resection afforded by the endoscopic visualization and access.
Key Points

- Outcomes following PA may differ based on whether the surgical approach is endoscopic or open.
- Learning curves may still exist for new endoscopic neurosurgeons.