Outcomes Following Endoscopic Endonasal Transsphenoidal Surgery For Nonfunctioning Pituitary Adenomas: A Retrospective Single Surgeon Analysis Of 300 Patients

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Poster #2596
Disclosures

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

• The evolution of surgical approaches to pituitary tumors has aimed to maximize degree of resection and minimize complications.
• The mainstay of treatment for non-functional pituitary adenomas (NFPAs) remains transsphenoidal surgery (TSS), which can be performed both microscopically and endoscopically.
• We aim to report outcomes of patients with NFPAs treated with direct and extended endoscopic TSS at a large tertiary care pituitary center.
Methods

• A retrospective analysis of 300 patients who underwent direct and extended endoscopic TSS for NFPA at two university affiliated hospitals between 2011-2019 was performed.

• Patients were diagnosed with NFPA according to preoperative hormonal criteria and histopathological confirmation.

• Patient characteristics, neuro-imaging and pathological findings, operative details, surgical outcomes, complications and follow-up for recurrence/progression were evaluated over a mean follow-up time of 17.6 months.
Results

• The mean age was 52.56 years (range 18-92 years). Presenting symptoms included vision loss (58.3%) and headaches (65.7%).

• Hypothyroidism (22.0%) was the most common preoperative endocrinopathy, followed by hyperprolactinemia (21.7%). The mean maximum tumor diameter was 27.2 mm.

• Patterns of extrasellar extension included: Suprasellar (79.7%), cavernous sinus (46.0%), and infrasellar (26.0%).

• All procedures were direct (96.0%) or extended (4.0%) endoscopic endonasal transsphenoidal approaches. Intraoperative CSF leaks were repaired in 35.7% of cases, with postoperative CSF rhinorrhea developing in 4.0% of patients.
Results

• There were zero perioperative internal carotid artery injuries, and one patient (0.4%) with preoperative AMS and a recurrent PA died as a result of postoperative sepsis.

• Postoperative endocrine complications included symptomatic delayed hyponatremia (8.0%), transient diabetes insipidus (7.7%), and new hypopituitarism of any axis (3.3%).

• Immunostaining results were as follows: Alpha-subunit (33.0%), LH (10.0%), FSH (27.0%), silent ACTH (14.3%), prolactin (11.7%), growth hormone (5.0%), TSH (4.3%), and null-cell adenoma (15.3%).
Discussion

• This large series confirms that endonasal endoscopic TSS is an extremely safe and effective approach in the surgical management of patients with NFPA, offering unsurpassed outcomes through the first postoperative year and beyond.

• Further longitudinal studies should investigate complications of NFPA resection procedures.
Summary Points

- NFPAs present with characteristic complications and may be categorized based from immunostaining.

- Endoscopic resection of NFPAs is safe and effective.