

Surgical Outcomes from Transsphenoidal Resection of Nonfunctioning Pituitary Adenomas: A Single-Center Experience of Over 400 Patients

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Introduction

The prevalence of nonfunctioning pituitary adenoma (NFPA) is estimated at 22.2 per 100,000 people. Many reports have characterized the diagnosis and treatment of NFPA, yet few large-scale studies have evaluated outcomes of surgical resection of these lesions.

Methods

We performed a single-center retrospective review of 411 patients who underwent transsphenoidal surgery for NFPA from 1994-2014, with minimum follow-up time of 3 months (mean 51 months).

Results

Our series consisted of 220 men (54%) and 191 women (46%) with mean age of 57 years. The most prevalent preoperative symptoms were vision loss (226 patients, 55.0%) and headache (153 patients, 37.2%). Mean tumor diameter was 25.9mm. 234 patients (57%) demonstrated cavernous sinus invasion on MRI. Gross total resection was achieved in 283 patients (68.8%). Intraoperative CSF leakage was identified in 212 cases (51.5%). Median hospital stay was 2 days. There were no perioperative deaths and no carotid artery injuries. Complications included diabetes insipidus (24 patients, 5.8%), new hypopituitarism (18 patients, 4.5%), postoperative CSF rhinorrhea (11 patients, 2.7%), cranial nerve paresis (8 patients, 1.9%), hematoma (8 patients, 1.9%), meningitis (6 patients, 1.5%), worsened vision (4 patients, 1%), and hydrocephalus (4 patients, 1%). Rates of early readmission and reoperation were 7.1% and 5.1%, respectively. Recurrence occurred in 25 patients (6.1%) with a mean time to recurrence of 67.6 months. Progression was seen in 37 patients (9.0%) with average time to progression of 41.8 months. At latest follow-up, 222 patients (54.0%) had no evidence of disease, 163 patients (39.6%) had stable residual disease, and 26 patients (6.3%) had disease progression.

Conclusions

Transsphenoidal surgery is a safe and effective first-line therapy for NFPA, with low rates of surgical complications. In a large series of patients with mean follow-up time of over 4 years, over 93% of patients had stable or no disease at latest postoperative follow-up.

Learning Objectives

By the conclusion of this session, participants should be able to: 1) Describe the major complications of transsphenoidal resection of NFPA, 2) Describe the rates of gross total resection of NFPA using a transsphenoidal approach, 3) Understand the safety and efficacy of the transsphenoidal approach for resection of NFPA.