25th Shaukat Khanum Cancer Symposium
November 6–8, 2026 / Hybrid Meeting

Safety and Efficacy of Endoscopic versus Microscopic Approaches for Pituitary Adenoma

A Systematic Review and Meta-Analysis

Sheraz Qasim [1], **Kashish Khan** [2], **Fatima Ali** [1], **Muhammad Umer** [3], **Bareera Tanveer Malik** [4]

[1] Ameer-ud-Din Medical College, Lahore; [2] Baqai Medical University; [3] King Edward Medical University, Lahore, Pakistan
[4] Shaikh Khalifa Bin Zayed Al Nahyan Medical and Dental College, Lahore

CLINICAL CONTEXT

Pituitary adenomas can cause endocrine dysfunction and neurological impairment.

Transsphenoidal surgery is a primary treatment; the optimal approach remains unclear.

METHODS

01 Search
PubMed; Scopus; Web of Science; Cochrane Library. Inception–January 2026.

02 Eligibility
Comparative studies; English-language full texts.

03 Analysis
PRISMA / Cochrane; random-effects models in R.

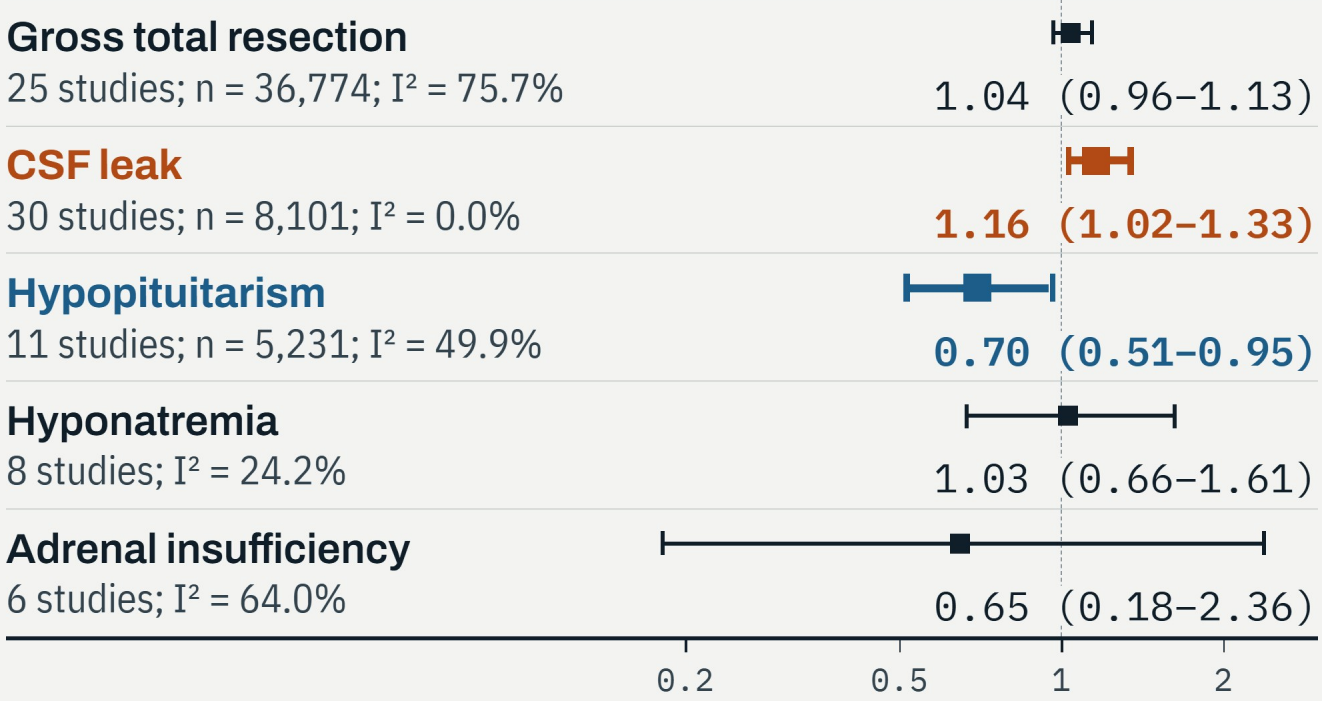
RESULTS / 35 STUDIES

Less hypopituitarism. More CSF leakage with endoscopy.

Endoscopic versus microscopic transsphenoidal surgery

0.70 Hypopituitarism
RR; 95% CI 0.51–0.95

1.16 CSF leak
RR; 95% CI 1.02–1.33



Pooled RRs; log scale; null = 1. I²: between-study heterogeneity.
RR <1: lower event rate; RR >1: higher event rate with endoscopy.

SENSITIVITY ANALYSIS

CSF leak remained significant on leave-one-out analysis: **RR 1.20 (95% CI 1.05–1.37)**; I² = 0.0%.

META-REGRESSION

Resection: year + country explained **94.15%** of between-study heterogeneity (multivariable model; F = 4.78; p = 0.0048).

CLINICAL IMPLICATION

With endoscopy, balance lower hypopituitarism against higher CSF leak risk.

No significant differences in hyponatremia or adrenal insufficiency were observed. Individualize decisions; prospective randomized comparisons are needed.

Contact: Sheraz Qasim | sherazqasim08@gmail.com

RR, risk ratio; CI, confidence interval; CSF, cerebrospinal fluid.

Scan for linked material