

CENTRO UNIVERSITARIO DE CIENCIAS DE LA SALUD, UNIVERSIDAD DE GUADALAJARA. SERVICIO DE NEUROCIRUGÍA "SALVADOR GONZÁLEZ CORNEJO", ANTIGUO HOSPITAL CIVIL DE GUADALAJARA "FRAY ANTONIO ALCALDE".

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## INTRODUCTION

Pituitary tumors are the most common neoplasm of the sellar region and represent a clinical challenge. Their heterogeneity ranges from microadenomas to aggressive macroadenomas capable of compromising adjacent structures and disrupting hormonal balance. They are classified as functioning and non-functioning tumors, along with tumor size, it determines clinical presentation, therapeutic decisions, and prognosis.

## OBJECTIVE

Analyze the clinical, demographic, and radiological characteristics of patients undergoing endoscopic transsphenoidal surgery for pituitary adenomas between 2014-2025 at a referral center in Mexico.

## METHODS

A retrospective observational study was conducted including patients diagnosed with pituitary adenoma who underwent endoscopic endonasal transsphenoidal surgery between 2014 and 2025. Demographic, clinical, and radiological data were collected, including tumor size, sellar and suprasellar extension, cavernous sinus invasion, and hormonal functionality. Tumors were classified according to the Hardy and Knosp grading systems. Data were analyzed descriptively using frequencies, percentages, and measures of central tendency.

## RESULTS

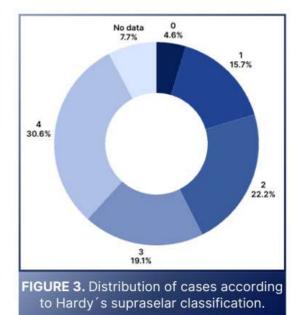
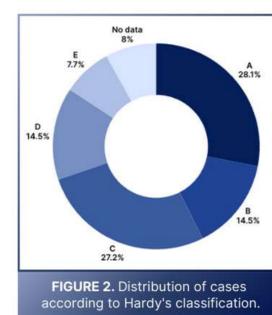
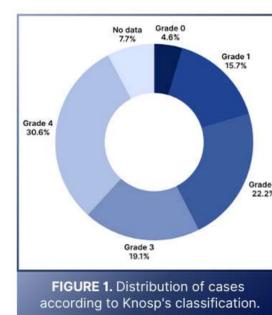
A total of 324 patients were included, with a mean age of 45.9 years; 182 (56%) were women and 142 (44%) men. Regarding tumor characteristics, 293 (90%) were classified as macroadenomas, 21 (6%) as microadenomas, and in 10 cases (3.1%) size information was unavailable. Sellar and suprasellar invasion was evaluated using the Hardy classification. Cavernous sinus invasion was assessed using the Knosp classification. Regarding hormonal functionality, 211 (65%) had non-functioning and 112 (34.5%) functioning.

## DISCUSSION

A predominance of macroadenomas (90%) and non-functioning tumors (65%) was observed, findings consistent with international series. Radiological characterization using the Hardy and Knosp classifications allowed for appropriate stratification of tumor extension and cavernous sinus invasion, which is essential for surgical planning. Endoscopic endonasal transsphenoidal surgery proved to be safe and effective, particularly when performed by experienced surgical teams. Limitations of this analysis include its retrospective design and the heterogeneity of the records included in the study.

## CONCLUSION

The analysis of 324 patients with pituitary adenomas highlights the clinical, radiological, and functional heterogeneity of these tumors, as well as the predominance of macroadenomas and non-functioning lesions in our cohort. These findings confirm the complexity of the cases treated and underscore the importance of advanced surgical expertise to optimize preoperative planning, extent of tumor resection, and postoperative outcomes. Collectively, these results position our center as a high-volume tertiary referral institution for the specialized management of pituitary tumors.



## SEX DISTRIBUTION

Female	56.2%
Male	43.8%

## HORMONAL ACTIVITY

### Overall classification

Non-functioning adenomas	65.1%
Functioning adenomas	34.6%

### Functioning adenomas subtypes

Prolactin-secreting (PRL)	25.9%
ACTH-secreting	22.3%
Growth hormone-secreting (GH)	17.0%
FSH-secreting	1.8%
TSH-secreting	0.9%
Subtype not specified	32.1%

## TUMOR SIZE

Microadenoma	6.5%
Macroadenoma	90.4%
Size not specified	3.1%

TABLE 1. Demographic and tumor characteristics.

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