

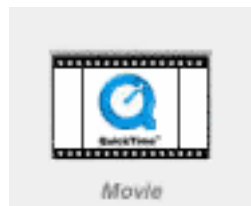
## Introduction

Effective surgical treatment of Cushing's disease is required to decrease related morbidity. It is difficult to assess the results of new surgical techniques, due to the several factors that affect the postoperative evaluation of Cushing's disease. This is a retrospective study of **105 cases** with Cushing disease treated by endoscopic transsphenoidal surgery. The efficacy of different surgical strategies are evaluated to achieve better remission and cure rates for Cushing's disease.

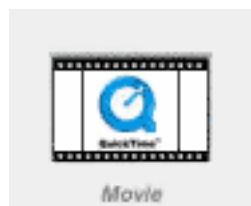
## Methods

Between August 1997 - March 2015, 1189 cases were operated by an endoscopic transsphenoidal approach in Kocaeli University. In this series, 94 patients with ACTH-adenomas were operated. We have performed 105 operations for these patients. Surgical treatment was selective adenomectomy between 1997 and 2011. Pseudocapsular dissection was aimed endoscopically in patients who were operated after December 2011. A more aggressive surgical approach was preferred in order to evaluate the possibility of a second adenoma or diffuse corticotroph hyperplasia and multiple vertical incisions were made to the pituitary tissue after adenomectomy during the last 35 operations. Remission was defined as postoperative hypocortisolism or eucortisolism. Hypocortisolism was defined as an early morning serum cortisol of  $< 5 \mu\text{g/dl}$ . Eucortisolism was defined as 24-hour UFC excretion within the normal range. Persistent remission was defined as a serum cortisol level  $< 1.8 \text{ mcg/dl}$  after a low-dose dexamethasone suppression test.

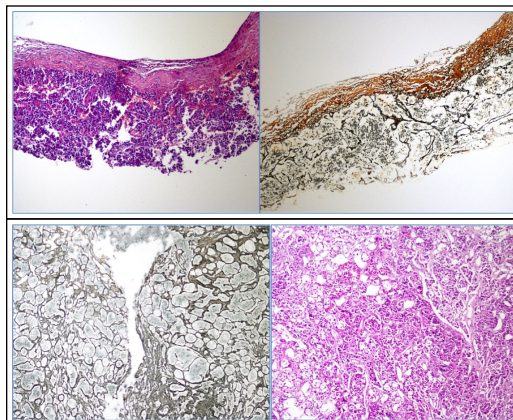
### Standart



### Cavernous Invasion



### Multiple Vertical Incisions

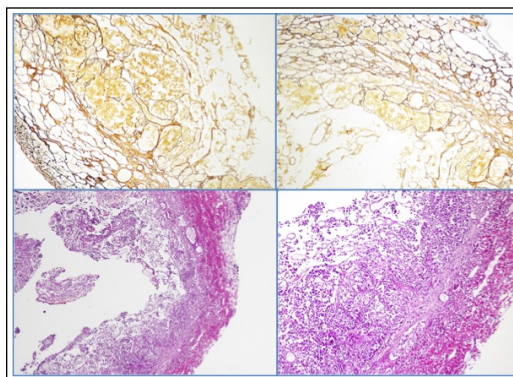


### ACTH Adenoma

*Histological examination of excised specimens was performed using H&E and reticulin staining*

### ACTH Hyperplasia

*ACTH Hyperplasia (2 cases in our series) is an uncommon cause of pituitary based ACTH excess. Diagnosis is predicated on recognizing expansion, rather than destruction, of acini by reticulin stain.*



### Adenoma in different locations

*3 discrete lesions were observed in histological specimens in a different localization other than primary adenoma*

Outcome (first 70 cases)	Early Remission	Remission at 3 months
Overall remission	59 (84 %)	52 (74 %)
Hypocortisolemia < 5 mg/dL	24 (34 %)	21 (30 %)
Nadir Hypocortisolemia <2 mg/dL	6 (9 %)	5 (7 %)
Outcome (35 cases)	Early Remission	Remission at 3 months
Overall remission	31 (89 %)	29 (83 %)
Hypocortisolemia < 5 mg/dL	16 (46 %)	15 (43 %)
Nadir Hypocortisolemia <2 mg/dL	6 (17 %)	6 (17 %)

## Conclusions

Endoscopic transsphenoidal surgery offers a wide exposure of the sella. Resection via pseudocapsular dissection and aggressive surgical management contributes to better resection and remission rates. Macroadenoma and cavernous sinus invasion have effects on remission.

## Results

The mean age of the patients was 36,5 years, 71% (n:75) were female. The mean follow-up was 32.8 months in ACTH-adenomas. According to the MRI reports, 70% (n:74) of the lesions were microadenomas. Cavernous sinus invasion was observed in 11 (10%) of the cases.

**Eighty-six percent** of the patients achieved **remission**. Hypercortisolism resolved after the 59 of first 70 operations. **Recurrence** was observed in **29%** of these patients.

Because of the relapse rates, aggressive surgical approach was performed in the last 35 operations, and 9 discrete lesions or semiliquid material were observed in a different localization other than primary adenoma.

## Learning Objectives

- 1-Definition of Cushing disease
- 2-Surgical techniques for treatment
- 3-Remission criteria and rates

## References

- Starke, Reames, Chen, Laws, Jane. Endoscopic transsphenoidal surgery for cushing disease: techniques, outcomes, and predictors of remission. Neurosurgery 2013 Feb 72(2) 240-7
- Jagannathan, Smith, DeVroom, Vortmeyer, Stratakis, Nieman, Oldfield. Outcome of using the histological pseudocapsule as a surgical capsule in Cushing disease. J Neurosurg 2009Sep 111(3) 531-9
- Rosai and Ackerman's Surgical Pathology