

# Sublabial Transseptal Transsphenoidal Hypophysectomy: Rhinological and Neurosurgical Results in 100 Cases

*Sublabial Transseptal Transsphenoidal Hipofizektomi: 100 Olguda Rinolojik ve Nöroşirürjikal Sonuçlar*

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## Özet

Transsfenoidal yaklaşım hipofiz tümörlerinin cerrahi tedavisinde primer tekniktir. Bu varış yolu kozmetik deformiteye yol açmadan, intrakranyal yapılara dokunmaksızın iyi bir ekspozisyonla pituitar fossaya ekstrakranyal olarak hızlı şekilde ulaşmayı sağlar. Çeşitli merkezler tarafından kullanılan farklı avantaj ve dezavantajları olan transnazal ve sublabial yaklaşımlar gibi modifikasyonları vardır.

Bu makalede İstanbul Üniversitesi Cerrahpaşa Tıp Fakültesi KBB ve Nöroşirürji Klinikleri işbirliği ile yapılan sublabial transseptal transsfenoidal hipofizektomi olgularının rinolojik ve nöroşirürjikal sonuçlarını bildirdik. Fakültemizde 1989-1993 yılları arasında 100 hipofiz adenomu olgusunu ameliyat ettik. Olguların 73'ü kadındı ve en genç hasta 18, en yaşlısı 65 idi. Ortalama yaş 32.4 idi.

**Anahtar Sözcükler:** Hipofizektomi, sfenoidal sinus, adenom.

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## Abstract

Transsfenoidal approach is the primary technique in the surgical treatment of hypophyseal tumors. It provides a rapid approach to the pituitary fossa extracranially with a good exposure without intervening intracranial structures and avoiding cosmetic deformity. There are modifications of the transnasal and sublabial approaches which are used in various centers and which have different advantages and disadvantages. We herein report the rhinological and neurosurgical results of sublabial transseptal transsfenoidal hypophysectomy performed in Istanbul University Cerrahpaşa Faculty of Medicine with the collaboration of Otolaryngology and Neurosurgery Clinics. One hundred hypophyseal adenoma cases were females and the youngest patient was 18 year old while the oldest was 65. The mean age was 32.4.

**Key Words:** Hypophysectomy, sphenoid sinus, adenomas.

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## Introduction

First approaches used in the hypophyseal surgery which started towards the end of the last century, were via frontal craniotomy. High mortality of cranial approaches has driven the neurosurgeons to seek for safer methods through the sphenoid sinus.<sup>1,2,3</sup>

The first transsfenoidal hypophyseal operation was performed by Schloffer in 1907.<sup>3</sup> Transnasal transseptal approach was first described by Killian and used by Hirsch in 1910.<sup>4</sup> Later as some surgeons used the transthemoidal, transpalatal and tran-

santral routes to reach the sphenoid sinus.<sup>4,5</sup> Cushing who is one of the pioneers of hypophyseal surgery, used the sublabial approach which he described as the best technique after evaluating the previous methods in 1912.<sup>3,6</sup> Later, Hardy modified this technique in 1955.<sup>4</sup> In the second half of the 20th century progresses in radiological, and fluoroscopic techniques along with the introduction of the operating microscope, popularized the transsphenoidal approach which was disregarded for a long time and the surgeons preferred either the sublabial or the endonasal routes according to their personal experience.<sup>4,6,7</sup>

## Material and Method

One hundred hypophysis adenoma cases have been operated with the collaboration of Istanbul University Cerrahpaşa Faculty of Medicine Neurosurgery and Otolaryngology Clinics between 1989-1993 (Table 1). 73 of the cases were females and the youngest patient was 18 years old while the oldest was 65. The mean age was 32.4. All the cases were operated by sublabial transseptal approach. Neuroophthalmologic, neuroradiologic and neuroendocrinologic investigations were carried out as part of the preoperative battery. MRI was added to the conventional cranigographies, sella graphy, computerized tomography, carotid angiography after 1990 as routine radiological investigations.

Tumor size, suprasellar extension and sella destruction were classified according to Hardy-Vesina system.<sup>3</sup> Appropriate patient for the transsphenoidal approach was revealed under the light of the information obtained from these investigations and ENT examination.

## Results

### Neurosurgical

Improvement was noted in 71 % of the cases while 28 % did not show any improvement clinically. One case has gotten worse postoperatively. The most common complication was diabetes insipidus which was treated with the administration of pitressin once or twice daily. The complication rate for D.I. was 13%. CSF leakage was seen in 5 cases. One of them was surgically treated due to bacterial meningitis while the other four healed spontaneously.

**Table 1.** Indications for hypophysectomy.

	Female	Male	Total
Prolactinoma	34	5	39
Acromegaly	20	14	34
Cushing's disease	3	1	4
Mixed type	3	2	5
Inactive adenoma	13	5	18
Total	73	27	100

### Rhinological

There was no interference with the nasal shape of the patients. Nasal septum perforations of 2 mm to 8 mm. were noted in 11 patients while deviated septums in 60 patients were corrected during the procedure. Crusting in the nasal cavities was seen in 28 patients including the ones with septal perforations. Atrophic mucous membranes were noted in 3 patients. The interference of the incision with the vascularization of the teeth did not cause any caries or devitalized tooth. A case of fistula in the incision site was corrected later by a minor surgical procedure (Table 2).

**Table 2.** Objective rhinological findings.

Nasal deformity	none
Septal perforation	11
Crusting	28
Atrophic mucous membrane	3
Epistaxis	none
Septal abscess	none

About half of the patients with corrected septa (30%) were of nasal obstruction. Anosmia in 10 patients, headache in 25 patients and minor discomfort in upper lips and upper teeth were noted postoperatively (Table 3).

Preoperative assesment of sphenoid sinus aeration revealed that 72 % were sellar type, 26 % were presellar type and 2 % were conchal type.

**Table 3.** Subjective rhinological complaints.

Nasal respiration	
Improvement	30
Unchanged	44
Temporary worsening	23
Permanent worsening	3
Anosmia	10
Headache (temporary)	25
Upper lip discomfort	18

## Discussion

Being a rapid and safe approach to the sella turcica by an extracranial route without any manipulation of the intracranial structures, transsphenoidal approach became the primary treatment technique in the treatment of hypophyseal tumors. It does not cause any incision scar and is well tolerated by the patients.<sup>8</sup>

Most centers all around the world, involved in the issue agreed upon the sphenoid approach, but opinions differed on how to reach the sinus itself. Most clinics still prefer the classical sublabial route because of its wide exposure while transnasal route is getting popular.<sup>4,9,10,11</sup>

We performed classical sublabial transsphenoidal approach in 200 patients since 1984 in our Medical School. We had satisfying results with a wide and direct exposure of the sphenoid sinus with minimal bleeding.<sup>5</sup>

A wide exposure is maintained by removing the nasal spine and the superior part of the vomer after reaching the nasal septum through a sublabial incision. Minimal tissue excision, proper nasal packing and preservation of the septal cartilage prevent external nasal deformity.<sup>4,7</sup> External rhinoplastic and columellar flap techniques were described to overcome the difficulty of working in narrow nasal cavities.<sup>7,11</sup> Septal perforation rate in our series was 11 % and agreed with the pertinent literature. Crusting in the nasal cavities is an important and disturbing complication for the patients, it can be prevented by gentle saline irrigation for a couple of weeks.

The discomfort at the upper lip and the upper incisors which often put forward by the opponents of this procedure, was not a very serious problem for our patients.<sup>4,7</sup> An incision 1.5-2 cm wide lets the retractor to be opened to its widest, does not cause dental problems. Total adontia does not constitute a contraindication to this procedure.

## Conclusion

Sublabial transseptal transsphenoidal approach is still the most practical route to the sphenoid region.

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