

Endoscopic transsphenoidal approach technique

J.Sales-Llopis

Neurosurgery Department, Alicante University General Hospital, Alicante, Spain.

Latest PubMed related Articles of Endoscopic transsphenoidal approach technique

- [Hospital procedural volume is inversely linearly associated with complications in endoscopic endonasal transsphenoidal resection of pituitary tumors](#)
- [Outcomes of the Transsphenoidal Approach for ACTH-Secreting Pituitary Tumours and the Role of Postoperative ACTH in Predicting the Late Recurrence of Cushing's Disease: A Retrospective Analysis of 50 Cases](#)
- [Road map to enhanced recovery protocol for endonasal endoscopic approach to pituitary adenomas: Surgical short-term outcome and experience of a single ENT/neurosurgery collaboration](#)
- [Transcranial Microsurgery as a Salvage Strategy in Giant Pituitary Adenomas: A Single-Center Experience and Long-Term Follow-up Results](#)
- [Safety and efficacy of endoscopic vs. microscopic approaches in pituitary adenoma surgery: A systematic review and meta-analysis](#)
- [Outcome metrics for primary endoscopic endonasal surgery for low-risk patients with Cushing's disease: an evidence-based position statement from the Registry of Adenomas of the Pituitary and Related Disorders consortium](#)
- [Management of cerebrospinal fluid leaks from lateral sphenoid sinus wall: Tailored approach based on proposed zone-wise classification](#)
- [Impact of nasal septal deviation on surgical outcomes in endoscopic transsphenoidal surgery: a population-based study](#)

The [endoscopic endonasal transsphenoidal approach](#) is a minimally invasive surgical technique for the removal of the [sellar region lesion](#) and parasellar lesions. The procedure is performed via an anterior [sphenoidotomy](#). The two main characteristics of the [endoscopic approach](#), when compared with the standard microsurgical operation, arise from the use of the [endoscope](#) as a unique optical device and from the absence of a transsphenoidal retractor. More convenient straight surgical instruments are employed, whereas bayonet-shaped tools are used in the microsurgical procedure, to avoid any interference with the light beam generated by the microscope. The standard surgical technique is composed of three main time phases: the nasal, sphenoid, and sellar phases. During the nasal phase, the scope is introduced through the chosen nostril and advanced up to the sphenoethmoid recess, where the sphenoidotomy is performed. The sphenoid phase consists of the detachment of the nasal septum from the sphenoid rostrum, the anterior sphenoidotomy, removal of the sphenoid septum or septa, and identification of the landmarks inside the sphenoid sinus. In the sellar phase, an opening of the sellar floor is performed for removal of the lesion. A wide view of the sellar environment is

obtained through angled scopes to detect eventual tumor remnants. The procedure ends with the reconstruction of the sella and removal of the endoscope from the nostril, without any postoperative nasal packing ¹⁾.

Supine position with the trunk raised 10° and the head in neutral position rotated 10° towards the surgeon. The head is secured in a **Horseshoe Headrest** without rigid three-pin fixation. The nose is prepared by placing pledgets soaked with 0.02% of Oxymetazoline into each nostril, followed by Povidone Iodine solution applied over the nose and upper lip as well as into the nares with cotton tip applicators.

Under **general anesthesia**, **orotracheal intubation**, and **antibiotic prophylaxis** with cefazolin 2 gr IV. **Supine position** with a neutral head resting on a donut-type pillow. Preoperative topical intranasal **oxymetazoline** was applied with lectins.

Nasal phase

Right **middle turbinate** resection. Preparation of a **nasoseptal flap** with mucosa from the right septum. It is left lodged in the right **choana**. Posterior **septostomy** and communication of both **nostrils**. In the **ostium**, a tumor is visualized that completely occupies the **sphenoid sinus**. Wide anterior **sphenoidotomy** Profuse bleeding throughout the nasal phase comes from the tumor. Part of the left paramedian septum that was encompassed by the tumor was removed.

Excision phase

Excision of the tumor part contained in the sphenoid sinus until the bony limits of the sella turcica were visualized. With the help of neuronavigation and Doppler, both ICAs were located. Clivus partly eroded. In the most inferior and posterior parts, a bone area corresponding to the posterior clinoid is observed, which is moth-eaten and loose, encompassed by a tumor. Intracapsular excision of the tumor is started by way of debulking and sending tumor samples for AP analysis. The tumor shows a friable consistency and a purplish color compatible with a pituitary neuroendocrine tumor. Central excision until visualizing gradual descent of sellar and arachnoid diagrams in the sellar cavity with contained low-flow fistula. Exeresis in the posterior region until observing the dura mater of the posterior fossa. Excision of the lateral walls and part of the cavernous sinus. Hemostasis with Floseal.

Reconstruction phase

Tachosil is placed covering the arachnoid in the area of the contained fistula. A **nasoseptal flap** is placed in contact with the bone defect around the sellar opening. The flap is fixed with **surgicel** and **tissucol**. Rapid -Rhino binasal tires are left. The free mucosa of the middle turbinate is left covering the part of the septum from which the flap has been removed.

see [Nasoseptal flap for anterior skull base reconstruction](#).

Establishing a reconstruction [protocol](#) for [cerebrospinal fluid fistula prevention](#) in patients undergoing [pituitary neuroendocrine tumor surgery](#) is crucial for facilitating intraoperative [decision-making](#) and reducing the incidence of [complications](#).

[pituitary neuroendocrine tumor](#) surgery is traditionally within the realm of the [neurosurgeon](#). However, since the reintroduction of the transseptal [transsphenoidal approach](#) and [Endoscopic transsphenoidal approach](#) to the [sella turcica](#) for resection of [pituitary neuroendocrine tumor](#), otolaryngologists have been active partners in the surgical management of these patients.

Otolaryngologists have lent their expertise in nasal and sinus surgery, assisting the neurosurgeon with the operation. The otolaryngologist has the advantage of familiarity with the techniques and instruments used to gain exposure of the [sella turcica](#) by transnasal approach. Hence, the otolaryngologist provides the exposure, and the neurosurgeon resects the tumour. Such collaboration has resulted in decreased rates of complication and morbidity ²⁾.

Randomized multicenter studies are necessary to resolve the controversy over endoscopic and microsurgical approaches in hypophyseal pathology ³⁾.

Racial, ethnic, and socioeconomic disparities exist for outcomes after pituitary surgery. Black and Hispanic patients have worse postoperative outcomes compared to white patients, as well as disproportionate utilization of Medicaid and low-volume pituitary surgery centers. Further investigations are necessary to uncover the sources of these disparities in an effort to provide safer and more affordable care to all patients ⁴⁾.

Racial and socioeconomic factors play a significant role in the admission of patients to high-volume [pituitary surgery](#) centers ⁵⁾.

Patients undergoing [transsphenoidal pituitary surgery](#) at [high-volume centers](#) (HVCs) have shorter [hospitalizations](#), fewer postoperative [electrolyte](#) abnormalities, and lower charges; however, [socioeconomic](#) factors may influence access to [quality care](#) ⁶⁾.

1)

Cappabianca P, Cavallo LM, de Divitiis E. Endoscopic endonasal transsphenoidal surgery. *Neurosurgery*. 2004 Oct;55(4):933-40; discussion 940-1. doi: 10.1227/01.neu.0000137330.02549.0d. PMID: 15458602.

2)

Varshney S, Gupta C, Bansal KK, Bist SS, Bhagat S. Endoscopic Trans-Nasal Trans-Sphenoidal (TNTS) Approach For pituitary neuroendocrine tumors: Our Experience. *Indian J Otolaryngol Head Neck Surg*. 2013 Aug;65(Suppl 2):308-13. doi: 10.1007/s12070-011-0457-6. Epub 2012 Jan 5. PubMed PMID: 24427667.

3)

Simal-Julián JA, Miranda-Lloret P, Pancucci G, Evangelista-Zamora R, Pérez-Borreda P, Sanromán-Álvarez P, Cámara-Gómez R, Botella-Asunción C. Microscopic versus endoscopic pituitary surgery. Neurocirugia (Astur). 2014 Jul-Aug;25(4):170-8. doi: 10.1016/j.neucir.2013.12.001. Epub 2014 Apr 18. Review. PubMed PMID: 24747035.

4)

Goljo E, Parasher AK, Iloreta AM, Shrivastava R, Govindaraj S. Racial, ethnic, and socioeconomic disparities in pituitary surgery outcomes. Laryngoscope. 2016 Feb 4. doi: 10.1002/lary.25771. [Epub ahead of print] PubMed PMID: 26845457.

5)

Mukherjee D, Zaidi HA, Kosztowski T, Chaichana KL, Salvatori R, Chang DC, Quiñones-Hinojosa A. Predictors of access to pituitary tumor resection in the United States, 1988-2005. Eur J Endocrinol. 2009 Aug;161(2):259-65. doi: 10.1530/EJE-09-0043. Epub 2009 May 15. PubMed PMID: 19447900.

6)

McKee S, Yang A, Kidwai S, Govindaraj S, Shrivastava R, Iloreta A. The socioeconomic determinants for transsphenoidal pituitary surgery: a review of New York State from 1995 to 2015. Int Forum Allergy Rhinol. 2018 Jul 14. doi: 10.1002/alr.22148. [Epub ahead of print] PubMed PMID: 30007017.

From:
<https://neurosurgerywiki.com/wiki/> - **Neurosurgery Wiki**

Permanent link:
https://neurosurgerywiki.com/wiki/doku.php?id=endoscopic_transssphenoidal_approach_technique

Last update: **2024/06/07 02:51**

