

Endonasal Endoscopic Surgery of Skull Base Tumors: A Comprehensive Guide for Neurosurgeons and Otolaryngologists

Skull base tumors are a heterogeneous group of benign and malignant lesions that arise in the complex anatomical region at the base of the skull. Traditionally, the surgical management of these tumors involved extensive open approaches with significant morbidity. However, the advent of endonasal endoscopic surgery (EES) has revolutionized the treatment of skull base tumors, providing a minimally invasive alternative to open surgery.

EES involves the use of endoscopes, small, flexible instruments equipped with a camera, to visualize and operate within the nasal cavity and skull base through the natural nasal passages. This approach eliminates the need for external skin incisions and craniotomy, minimizing surgical trauma and postoperative recovery time.



Endonasal Endoscopic Surgery of Skull Base Tumors: An Interdisciplinary Approach by Frank-M. Staemmler

★★★★★ 5 out of 5

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EES is the preferred approach for a wide range of skull base tumors, including:

- Pituitary adenomas
- Meningiomas
- Craniopharyngiomas
- Chordomas
- Esthesioneuroblastomas
- Skull base metastases

Compared to open surgery, EES offers several advantages, including:

- Minimally invasive
- Reduced surgical trauma
- Shorter recovery time
- Improved cosmetic outcomes
- Enhanced visualization and access to deep-seated tumors

EES involves a variety of surgical techniques tailored to the specific tumor type and location. These techniques include:

- Extended endoscopic endonasal approach (EEA): A versatile approach that allows surgeons to access tumors in the midline and paramedian regions of the skull base.

- Transnasal transcribriform approach (TTA): Used to approach lesions located in the anterior skull base, such as pituitary adenomas.
- Transplanum sphenoidale approach (TSA): Provides access to tumors in the central and posterior skull base, including craniopharyngiomas and chordomas.

EES utilizes specialized endoscopic instruments, including:

- Endoscopes: Rigid or flexible scopes with high-resolution cameras that provide clear visualization of the surgical field.
- Dissectors: Delicate instruments used to manipulate and remove delicate tissues.
- Forceps: Designed to grasp and remove tumors or biopsy specimens.
- Drills: Used to remove bone and create surgical corridors.
- Navigation systems: Computer-assisted systems that provide surgeons with real-time anatomical guidance.

As with any surgical procedure, EES is associated with potential complications, such as:

- Bleeding
- Cerebrospinal fluid leak
- Infection
- Damage to surrounding structures

However, the risk of these complications is generally lower with EES compared to open surgery.

After EES, patients typically undergo a short period of observation in the hospital to monitor for any complications. Postoperative care includes:

- Nasal packing to prevent bleeding
- Medications to control pain and prevent infection
- Speech therapy if necessary
- Regular follow-up appointments to monitor recovery and tumor progression

Endonasal endoscopic surgery (EES) is a minimally invasive, highly effective approach to the management of skull base tumors. By providing surgeons with enhanced visualization and access to deep-seated lesions, EES has revolutionized the treatment of these challenging tumors. As technology and surgical techniques continue to advance, EES is expected to play an increasingly significant role in the surgical management of skull base tumors.

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