

Minimally Invasive Skull Base Surgery Center



The role of minimally invasive skull base surgery is expanding in the management and treatment of benign and malignant tumors of the paranasal sinuses, skull base and intracranial compartment.

Goals of the UCSF Minimally Invasive Skull Base Surgery Center

- **PROVIDE** excellent clinical care for rare, complex lesions.
- **OFFER** a range of open and endoscopic minimally invasive surgical approaches, as well as appropriate nonoperative therapies.
- **ENGAGE** in systematic research to advance minimally invasive surgery.
- **EDUCATE** the next generation of surgeons through publication and instruction.



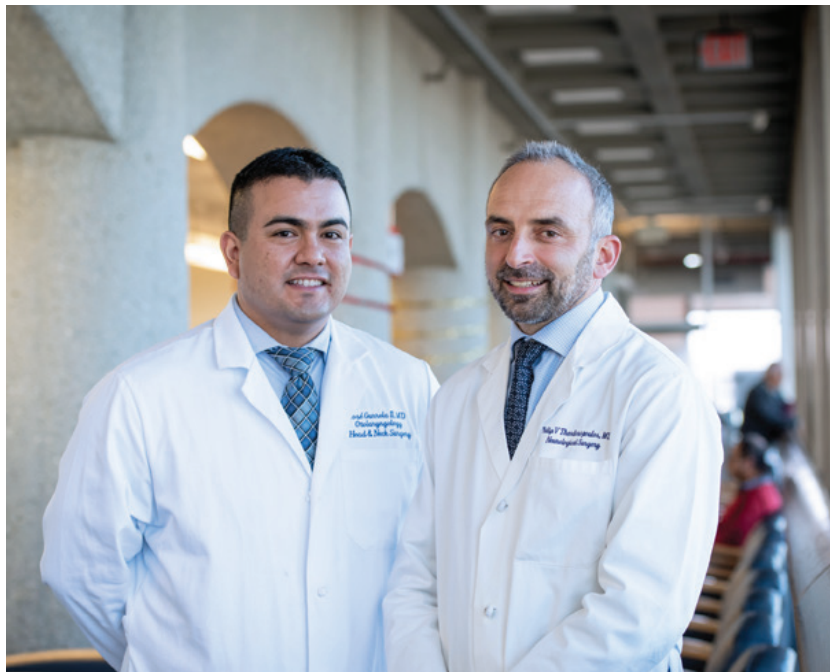
What is minimally invasive skull base (MISB) surgery?

MISB surgery uses endoscopes to operate through the natural orifice of the nasal cavity to remove tumors or repair defects of the anterior skull and lateral skull base. This often avoids larger facial incisions of traditional craniotomy approaches.

MISB SURGERY HAS EVOLVED over the past decade around transnasal endoscopic pituitary surgery, due to the high volume of pituitary lesions. At UCSF, neurosurgeons and otolaryngologists have developed two-surgeon techniques, often operating together, to achieve safe and efficient endoscopic dissection around critical structures.

The most common approach is through the endonasal corridor, and involves the combined efforts of an otolaryngologist and a neurosurgeon. This approach results in:

- Fewer complications
- Improved cosmesis
- Quicker recovery
- Reduced blood loss



What advantages does MISB surgery offer for skull base lesions?

- Decreased morbidity
- Shorter hospital stays
- Avoiding brain retraction
- Safe dissection around critical structures, such as the optic nerve and carotid artery, without manipulating them
- Ability to treat medically ill or neurologically impaired patients who might not tolerate a large skull base craniotomy
- Ability to address a range of lesions that were not previously accessible
- Cosmetic appeal of surgery that does not require incisions

Why refer a patient to the MISB Surgery Center at UCSF?

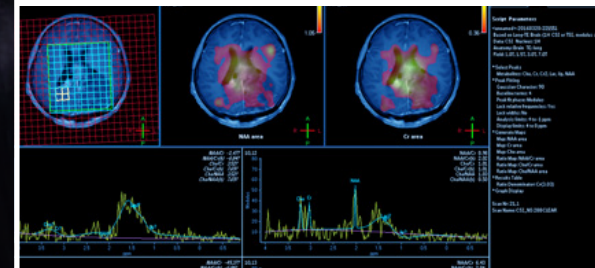
- Internationally recognized surgical team trained in both open and endoscopic approaches for the entire anterolateral skull base
- Multidisciplinary system for comprehensive evaluation and management
- Procedures tailored to the individual needs of each patient
- One of the longest-standing MISB surgery programs in the U.S.
- Experienced in managing malignant conditions
- Dedicated anatomic laboratory for developing new, novel approaches and procedures

Which patients may benefit from MISB surgery?

While many patients are interested in minimally invasive approaches, not all are candidates, and many will require traditional open approaches. To provide optimal care to patients, we offer a program capable of providing the full range of open and endoscopic surgical options for tumor resection.

Optimal care is achieved by proper patient selection and a multidisciplinary approach involving surgeons as well as these specialists:

- Neuro- and medical oncologists
- Neuroendocrinologists
- Neuroradiologists
- Radiation oncologists
- Speech and swallowing rehabilitation therapists



Which diseases can be managed with MISB surgery?

Each case is evaluated individually, since there is a wide array of pathologies that are all rare. In general, these are some of the diseases routinely treated at the UCSF MISB Surgery Center.

Skull base tumors

- Chordoma and chondrosarcoma
- Craniopharyngioma
- Meningioma
- Parapharyngeal space and infratemporal fossa lesions
- Pituitary tumors
- Rathke cleft cyst

Sinonasal region malignancies

- Esthesioneuroblastoma (olfactory neuroblastoma)
- Nasopharyngeal tumors, adenocarcinoma and adenoid cystic carcinoma
- Sinonasal melanoma
- Sinonasal neuroendocrine carcinoma
- Sinonasal squamous cell carcinoma
- Sinonasal undifferentiated carcinoma
- Vascular tumors

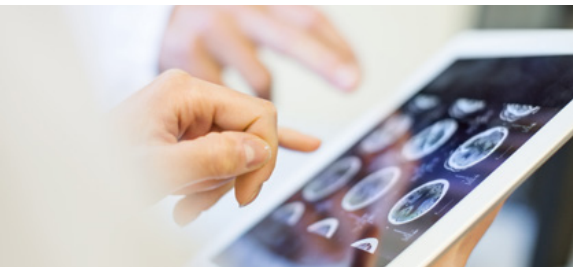
Benign conditions

- Cerebrospinal fluid (CSF) leaks and encephaloceles
- Fibro-osseous lesions (e.g., fibrous dysplasia, osteomas)
- Infiltrative lesions (pseudotumor, osteomyelitis)
- Infratemporal fossa tumors
- Inverted papilloma
- Juvenile nasopharyngeal angiofibroma
- Optic nerve compression
- Petrous apex cholesterol granuloma
- Schwannomas (V2 and V3)

How are patients evaluated for MISB surgery?

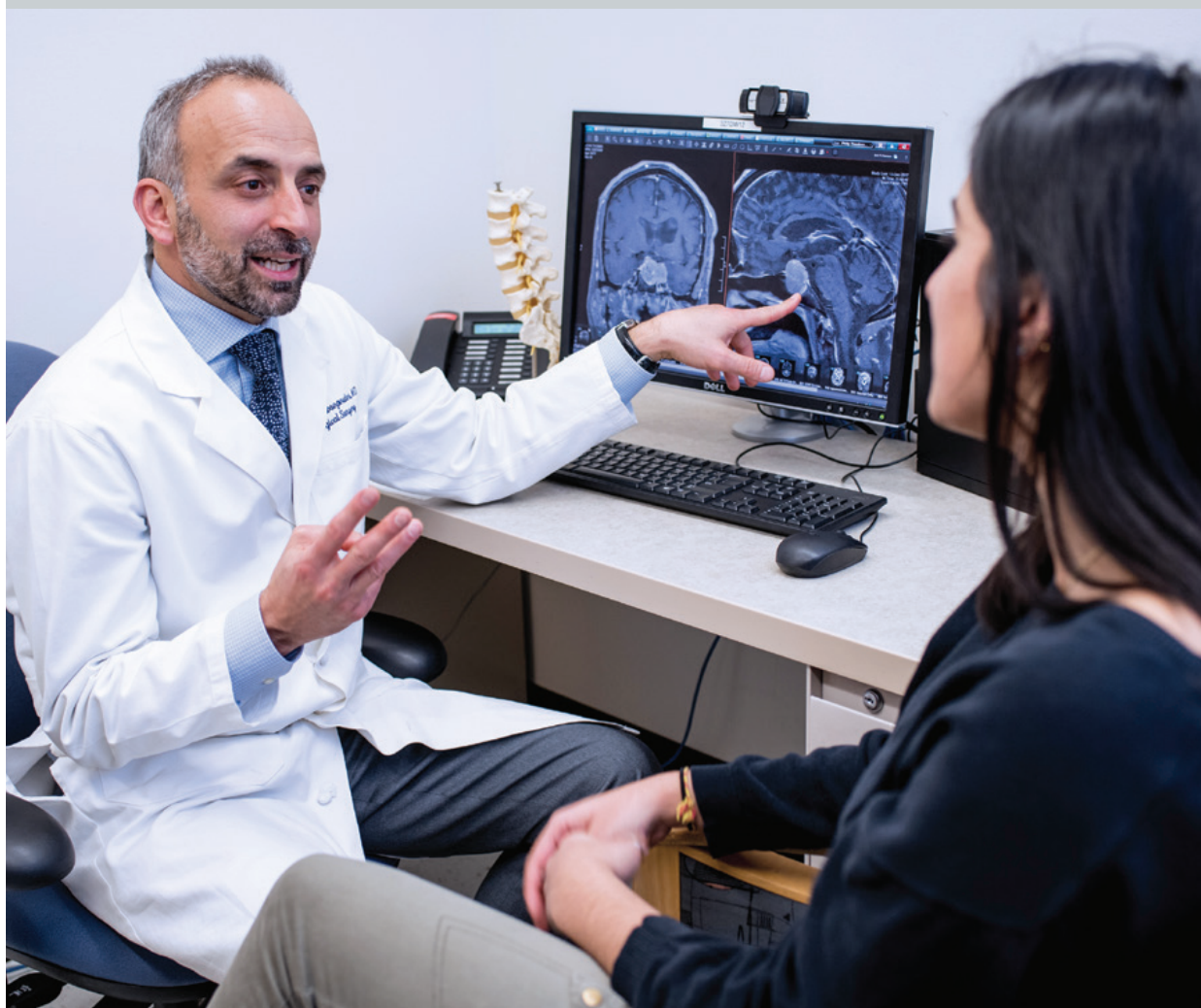
Patients will have their imaging and pathology reviewed at UCSF, and meet with a neurosurgeon and/or an otolaryngologist, depending on their condition. The surgeons and patient will discuss their preferences to determine an optimal treatment plan and need for:

- Surgery (endoscopic or open)
- Adjuvant therapies
- Multidisciplinary review



How to refer a patient for evaluation

To refer a patient or to ask questions, contact either the neurosurgery group (for cranial lesions) or the otolaryngology – head and neck surgery group (for sinonasal/head and neck lesions). Patients will be appropriately triaged and will have the opportunity for joint consultation with otolaryngology and neurosurgery as indicated. Appointments can usually be made within seven days of your call.



Contact us

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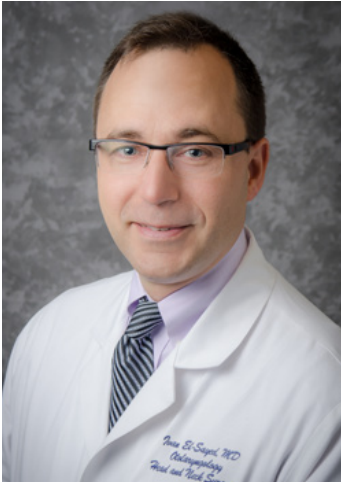
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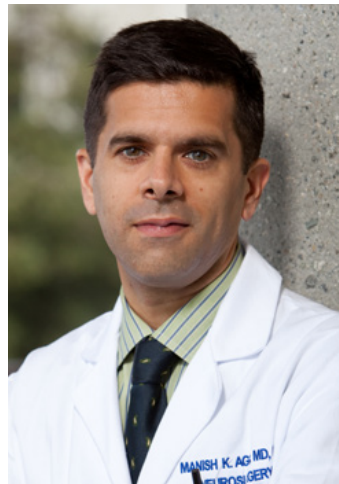
“Expanded endonasal surgery has revolutionized our management of patients with tumors of the anterolateral skull base. It has been a privilege to watch this field develop over my career.”

Manish Aghi, MD, PhD, MAS

Co-director, Minimally Invasive Skull Base Surgery Center at UCSF

Professor of Neurological Surgery

“The endoscope provides excellent visualization to really ensure that we remove all the tumor we can. In cases where we can avoid a craniotomy, the reduced complication rate is a benefit.”



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and top five in the
nation for neurology
and neurosurgery



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PRINTED ON POST-CONSUMER RECYCLED PAPER • 2.18-NEU-092217

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