

# Minimally Invasive Brain Surgery

Program Overview & Treatment Options



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## Program Overview

The minimally invasive brain surgery (MIBS) program at the AdventHealth Neuroscience Institute features a multidisciplinary team of physicians — along with clinicians and support staff — who work together to achieve excellent patient care and outcomes. Our nationally renowned neurosurgeons are committed to exceeding clinical and quality measures, maximizing the use of research, and improving the patient experience to achieve the best possible outcome for our patients.



We understand that patients suffering from brain disease and injury have many options for their treatment. That's why our team is dedicated to creating personalized care plans designed to give every patient the highest quality treatment available through the utilization some of the most technologically advanced facilities and equipment.

LEARN MORE [AdventHealthNeuroInstitute.com](https://AdventHealthNeuroInstitute.com)

## Conditions We Treat

- Acoustic neuromas
- Aneurysms
- Arachnoid cysts
- Arteriovenous fistula
- Arteriovenous malformations (AVMs)
- Astrocytomas
- Carotid dissection
- Carotid stenosis
- Cavernous malformations
- Cerebellopontine angle tumors
- Chordomas
- Choroid plexus tumors
- Colloid cysts
- Craniopharyngiomas
- Epidermoid tumors
- Hemifacial spasm
- Intracranial dissection
- Intracranial stenosis
- Intraparenchymal masses
- Intraventricular meningiomas
- Intraventricular tumors
- Malignant gliomas
- Meningiomas
- Metastatic brain tumors
- Obstructive hydrocephalus
- Paragangliomas
- Pineal region tumors
- Pituitary tumors
- Skull base tumors
- Teratomas
- Trigeminal neuralgia
- Vestibular schwannomas



# Advanced Technology

In our innovative state-of-the-art operating suites, we can perform 3T MRI (magnetic resonance imaging) scans before, during and after the procedure. This allows us to confirm the success of a brain surgery before the patient ever leaves the operating room. Combined with other advanced technologies, these suites provide our nationally recognized neurosurgeons some of the best tools in the country to perform surgery with the highest levels of precision.

The InnovatOR Suite enables surgeons from all specialties to team up with industry leaders to develop the future of patient care and medicine. This is where new surgical techniques, products, equipment and efficiencies will be discovered.



# Treatment Options

The AdventHealth Neuroscience Institute's MIBS program provides some of the most advanced minimally invasive options available to achieve the best possible outcomes.

## Gamma Knife® Radiosurgery

Radiosurgery is a non-invasive procedure that utilizes powerful doses of radiation to treat diseased brain tissue while leaving surrounding tissue unharmed — accurate to within one millimeter of the targeted area. The Leksell Gamma Knife® Perfexion™ radiosurgery system delivers finely focused beams of gamma radiation directly to the affected area — maximizing accuracy, safety and patient comfort. This procedure is commonly used to treat patients with brain tumors, vascular malformations and functional disorders. It often takes less than one hour, with patients resuming their regular activities the next day. Patients do not need to stop their routine medications to undergo radiosurgery.

## GammaTile®

GammaTile is a biodegradable implant that delivers targeted radiotherapy specifically to the region where your brain tumor was located prior to surgery. The number of tiles used is customized to the size and location of your surgery. After GammaTiles are placed, they immediately begin delivering therapeutic radiation to the target area. A high radiation dose is delivered slowly and safely over several months, and afterward, the GammaTile becomes non-radioactive (inert). Over time, your body naturally absorbs the biodegradable GammaTile, and only inert “seeds” remain.

GammaTile is FDA-approved to treat patients with brain tumors. It is a “one and done” therapy that eliminates the need for conventional daily radiotherapy, so you can focus on what matters most — healing.

## Endoscopic Endonasal Skull-Base Surgery

Endoscopic endonasal skull-base surgery is a minimally invasive surgical technique performed through the nose in order to remove brain tumors, pituitary tumors and other lesions at the base of the skull. An endoscopic camera — along with surgical equipment — is inserted through the nose, allowing the surgeon to navigate to the tumor safely and remove it without any large incisions. This procedure often takes less than four hours to complete, and patients typically go home in one to three days. Patients who have this procedure usually have a shorter period under anesthesia, improved outcomes, faster recovery, less pain and no scars compared to traditional open brain surgery.

## Endoscopic Brain Surgery

Endoscopic brain surgery is a minimally invasive surgical technique utilizing a high-definition lighting instrument connected to a camera for visualizing different regions of the brain. The endoscope can be used in virtually any part of the brain through minimally invasive routes, with accuracy of less than a few millimeters. The result is improved outcomes for the patient. This technology is now allowing surgeons to treat lesions of the skull base, pituitary and pineal glands, and ventricles with smaller incisions, increased success and lower risk.

## Brain-Port Surgery

Brain-port surgery is a minimally invasive surgical technique performed through a specially designed tube about the size of a dime. The neuro-endoport is inserted into the brain with millimeter accuracy and is used as a channel to guide the surgeon's instruments to various regions of the brain. During the procedure, an endoscope is inserted into the tube, providing a powerful light source and high-definition imagery of the lesion and its surrounding structures. Since the entire procedure is done through the neuro-endoport, it minimizes trauma to the brain and surrounding tissue. This technique is used often for tumors within the substance of the brain as well as those within the fluid-filled spaces of the brain, such as the ventricles. Patients who have this procedure typically have a faster recovery, less pain and minimal scars compared to patients who undergo traditional open approaches.

## Endoscopic Microvascular Decompression

Endoscopic microvascular decompression is a minimally invasive surgical technique done through a small incision behind the ear to treat conditions like trigeminal neuralgia, hemifacial spasm and other forms of neurovascular compression syndromes. The neurosurgeon uses an endoscope to identify where the blood vessel is compressing the nerve of interest as it leaves the brainstem. The surgeon then delicately separates the blood vessel away from the nerve with a small piece of Teflon felt, leaving a space in between. By doing this, the abnormal compression of the cranial nerve is relieved. The result is a higher percentage of patients with symptomatic relief when awakening from the procedure, and a lower complication rate due to less retraction, better visualization and improved illumination.

## Neuroendovascular Surgery

Neuroendovascular surgery is a specialty within the fields of radiology and neurosurgery. It is a minimally invasive technique performed by threading catheters through an artery or vein, allowing the surgeon to diagnose and treat the problem without an incision. This procedure is commonly used to treat neurological disorders such as stroke, malformed blood vessels, aneurysms and pseudotumor cerebri. By using this technique, patients experience more positive outcomes, the movement of sensitive tissues is reduced, recovery time is faster and there are fewer complications than with conventional surgery.

## Laser Interstitial Thermal Therapy

Laser interstitial thermal therapy (LITT) is a minimally invasive surgical technique often used to address tumors within the substance of the brain that are unresponsive to traditional treatments, including surgery, radiation therapy, radiosurgery and chemotherapy. LITT is a diode-laser technology that uses light energy via a laser probe to irreversibly and precisely destroy tumor

tissue and tissue damaged by radiation necrosis. A relatively new technology only being offered at a handful of centers around the United States, LITT is not usually an upfront treatment in the management of intracranial disease, but rather is a tool currently being used for patients for whom no other reasonable option exists. Studies suggest it provides benefit for patients with unresectable intracranial neoplastic disease and in patients with symptomatic radiation necrosis.

## Traditional Open Surgery

In addition to minimally invasive surgical approaches, our team is trained and experienced in all traditional approaches to the brain. This expertise allows our neurosurgeons to develop the best treatment plan for each patient, utilizing the technique or combination of techniques that offers the best opportunity for returning the patient to normal quality of life. Although some lesions can be treated by a MIBS approach, individual characteristics of the problem relative to each patient's anatomy may make an open approach safer and more successful.





# Our Team



**Melvin Field, MD**  
**Director, Minimally Invasive**  
**Brain Surgery**  
**Surgical Director, Gamma Knife®**  
**and Neuro-Oncology**

Dr. Field is an associate professor of neurosurgery at University of

Central Florida's College of Medicine, and is a practicing partner at Orlando Neurosurgery. He is the past president of the Caribbean Association of Neurological Surgeons. Dr. Field completed his undergraduate and medical school training at the University of Florida, where he was a Florida Academic Scholar and graduated with the highest honors. He then completed his internship in general surgery and residency in neurological surgery at the University of Pittsburgh Medical Center.

Dr. Field has been performing endoscopic skull-base surgery in Central Florida since 2003, and has evaluated more than 3,000 patients for these minimally invasive procedures. He has taught endoscopic skull-base techniques at meetings and courses throughout the world during the past decade, and he routinely lectures on this topic.

He is one of the first surgeons in the country to integrate neuro-endoscopy into the management of various forms of neurovascular compression syndromes, such as trigeminal neuralgia and hemifacial spasm, and has both lectured and taught nationally on endoscopic microvascular decompression (eMVD) for these disorders.

Dr. Field also brought intraoperative MRI (iMRI) and laser interstitial thermal therapy (LITT) to the Central Florida region in order to improve care and expand the treatment options for patients with brain tumors. He has authored multiple publications in peer-reviewed journals and given more than 100 presentations at both national and international neurosurgical meetings.



**Caroline J. Hunter, BSN, RN, SCRNP,**  
**Brain Services Nurse Navigator**

Caroline J. Hunter, BSN, RN, SCRNP, received her nursing degree from Clemson University and gained extensive experience as a neurosurgery ICU nurse at Duke

University Hospital. She began her AdventHealth career in 2021.

## Case Conference

Through a process called tumor board case conference, our multidisciplinary team of physicians discusses each patient's condition and, together, determines the best treatment option. Our physicians meet to discuss the best treatment option based on evaluation, meaningful patient records, scans and other diagnostic tests that are presented to the team. You will then be notified of the results of the case conference and the physicians' recommendations for treatment. If you wish to proceed with the recommended treatments, we will expedite the scheduling of the procedure.

## Care Coordination

Once you contact Caroline, your nurse navigator, all meaningful records, scans and any other diagnostic tests that have been used to that point in your clinical workup are compiled. Your case will be reviewed with our physicians for your personalized first step, and you will be scheduled for an evaluation appointment with different physicians, depending on your diagnosis. After your evaluation appointment, you could also be scheduled for additional tests that will help our team determine the best possible treatment options for your brain disorder. After your evaluation appointment and any necessary tests are completed, you will be notified of your physicians' recommendations for treatment. If you wish to proceed with recommended treatments, we will expedite the scheduling of the procedure.

**For more information and to schedule an appointment, call 407-303-7944 or visit [AdventHealthNeuroInstitute.com](https://www.adventhealthneuroinstitute.com).**

# About the AdventHealth Neuroscience Institute

The AdventHealth Neuroscience Institute is one of the most comprehensive facilities specializing in minimally invasive brain surgery, epilepsy, spine, stroke, sleep disorders and interventional neuroradiology.

Our integrated, interdisciplinary team approach combines state-of-the-art, minimally invasive technology with innovative research to provide patients with an exceptional, multifaceted level of care. From detection and treatment to rehabilitation, the institute is dedicated to achieving superior patient outcomes in a compassionate environment.

## AdventHealth: Then & Now

*Established 1866:*

*Today:*

30 DOCTORS

MORE THAN  
80,000  
PHYSICIANS  
AND STAFF

1 UNIQUE  
FACILITY

47 AWARD-WINNING  
HOSPITALS IN NINE  
STATES

106 PATIENTS  
SERVED

5 MILLION+  
PATIENTS SERVED  
ANNUALLY



# Our Health Equity Promise

## Patient Protection and Affordable Care Act: Section 1557

AdventHealth complies with applicable federal civil rights laws and does not discriminate on the basis of race, color, national origin, age, disability or sex. This facility does not exclude people or treat them differently because of race, color, national origin, age, disability or sex.

AdventHealth provides free aid and services to people with disabilities to communicate effectively with us, such as:

- Qualified sign language interpreters
- Written information in other formats (large print, audio, accessible electronic formats, other formats)

AdventHealth provides free language services to people whose primary language is not English, such as:

- Qualified interpreters
- Information written in other languages

**If you need these services, please call 407-303-5600 x1106707.**

If you believe that this facility has failed to provide these services or discriminated in another way on the basis of race, color, national origin, age, disability or sex, you can file a grievance or request that someone assist you with filing a grievance at 407-200-1324 or [fh.risk.management@adventhealth.com](mailto:fh.risk.management@adventhealth.com).

You can also file a civil rights complaint with the U.S. Department of Health and Human Services, Office for Civil Rights, electronically, through the Office for Civil Rights Complaint Portal, available at [ocrportal.hhs.gov/ocr/portal/lobby.jsf](http://ocrportal.hhs.gov/ocr/portal/lobby.jsf), or by mail or phone at:

**U.S. Department of Health and Human Services**  
200 Independence Avenue, SW  
Room 509F, HHH Building Washington, D.C. 20201  
1-800-368-1019, 800-537-7697 (TDD)

Complaint forms are available at [hhs.gov/ocr/office/file/index.html](http://hhs.gov/ocr/office/file/index.html).

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ध्यान दें: यदि आप हिंदी बोलते हैं तो आपके लिए मुफ्त में भाषा सहायता सेवाएं उपलब्ध हैं। नीचे लिखे नम्बर पर सम्पर्क करें।

اگر شما فارسی زبان هستید، خدمات کمکی زبان بطور مجانی در دسترس شما قرار دارد. تو شماره زیر زنگ بزنید.

توجہ فرمائیے۔ اگر آپ اردو بولتے/بولتی ہیں تو آپ کے لئے لسانی خدمات مفت میسر ہیں۔ ذیل میں دئیے گئے نمبر پر کال کریں۔

注意: 日本語でお話になりたい場合には、無料の通訳サービスをご利用いただけます。下記の番号にお電話してください。

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