Gerald J. Glasser
Brain Tumor Center

Atlantic
Health System
Neuroscience

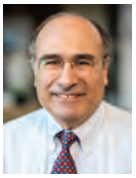
Inside Look

FALL 2022 | INSIDE THIS ISSUE:

Nearly 80,000 adults and children are expected to be diagnosed with primary brain or skull base tumors in the United States this year.

Skull base brain tumors – which include tumors like acoustic neuromas, meningiomas and many others – are particularly complex. Successfully treating and managing them requires specialized skill, expertise and education for patients and their loved ones. That's why this issue of Inside Look is dedicated to these tumors. Learn the basics … read an inspiring patient story … and experience the power of partnership that delivers the best patient outcomes.

Here at the Gerald J. Glasser Brain Tumor Center, we are redefining what's possible when it comes to best-in-class brain tumor care.



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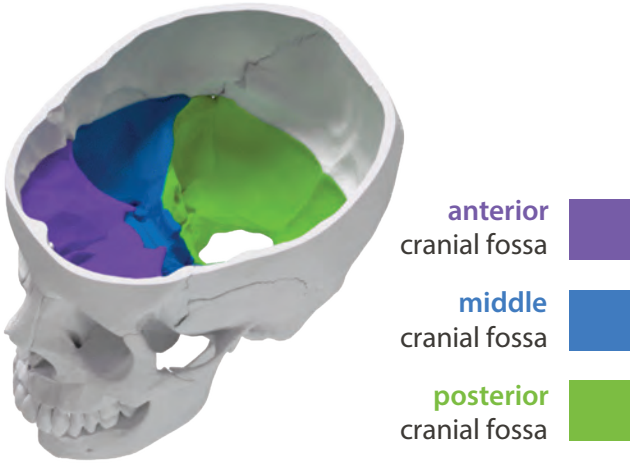
THE BASICS OF Skull Base Brain Tumors

Fabio Frisoli, MD, Director of Skull Base Neurosurgery at the Gerald J. Glasser Brain Tumor Center, shares what patients and caregivers need to know

What is the skull base?

FF: The skull base is the bony surface or floor of the skull underlying the brain. It is subdivided into three anatomical regions: the anterior cranial fossa (underlying the frontal lobes), the middle cranial fossa (underlying the temporal lobes) and the posterior cranial fossa (underlying the brainstem and cerebellum).



The skull base has small channels within the bone, called foramina. Cranial nerves that control the motor, sensory and glandular functions of the head and neck pass through these channels, as do arteries that supply blood to the brain and veins that drain blood back to the heart.

The skull base is also lined with a fibrous impermeable membrane called the meninges. This membrane contains and regulates the volume of cerebrospinal fluid that surrounds the brain and spinal cord.

What are common tumors of the skull base and their associated symptoms?

FF: Tumors may arise from any part of the skull base, including bone, cartilage, meninges, nerves and vessels.

- Common bony and cartilaginous tumors of the skull base include **osteosarcomas, chondrosarcomas** and **chordomas**.
- **Meningiomas** arise from the meninges, the fibrous covering of the brain, and are the most common primary intracranial tumor in adults.
- **Schwannomas** are also very common tumors that arise from the cells that surround and insulate cranial nerves.
- **Acoustic neuromas** (or vestibular schwannomas) are a type of schwannoma that form from the lining of the vestibular nerves, which course to the inner ear.

While less common, tumors may also arise from the cells surrounding blood vessels of the skull base, such as paragangliomas and hemangiopericytomas.

The symptoms associated with these tumors often depend on their size and impact on important neural structures. Sometimes they are found incidentally during brain imaging obtained for other reasons. Frequently they present with headaches or other symptoms associated with elevated intracranial pressure, such as nausea or dizziness. Skull base tumors may also cause seizures if they irritate or inflame the adjacent brain tissue. Cranial neuropathies or cranial nerve dysfunction, resulting in loss of smell, declining visual acuity, double vision and hearing loss, are just a few of the possible neurological symptoms that could indicate the presence of a skull base tumor.

What are the treatment options for skull base tumors?

FF: The first and most important decision to make when we evaluate skull base tumors is whether to observe over time or treat. If there is any indication that a tumor may be cancerous, it must be treated quickly, both for diagnosis and disease control. However, most meningiomas and schwannomas – which comprise the majority of skull base tumors – are benign, slow-growing and may be observed over time with serial annual imaging if they are found incidentally or present with minimal symptoms.

For large tumors that cause symptoms or exert pressure on the surrounding brain tissue, treatment is typically recommended. Treatment may involve surgical removal, focused radiation or a combination of the two.

What type of physician is best suited to treat skull base tumors?

FF: Patients with skull base tumors are served best when they have a multi-disciplinary care team of brain tumor experts. That's why the Glasser Brain Tumor Center has a dedicated team of neurosurgeons – including skull base surgeons – radiologists, neuro-oncologists and radiation oncologists who run the most experienced CyberKnife® program in New Jersey. This team solely focuses on the treatment of cranial disorders and works together to treat each and every patient. Given that skull base tumors can often impact a patient's hearing, we also collaborate closely with head and neck surgeons who specialize in ear care to help ensure the best outcomes all around.

Learn more at atlantichealth.org/braintumor or call 908.522.5914.

Make the Gerald J. Glasser Brain Tumor Center

Your First Choice for Treatment

Our **multi-disciplinary team** of brain tumor experts specializes in treating skull base tumors as well as many other types of brain tumors.

Our highly skilled neurosurgeons, neuro-oncologists and radiation oncologists have **extensive experience** treating these tumors effectively and delivering optimal results.

We use the most **minimally invasive techniques** to treat hard-to-reach skull base tumors with minimal tissue disruption.

We employ **advanced technology** such as three-dimensional microscopy, neuronavigation, advanced preoperative MRI techniques and intraoperative neurophysiological monitoring to ensure surgery is safe and effective.

We are committed to advancing brain tumor treatment through our **cutting-edge clinical trials.**

The Center for Hope Foundation offers an **inspiring support group** for our patients and their families.

A RETURN TO NORMAL LIFE

AFTER SUCCESSFUL SKULL BASE TUMOR TREATMENT

Six months after undergoing highly specialized surgery to remove an acoustic neuroma – a benign skull base tumor that was the size of a small egg – Erika Dewling has a message for others battling brain tumors: don't give up.

To her, these aren't just words. They represent the hope she wants to pay forward after finding best-in-class treatment and comfort at the Gerald J. Glasser Brain Tumor Center.

"When I was diagnosed with a brain tumor, my whole world turned upside down," says Erika. "It really goes to show you can't take anything for granted because it can be taken away from you in an instant."

For Erika, who works in the health care field as a patient service representative, the warning signs that something wasn't right were sudden and intense. She was running errands on a typical day and while walking from the grocery store out to her car, sharp jaw pain stopped her in her tracks. Driving home, she became so dizzy she needed to pull over in the nearest parking lot. She then noticed she couldn't hear out of her left ear and the left side of her face was numb.

"I thought I was having a stroke and called 911," explains Erika.

The paramedics came and told her that her heart looked fine, so she went to Overlook Medical Center for further evaluation. After having a CAT scan done, the doctor delivered results that Erika never expected to hear. She had a tumor at the base of her skull that was pressing on her brainstem.

Erika was connected right away with Fabio Frisoli, MD, Director of Skull Base Neurosurgery at Atlantic Health System's Gerald J. Glasser Brain Tumor Center and a neurosurgeon with Atlantic NeuroSurgical Specialists.

"I was in shock, but Dr. Frisoli was incredibly reassuring from the first moment we met," says Erika. "He earned my trust very quickly with his comforting bedside manner and the way he thoroughly explained what was going on to both me and my family."

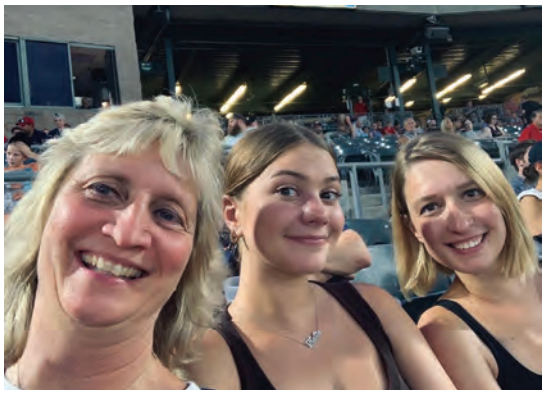
Given the tumor's size, the pressure it was exerting on Erika's hearing and facial nerves and Erika's young age, Dr. Frisoli recommended the tumor be removed.

"We have two goals with this type of surgery: first, safely remove as much of the tumor as possible and second, preserve the patient's facial function. This is extremely challenging given that acoustic neuromas form from the lining of the vestibular nerves, which run alongside the facial nerve," explains Dr. Frisoli. "In Erika's particular case, the tumor was also compressing the brainstem, adding a very serious layer of complexity. Removing her tumor without disrupting the surrounding brain tissue required the highest level of precision and care."

Using a proven co-surgery approach, Dr. Frisoli and Jed A. Kwartler, MD – a neurotologist (specialist in ear surgery) at Overlook Medical Center and Summit Health – removed 100 percent of Erika's tumor during a five-and-a-half-hour surgery.

"I was so relieved they got all of my tumor out, but after surgery is when my hard work started," says Erika. "Dr. Frisoli and Dr. Kwartler both knew I could recover fully with rehabilitation. Had they not removed the tumor like they did, my quality of life would have likely been affected permanently."

After six months of physical therapy and occupational therapy, and just a few days of speech therapy, Erika now feels 98 percent back to normal. She's back to working full time, driving, spending time with her husband, hanging out with her friends and enjoying the little things in life.



Erika Dewling (right), out with her mom, Heidi Boehm (left), and sister, Katie Boehm (center), says she now feels back to normal and is enjoying the little things in life.

"I'm a very upbeat person, but it wasn't always easy to stay positive," Erika shares. "I worked extremely hard to get back to where I am now and am lucky to have had the amazing support of my husband, family, friends, community and a really excellent medical team."

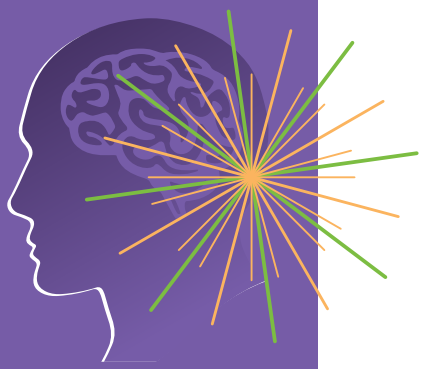
"I want others to know that recovery may take time, but it does get better when you're in the best hands."

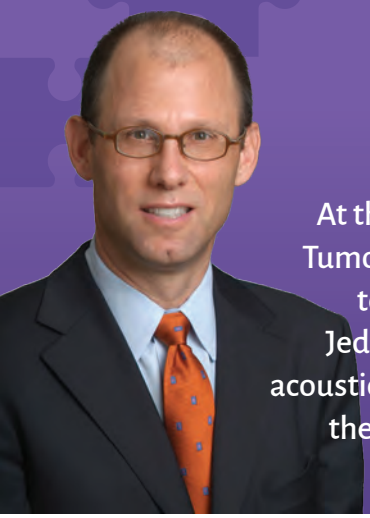
CyberKnife® Effectively Treats Skull Base Tumors

In addition to – or in lieu of – traditional surgery, patients with skull base tumors can often also be treated with non-surgical stereotactic radiosurgery.

Here at the Glasser Brain Tumor Center, we use CyberKnife, the world's first and only robotic stereotactic radiosurgery system designed to non-invasively treat tumors anywhere in the body, including the brain and spine. This treatment – which delivers focused beams of radiation to tumors with extreme accuracy – can be highly effective for long-term tumor control.

Our CyberKnife Radiosurgery Center at Overlook Medical Center is the largest and most experienced program of its kind in New Jersey.





The Power of Partnership for Delivering the Best Outcomes

At the Gerald J. Glasser Brain Tumor Center, neurosurgeons team up with ear surgeon Jed A. Kwartler, MD, to treat acoustic neuromas – and deliver the best possible outcomes.

Hearing the words, "You have a brain tumor," is never easy. That's especially true when you're diagnosed with a skull base tumor, which are typically some of the most difficult tumors to treat given their hard-to-reach location and proximity to major blood vessels and nerves.

In some cases, tumors – called schwannomas – arise from the cells that surround these cranial nerves. This makes it even more challenging to treat the tumor while preserving the nerves and the functions they control, like sight or facial movement.

Acoustic neuromas, or vestibular schwannomas, which are brain tumors that form on the hearing or balance (vestibular) nerves, fall into this category. When a patient is diagnosed with an acoustic neuroma, there is not only a need to manage the tumor but also preserve their hearing and quality of life.

To provide the most effective care on both fronts, collaboration between a neurosurgeon and a neurotologist, a specialized ear surgeon, is essential. That's why the highly respected neurosurgeons at the Gerald J. Glasser Brain Tumor Center have been teaming up with Jed A. Kwartler, MD – a neurotologist at Overlook Medical Center and Summit Health – for nearly 20 years.

Determining the Right Path for Each Patient

Acoustic neuromas are benign, slow-growing tumors. Many people may not even know they have an acoustic neuroma, but when symptoms appear, it's important to get evaluated right away.

"Some of the most common symptoms of acoustic neuromas are sudden hearing loss, a pressure sensation and tinnitus or ringing in just one ear," explains Dr. Kwartler. "The unilateral nature of these symptoms in particular is a red flag that you need to be seen by a doctor."

"Warning signs can also include loss of balance and dizziness," adds Ronald P. Benitez, MD, Chair of Endovascular Neurosurgery at Overlook Medical Center and a neurosurgeon with Atlantic NeuroSurgical Specialists. "Depending on the symptoms, patients may be evaluated with a hearing test – which can help identify if the issue is a neurological problem – or an MRI scan, which would reveal if a tumor is in fact present."

When an acoustic neuroma is identified, there are three options:

1. Ongoing monitoring with serial MRIs
2. Surgical removal
3. Stereotactic radiosurgery, such as CyberKnife

Ronald P. Benitez, MD, Chair of Endovascular Neurosurgery at Overlook Medical Center and a neurosurgeon with Atlantic NeuroSurgical Specialists

Together, the physicians recommend the best approach to pursue based on a careful examination of several key factors, including:

- Tumor size
- A patient's age and overall health

For example, if an 85-year-old patient has a relatively small tumor that is not causing any neurological issues, they would typically be monitored with periodic MRIs. On average, acoustic neuromas grow very slowly – about 1 mm per year. Given their advanced age, it's unlikely that the tumor would have time to grow to the point where it would cause neurological problems.

If it's a 40-year-old patient with a relatively small acoustic neuroma, they may decide to treat it now before it does become a problem – and more difficult to treat – years down the road.

Regardless of age, timely treatment is required when the tumor is large enough to affect a patient's hearing or brain functioning.

A More Conservative Approach to Treatment

"Twenty-five years ago, most neurosurgeons were operating on patients with smaller acoustic neuromas. The field has since discovered that many of these patients don't require traditional brain surgery and may be better suited for stereotactic radiosurgery, such as CyberKnife," says Dr. Benitez.

CyberKnife radiosurgery is a non-invasive treatment that delivers precise beams of radiation directly to the tumor to stop its growth. This highly targeted approach is ideal for acoustic neuromas that are less than 2 cm in size, small enough to not be pressing up on the brain. Led by Joana S. Emmolo, MD, Director of Radiation Oncology, the Glasser Brain Tumor Center has the largest CyberKnife program in the state of New Jersey.

For some patients, neurosurgery is still the most appropriate treatment option. When it is, the neurosurgeons at the Glasser Brain Tumor Center and Dr. Kwartler work side-by-side in the operating room to meticulously remove the tumor while keeping as much of the cranial nerve intact as possible.

These physicians have extensive experience and expertise in treating acoustic neuromas. Dr. Kwartler also had the privilege of training directly under William House, MD, who pioneered a modern technique for treating these tumors that drastically improves patient outcomes.

In a growing number of cases, a combination of neurosurgery and radiosurgery is best.

"While our goal is always to remove as much of a tumor as possible, we don't follow the old mentality that a tumor has to be removed in its entirety," notes Dr. Benitez. "Today the surgical community is more comfortable doing a near-total removal of acoustic neuromas, which helps avoid damage to the brain or cranial nerves. In these cases, we leave a little bit of the tumor behind during surgery and then treat it very precisely with radiosurgery. Combining these modalities often provides the most favorable results."

"In addition to removing or minimizing the tumor, our goal is to preserve a patient's hearing," adds Dr. Kwartler. "However, when that's not possible, there are new advancements like cochlear implants that can rehabilitate hearing as long as the cochlear nerve is intact. Together, we approach treatment with all of these options in mind to help patients live their best lives."

The science of medicine.
The power of hope.

About the Gerald J. Glasser Brain Tumor Center

The Gerald J. Glasser Brain Tumor Center brings the most comprehensive and innovative treatments to benign and malignant tumors of the brain, skull base, spine and spinal cord.

Our team of experts – including neurosurgeons from Atlantic NeuroSurgical Specialists – help patients and their loved ones navigate the journey from diagnosis through treatment. Every patient who visits the center has access to a panel of experts. The group meets regularly during a dedicated Tumor Board Review meeting to create a personalized treatment plan for all patients based on their clinical evaluation.

All this is possible thanks to the generous donation of the Glasser family's founding gift and support.

Atlantic Health System
Neuroscience

Atlantic NeuroSurgical
SPECIALISTS

Overlook Medical Center

Atlantic Neuroscience Institute
99 Beauvoir Avenue, 5th Floor
Summit, NJ 07901

Medical Arts Center (MAC) II
11 Overlook Road, Suite 180
Summit, NJ 07901

Morristown Medical Center

Carol G. Simon Cancer Center
100 Madison Avenue
Morristown, NJ 07960

NEW LOCATION

Chilton Medical Center

Collins Pavilion
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Pompton Plains, NJ 07444

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