

Meningioma

A meningioma is a tumor that forms on the outside membranes of the brain and spinal cord. These membranes are called meninges. Most meningiomas are benign, meaning they are not cancer. The tumor grows slowly over many years. They usually do not invade the brain but can press on the brain as they grow. They can also grow outward and cause the skull to thicken.

Causes

Most meningiomas have no known cause, but there are factors that can increase your risk:

- People who have received radiation to the head and neck
- About 5 in 100 people with the genetic disorder Neurofibromatosis Type 2 will develop meningiomas.

Research **has not** found a link between head injury or cell phone use and meningiomas.

Symptoms

Some patients have no symptoms. Symptoms depend on the tumor location and size, and may include:

- Headaches.
- Seizures.
- Personality changes or confusion.
- Weakness or numbness of the face, arms or legs.
- Vision changes, such as double vision or vision loss.

Diagnosis

Your doctor will assess your complete medical history and do physical and neurological exams. The neurological exam looks at your nervous system. It involves a series of tests to check your mental status, memory, muscle strength, coordination, sensation and cranial nerve function such as vision and hearing.

Imaging Tests

Imaging tests are also used to diagnose meningiomas. The tests take detailed pictures that help your doctor find tumors and see how the tumors are affecting your body.

- Magnetic resonance imaging (MRI) scans create images of soft tissues. A tumor can cause swelling in the tissues around it, so an MRI scan may show any swelling. An MRI scan for meningiomas uses contrast dye.
- Computerized tomography (CT) scans are used to see if a tumor has affected the bone. A CT scan for meningiomas uses contrast dye.
- Sometimes an angiogram is needed. An angiogram is an X-ray of blood vessels. This image can show if the tumor has affected blood flow.

Tumor Grade

Tumor grade is a system used to describe types of tumor cells. The grades are based on how abnormal the tumor cells look under a microscope and how quickly the tumor is likely to grow, spread or come back after treatment.

Meningiomas are divided into 3 grades:

- **Grade I**
 - This is the most common type of meningioma.
 - They are often watched closely for changes or treated with surgery.
 - Patients will have regular MRI scans and follow-up exams.
- **Grade II**
 - These are called atypical, meaning not normal, tumors.
 - They are more aggressive and are more likely to come back compared to Grade I tumors.
 - About 2 in 10 meningiomas are Grade II and often need surgery. Some patients may need radiation treatment after surgery.
- **Grade III**
 - These tumors are cancer and are called malignant or anaplastic. They are the most aggressive type of meningioma.
 - Patients often need surgery followed by radiation.
 - If the tumor comes back, chemotherapy may be used for treatment.
 - Fewer than 3 in 100 meningioma tumors are cancer.

Treatment

Treatment depends on the tumor grade and your symptoms. Treatment options may include:

- **Observation**
 - If the tumor appears benign, does not press on the brain or cause symptoms it is watched without treatment.
 - You will have regular MRI or CT scans and follow-up exams with your doctor.
- **Surgery**
 - For tumors that cause symptoms, surgery is often the first step.
 - A neurosurgeon performs a surgery, called a craniotomy, to open the skull and remove the tumor.
 - If the whole tumor cannot be safely removed, the rest of it may be watched closely or treated with radiation.
 - Treatment after surgery depends on how much of the tumor was removed and tumor grade.
- **Radiation**
 - Radiation therapy may be used if the tumor comes back or if some of the tumor cannot be removed. Radiation destroys tumor cells and stops the tumor from growing. Radiation can be given in very focused doses to help save nearby healthy tissue.
 - External beam radiation therapy may be used for treating larger areas. It delivers radiation to the tumor in multiple low doses over the course of 6 weeks.
 - Stereotactic radiosurgery is often used for smaller tumors. It delivers a high dose of radiation in 1 session, targeted exactly to the meningioma.

- **Chemotherapy**

- Chemotherapy may be used to treat meningiomas that come back after surgery and radiation.
- There is no standard chemotherapy medicine used for these tumors.

After Treatment

Long-term outcomes depend on the tumor's location, tumor grade, your age and overall health status before treatment. MD Anderson provides a team approach to help you with rehabilitation and recovery during and after treatment.

Some meningiomas, most often atypical or cancerous types, may come back after treatment. Your doctor may recommend regular MRI or CT scans and follow-up visits to watch for tumor regrowth.

Research is studying targeted therapy as treatment for meningiomas that come back. Your doctor may recommend genetic testing on the removed meningioma in order to add to the research.

Contact Information

Brain and Spine Center

Monday through Friday, 8 a.m. to 5 p.m.
713-792-6600

Resources

American Brain Tumor Association

800-886-2282

ABTA.org

National Brain Tumor Society

800-934-2873

BrainTumor.org