

Meningioma - Diagnosis [1]

This section has been reviewed and approved by the [Cancer.Net Editorial Board](#) [2], 04/2014

ON THIS PAGE: You will find a list of the common tests, procedures, and scans that doctors can use to find out what's wrong and identify the cause of the problem. To see other pages, use the menu on the side of your screen.

Doctors use many tests to diagnose a tumor and find out if it is cancerous and, if so, if it has spread to another part of the body, called metastasis. Some tests may also determine which treatments may be the most effective. For most types of tumors, a biopsy is the only way to make a definitive diagnosis. If a biopsy is not possible, the doctor may suggest other tests that will help make a diagnosis. Imaging tests may be used to find out whether a cancerous tumor has spread. This list describes options for diagnosing meningioma, and not all tests listed will be used for every person.

Your doctor may consider these factors when choosing a diagnostic test:

- Age and medical condition
- Type of tumor suspected
- Signs and symptoms
- Previous test results

Sometimes, meningioma is found accidentally while having a procedure for another reason. More commonly, meningioma is often not diagnosed until a person starts having symptoms. A neuro-oncologist is a doctor who specializes in diagnosing and treating brain tumors and other tumors of the nervous system. The neuro-oncologist can use the patient's symptoms as clues to the location of the tumor. In addition to the patient's detailed medical history and physical examination, the following tests may help the doctor diagnose meningioma and find out where it is located:

Neurological, vision, and hearing tests. These tests help find out how a possible tumor is affecting the brain. An eye examination can be used to find changes to the optic nerve caused by pressure from a meningioma.

Imaging tests

Imaging tests are most useful when the results are combined with the patient's medical history,

physical examination, and neurological tests. This combination helps to more accurately find out where the tumor began, and whether or where it has spread. The most common imaging tests used for diagnosing meningioma include:

Computed tomography (CT or CAT) scan [3]. A CT scan takes x-rays of the head from many different angles. A computer then combines these images into a detailed, cross-sectional view that shows any abnormalities or tumors. A CT scan can also be used to measure the tumor's size. Sometimes, a special dye called a contrast medium is injected into a patient's vein before the scan to provide better detail on the image. A CT scan is best for finding changes in the skull that can be caused by meningioma, such as hardening of the area near the tumor, which can mean that the tumor has been there for a long time.

Magnetic resonance imaging (MRI) [4]. An MRI uses magnetic fields, not x-rays, to produce detailed images of the body. A special dye called a contrast medium is injected into a patient's vein before the scan to create a clearer picture. MRIs may create more detailed pictures than CT scans and often show changes in the brain caused by the tumor, such as swelling or areas where the tumor has spread. MRI is the preferred way to diagnose meningioma.

X-ray. An x-ray is a way to create a picture of the structures inside of the body using a small amount of radiation. An x-ray of the head can sometimes help doctors determine the presence and location of meningioma, but is not sufficient to diagnose the type of tumor.

Cerebral angiogram. A cerebral angiogram is a type of x-ray, or series of x-rays, of the head that shows the arteries and veins in the brain. X-rays are taken after a contrast medium is injected into the main arteries of the head. Because a meningioma can block important veins that drain blood from the brain, it is sometimes important to get an angiogram to plan surgery. In addition, there may be abnormal blood vessels that feed the tumor and these can be seen with the angiogram. Sometimes, material is injected into these tumors before surgery to reduce bleeding during surgery.

Positron emission tomography (PET) scan [5]. A PET scan is a way to create pictures of organs and tissues inside the body. A small amount of a radioactive sugar substance is injected into the patient's body. This sugar substance is taken up by cells that use the most energy. Because cancer tends to use energy actively, it absorbs more of the radioactive substance. A scanner then detects this substance to produce images of the inside of the body. A PET scan is rarely used for meningioma

Lumbar puncture (spinal tap). A lumbar puncture is a procedure in which a doctor uses a needle to take a sample of cerebrospinal fluid (CSF) to look for tumor cells, blood, or tumor markers. Tumor markers are substances found in higher than normal amounts in the blood, urine, or body tissues of people with certain types of tumors. CSF is the fluid that flows around the brain and the spinal cord. Doctors generally give an anesthetic to numb the lower back before the procedure. A lumbar puncture is rarely needed for patients with meningioma.

Electroencephalography (EEG). An EEG is a noninvasive test in which electrodes are attached to the outside of a person's head to measure electrical activity of the brain. Specifically, EEGs are used to detect seizures. Because meningiomas can cause seizures in some patients, EEGs are occasionally needed for patients with this tumor.

Sometimes, meningioma is diagnosed using only the imaging tests above because the location of the tumor may make a biopsy risky (see below).

Stereotactic neurosurgery/Biopsy [6]. A biopsy can be performed during a procedure called a stereotactic technique, which uses a needle guided to the tumor with computers and imaging tests, or it can be done during surgery when the surgeon can look at the tumor directly. However, most meningiomas are removed rather than doing a separate biopsy, so surgery for meningioma is usually done by an open craniotomy instead of with stereotactic techniques. An open craniotomy is surgery where part of the skull is removed to provide access to the brain.

After diagnostic tests are done, your doctor will review all of the results with you. If the diagnosis is meningioma, these results also help the doctor describe the tumor; this is called staging and grading.

The next section helps explain the different stages and grades for meningioma. Use the menu on the side of your screen to select Stages, or you can select another section, to continue reading this guide.

Links:

[1] <http://www.cancer.net/cancer-types/meningioma/diagnosis>

[2] <http://www.cancer.net/about-us>

[3] <http://www.cancer.net/node/24486>

[4] <http://www.cancer.net/node/24578>

[5] <http://www.cancer.net/node/24648>

[6] <http://www.cancer.net/node/24406>