CONDITION

Metastatic brain tumor

A metastatic brain tumor forms when cancer cells spread to the brain from elsewhere in the body.

WHAT IT IS
Cancer that has spread to the brain

BODY SYSTEM
Brain and nervous system

MAIN SYMPTOMS
Headache, seizures, weakness, changes in thinking

WHAT CAUSES IT
Cancer cells spreading from another body site

HOW IT IS DIAGNOSED
Contrast-enhanced brain MRI, sometimes biopsy

MAIN TREATMENT
Surgery, radiation, cancer medicines, and symptom control

CAN IT BE CURED?
Sometimes - lasting control occurs in selected cases

IS IT AN EMERGENCY?
Sometimes - new seizure or sudden neurologic loss

LONG-TERM OUTLOOK
Serious; outlook reflects cancer type, spread, and treatment response

Overview

A metastatic brain tumor forms when cancer cells travel to the brain from another part of the body. One tumor is called a brain metastasis; several are called brain metastases.

This is different from a primary brain tumor, which begins in brain tissue. A metastatic brain tumor keeps the name and cell type of the original cancer. For example, breast cancer that spreads to the brain is still breast cancer, not primary brain cancer.

Metastases may appear as one tumor or as several tumors in different parts of the brain. They can affect brain function directly or cause swelling around the tumor. Because the skull cannot expand, swelling may raise pressure inside the head.

Treatment can often reduce symptoms, preserve function, and control tumors for a period of

time. In selected situations, long-lasting control is possible. However, brain metastasis usually means the original cancer is advanced, so treatment also considers cancer elsewhere in the body.

Symptoms

Symptoms depend on the tumor's size, location, number, and surrounding swelling. Some brain metastases cause no symptoms and are found during cancer imaging.

Possible symptoms include:

Symptoms may develop gradually over days or weeks. They can also appear suddenly, especially with a seizure, bleeding into a tumor, or rapid swelling.

These symptoms have many possible causes. Having one does not mean that you have a metastatic brain tumor. New neurologic symptoms still need medical assessment, particularly if you have a current or previous cancer diagnosis.

- A new or worsening headache, sometimes worse in the morning
- A first seizure or a change in an existing seizure pattern
- Weakness, numbness, or poor coordination, often affecting one side
- Problems speaking, seeing, walking, or keeping balance
- Changes in memory, attention, mood, personality, or judgment
- Nausea, vomiting, unusual sleepiness, or confusion

Causes and risk factors

A metastatic brain tumor develops when cells break away from a cancer elsewhere in the body, enter the blood, and settle in the brain. The cells then grow and form a new tumor.

Cancers that commonly spread to the brain include lung cancer, breast cancer, melanoma, kidney cancer, and colorectal cancer. Many other cancers can also spread there. Sometimes a brain metastasis is found before the original cancer is known.

The chance of brain spread is influenced by the original cancer's type, molecular features, stage, and response to treatment. It is not caused by stress, minor head injuries, or something you did after receiving a cancer diagnosis.

A brain metastasis itself is not inherited or contagious. An inherited tendency to develop certain cancers may sometimes affect a person's overall cancer risk, but it does not mean

brain metastasis is inevitable.

Diagnosis

A clinician will ask about your symptoms and cancer history. A neurologic examination checks functions such as strength, sensation, balance, vision, speech, memory, and reflexes.

A brain MRI using contrast material is usually the main imaging test. Contrast helps show tumors, their borders, and nearby swelling. MRI can also identify small metastases that may be difficult to see on other scans.

A CT scan may be used when MRI is unavailable, unsuitable, or needed quickly. Scans of the chest, abdomen, or other areas may look for the original cancer and disease elsewhere in the body.

Imaging alone may not always establish what a tumor is. Surgery or a needle biopsy may be needed if there is no known cancer, the scan is unusual, or the result would change treatment. A pathologist examines the removed tissue under a microscope. Laboratory tests may identify proteins or genetic changes that help guide cancer medicines.

Your care team will also assess your general health, daily functioning, and the extent of cancer outside the brain. These findings help shape treatment choices.

Treatment and management

Treatment is planned around the original cancer, the number and size of brain tumors, their location, symptoms, molecular test results, previous treatments, and your goals. Care often involves medical oncology, radiation oncology, neurosurgery, neurology, and palliative care.

Medicines for swelling may be used when a tumor causes pressure or symptoms from brain swelling. Corticosteroids like prednisone or hydrocortisone , often dexamethasone, can reduce this swelling relatively quickly. They do not treat the cancer itself. Because prolonged use can cause important side effects, the medicine is usually reduced under medical supervision when it is safe to do so.

Anti-seizure medicine is used for people who have had a seizure or have another clear reason for it. It is not automatically needed by everyone with a brain metastasis.

Surgery may be considered for a large, accessible tumor, especially if it is causing pressure or the diagnosis is uncertain. Removing a tumor can provide tissue for testing and may improve symptoms. Surgery treats the removed site but does not treat unseen cancer cells or tumors

elsewhere.

Stereotactic radiosurgery delivers highly focused radiation to one or more defined tumors. Despite its name, it does not involve an incision. It may be used alone, after surgery, or for new tumors found during follow-up.

Whole-brain radiation therapy treats the entire brain. It may be considered when there are many tumors, widespread microscopic risk, or other reasons focused treatment is unsuitable. It can affect memory and thinking, so the likely benefits and harms are considered carefully.

Cancer-directed medicines include chemotherapy, targeted therapy, immunotherapy, and hormone therapy. The choice depends on the original cancer and its molecular features. Some newer medicines can reach and control tumors in the brain more effectively than older drugs.

Rehabilitation may include physical, occupational, or speech therapy. Palliative care can help with symptoms, emotional strain, treatment decisions, and support for family members at any stage. It can be provided alongside active cancer treatment.

Complications

A metastatic brain tumor can damage the brain area around it or cause swelling that raises pressure inside the skull. Possible complications include seizures, weakness, falls, communication problems, and changes in memory or behavior.

A tumor may occasionally bleed. Tumors or swelling can also block the normal flow of cerebrospinal fluid, the liquid surrounding the brain, causing a pressure problem called hydrocephalus.

Treatment can have complications as well. Surgery carries risks such as infection, bleeding, or neurologic changes. Radiation may cause fatigue, temporary swelling, hair loss in the treated area, or later problems with thinking. A delayed injury called radiation necrosis can sometimes resemble tumor growth on a scan.

Cancer may return at a treated site or appear elsewhere in the brain. It can also spread into the thin tissues and fluid around the brain and spinal cord, known as leptomeningeal disease.

Prevention

Brain metastasis cannot always be prevented. Once cancer exists, there is no lifestyle change that can guarantee it will not spread to the brain.

Avoiding tobacco and following general cancer-prevention advice can lower the risk of

developing some original cancers, especially lung cancer. This does not specifically prevent every metastatic brain tumor.

If you already have cancer, appropriate treatment and planned follow-up may identify progression or brain involvement. Routine brain scans are useful in some cancer situations but not all. The schedule is based on the type and stage of cancer, previous findings, and symptoms.

Living with it and what to expect

The course differs greatly from person to person. Important factors include the original cancer type, whether it is controlled elsewhere, the number of brain tumors, available treatments, general health, and how the tumors respond.

Follow-up often includes repeated brain MRI scans. These look for regrowth at treated sites, new metastases, swelling, or treatment effects. A changing scan does not always mean the cancer is growing; inflammation and radiation injury can look similar and may require further assessment.

Some people return to many usual activities after treatment. Others have lasting problems with strength, balance, speech, fatigue, seizures, or thinking. Rehabilitation, mobility aids, and practical changes at home may help maintain independence.

Driving may be restricted after a seizure or when symptoms could affect safe control of a vehicle. Rules differ by location, and medical clearance may be required.

Brain metastasis is a serious condition, but there is no single timetable. Some cancers progress quickly, while selected people with limited brain disease and well-controlled cancer elsewhere live for years. Care plans may change as scans, symptoms, and priorities change.

Discussions about future care, support at home, and treatment preferences can happen alongside active treatment. These discussions are intended to protect your choices, not to end treatment.

When to get medical help

Call emergency services for:

These symptoms can also be caused by stroke or other emergencies. Do not wait for a routine cancer appointment.

Contact your cancer team promptly for a new or steadily worsening headache, new balance

trouble, increasing sleepiness, memory changes, vomiting, or breakthrough seizures. Symptoms that interfere with taking medicines, eating, drinking, or safely managing at home also need prompt advice.

Routine follow-up is used to review stable symptoms, treatment side effects, rehabilitation needs, and scan results. Keep these appointments even when you feel well, because small metastases may not cause early symptoms.

- A first seizure, a seizure lasting several minutes, or repeated seizures
- Sudden weakness, numbness, facial drooping, speech trouble, or vision loss
- Loss of consciousness or difficulty waking
- A sudden, severe headache, especially with vomiting or confusion
- Rapidly worsening confusion, behavior change, or difficulty walking

Common questions

Is a metastatic brain tumor the same as brain cancer?

It is cancer in the brain, but it did not begin there. Its cells come from another cancer, such as lung or breast cancer. This distinction matters because treatment is based partly on the original cancer type.

Can a metastatic brain tumor be cured?

Sometimes long-lasting control is possible, especially when there are few tumors and cancer elsewhere is controlled. In many cases, treatment aims to control the cancer, relieve symptoms, and preserve function rather than remove every cancer cell permanently.

How fast does a metastatic brain tumor grow?

There is no single growth rate. It is influenced by the original cancer's biology, the tumor's molecular features, and the effect of treatment. Comparing scans taken at different times gives more useful information than symptoms alone.

Can surgery remove all of it?

Surgery can sometimes completely remove a visible, accessible tumor. It cannot treat microscopic cancer cells, other brain metastases, or cancer elsewhere in the body. Radiation or cancer medicines may therefore be recommended as part of the overall plan.

What is the life expectancy with brain metastases?

There is no accurate universal number. Outlook is shaped by the original cancer, its spread outside the brain, available targeted treatments, daily functioning, and response to therapy.

Population averages cannot predict one person's course.

Can I drive after a seizure caused by a brain tumor?

Usually not immediately. A seizure can make driving unsafe, and many places require a seizure-free period and medical clearance. Local licensing rules determine when driving may resume.

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