

# Understand Your Disease: Brain Metastases

## For patients and families coping with brain metastases

Read this resource to know:

- what brain metastases are
- common symptoms of brain metastases
- treatment options for brain metastases
- what to expect

If you have a diagnosis of brain metastases you may have many questions.

It can be hard to know where to start. Talking to your health care team can help you feel in control of your health. Talking to them will also help you make choices about your treatment.



## **What are brain metastases?**

A brain metastasis is a tumour that has spread to the brain from another place in the body. For example, if a patient has lung cancer, cancer cells that spread to the brain from the lung(s) are called brain metastases. Metastases are different from cancers that start in the brain (called a “primary brain cancer”).

Each part of the brain controls a unique function, action or feeling. Brain metastases can affect any part of the brain. The number, size and site of your brain metastases can change what you feel.

For some patients, brain metastases are how they first find out they have cancer in other parts of their body. For a small group of people, the primary tumour (in the body part where the brain metastases have spread from) is never known.

Many types of cancer can spread to the brain. The most common cancers that spread to the brain include:

- lung
- breast
- melanoma (skin)
- kidney
- colon

## **How many brain metastases do I have?**

You can have many small brain metastases in different parts of the brain, one large metastasis in one part of the brain, or both. You may feel different than another patient who also has brain metastases.

The number and size of brain metastases affects your treatment. What may work for treating one patient or tumour may not work for all patients or tumours. Knowing how many metastases you have, their size and location, can help your medical team decide your treatment options.

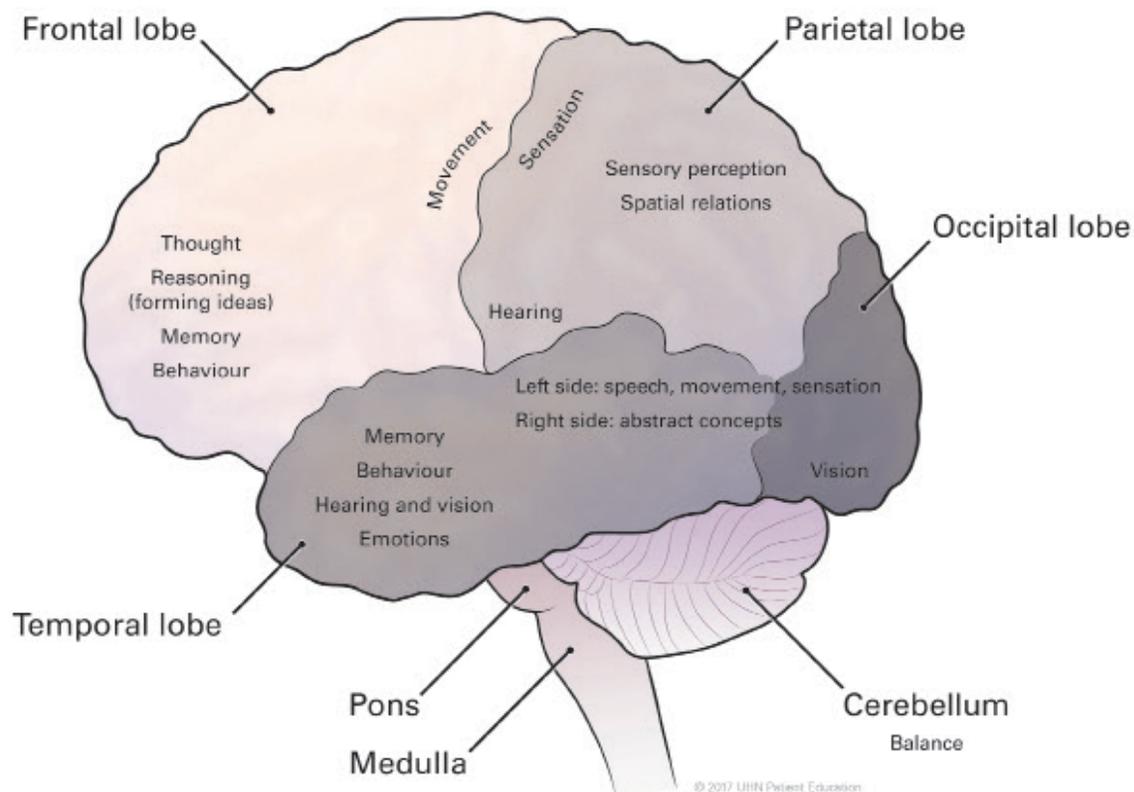
## Where are my brain metastases?

Knowing where your brain metastases are can help explain your symptoms. Symptoms of brain metastases are affected by the location of the metastases in the brain. In the end, it is hard to predict what symptoms you may have, which can be stressful.

## Understand the parts of your brain

When we think about the brain, it is helpful to know what each part of the brain does. The brain has two halves (left and right). Each half has four major “lobes”. A lobe is an area in the brain that carries out a certain function. Each part of the brain connects to and talks to other parts.

Brain metastases can affect how well this process occurs



- Frontal lobe: thinking, memory, paying attention, behaviour, reasoning (forming ideas), movement, language (speaking)
- Parietal lobe: sensory (feeling when something touches you), spatial sense (knowing where your body parts are in space)
- Temporal lobe: memory, behaviour, emotions, hearing, language (understanding)
  - left side: speech, movement, sensation
  - right side: abstract concepts
- Occipital lobe: vision
- Pons, Medulla: basic body functions like breathing, consciousness (being asleep/awake)
- Cerebellum: balance, coordination (making movements smooth)

You can have exact “focal” symptoms like not being able to move your right arm or leg. You can also have less clear “generalized” symptoms, like not acting like yourself. Which symptoms you have depends in part on where and how large your metastases are.

## **What are some common symptoms I should be aware of?**

Here are some common symptoms of brain metastases that you can ask your doctor about:

- fatigue (a feeling of tiredness that does not go away with sleep)
- headaches
- nausea (feeling like throwing up) and vomiting (throwing up)
- change in level of consciousness or alertness (how awake/aware you are)
- changes in mental abilities (mood, personality, ability to think clearly, memory)
- weakness in certain body part(s)
- changes in sensation (numbness, tingling) to certain body part(s)
- seizures (muscle spasms you cannot control, briefly blacking out and other symptoms)

Metastases may not be the cause of all your symptoms. Some symptoms are caused by other changes to brain tissue. For example, the brain can swell (expand) around a tumour (like how your skin swells around a cut). The brain can also become squeezed (pushed together) within the skull. This is like trying to fit an extra pair of shoes into an already full suitcase.

Some treatments (like steroids) decrease symptoms by trying to reduce the amount of inflammation (swelling) and intracranial pressure (the brain getting pushed up against the skull). These treatments do not aim to make the tumour smaller.

Talk to your health care team about your symptoms.

## **What are my treatment options?**

There are 3 main ways to treat brain metastases. Your health care team might suggest more than one of these treatments. Be sure to ask your doctor about any concerns you have about the treatments and why they are using one treatment option over another.

### **1. Surgery**

#### **What is it? How is it done?**

The neurosurgeon (surgeon who operates on the brain) removes the tumour(s).

You might be given an anesthetic. You may be put to sleep during your surgery or you might undergo lighter sedation (where you are awake but relaxed). This is used if the neurosurgeon needs to test how well your brain works around your tumour(s).

Your operation may last several hours. The length of your surgery will depend on how many tumours you have and their location.

### **What is it used for?**

Biopsy: taking a small piece of the tumour for testing to confirm where the cancer came from.

Resection: treating tumours by taking them out.

### **What type of tumours is it used for? Is this treatment for me?**

This type of treatment is used if you have one large tumour (3 cm or bigger). Also if you have many tumours, but one or more is large enough to make you feel better if removed.

The tumour(s) needs to be in a spot that is safe to reach through surgery.

### **How can it be combined with other treatment options? Why would I need a second form of treatment?**

It can be used after radiation treatment:

- if a tumour keeps growing
- to treat radiation necrosis (damage to the area of the brain where radiation was given before)

Radiation necrosis is not a common side effect after radiation treatment.

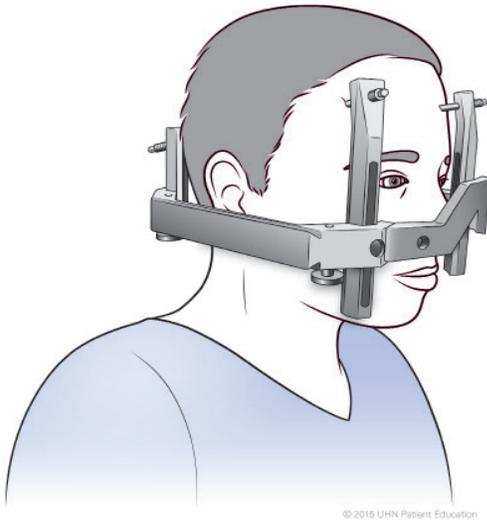
## **2. Radiosurgery (Gamma Knife)**

### **What is it? How is it done?**

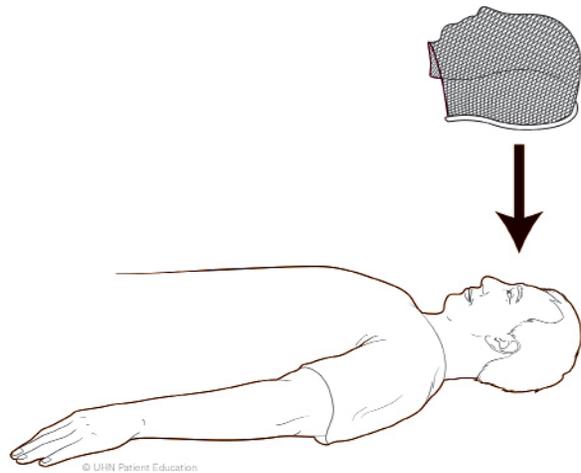
A machine that sends high-energy x-rays to a very focused part of your brain.

This is done while you are awake. You will have a metal frame placed onto your head. It is used to make sure that the radiation treatment is sent to the right part of the brain. You will be given a local anesthetic to numb the areas of your scalp (skin) and skull bone where the frame is placed. Sometimes, this metal frame is not needed. Instead, you will wear a mask to keep your head in the same spot.

You usually have one treatment, which can last 45 minutes to many hours.



Treatment with frame



Treatment with mask



Watch videos about frame and mask-based treatments on the Brain Mets website: <https://bit.ly/3it92SK>

### **What is it used for?**

This type of treatment treats brain metastases by shrinking them. The x-rays kill the cancer cells, making the tumours smaller.

### **What type of tumours is it used for?**

This type of treatment is used if:

- you have only a few metastases
- the metastases are small (usually less than 3 cm)

### **How can it be combined with other treatment options? Why would I need a second form of treatment?**

It can be used after a previous radiation treatment:

- if new metastases grow

It can be used after surgery:

- to treat the brain around the tumour that was taken out
- to treat any tumours that were not taken out

### **3. Whole Brain Radiation**

#### **What is it? How is it done?**

A machine that sends x-rays to your whole brain.

This is done while you are awake. Planning for this treatment involves having a mask made just for you. This will keep your head in the same position for the planning CT scan and for each treatment.

You will have a treatment every day, and each one will take about 15 to 20 minutes. How many treatments you need, and over how much time, will depend on the treatment plan you set with your doctor.

#### **What is it used for?**

Treating brain metastases by shrinking them. The x-rays kill the cancer cells, making the tumours smaller.

This also stops new metastases from growing in healthy areas in the brain.

#### **What type of tumours is it used for?**

This type of treatment is used if:

- your tumour is not in a safe spot for surgery
- your tumour(s) is too big for radiosurgery
- you have many smaller metastases

It can also be for more than one of these reasons.

## **How can it be combined with other treatment options? Why would I need a second form of treatment?**

It can be used after radiosurgery:

- to stop new brain metastases from growing in the future
- to treat tumours that grow back
- to treat new brain metastases that grow in the future

It can be used after surgery to stop new brain metastases from growing in the future.

## **What are the side effects?**

- Fatigue (feeling of tiredness that does not go away with rest or sleep)
- Headaches
- Nausea (feeling of having to throw up)
- Feeling like your ears are plugged
- Complete hair loss on your head that often starts during radiation treatment. Your hair may grow back 2 to 3 months after radiation treatment is done
- Your scalp (skin) may look more red or darker than normal. It may feel warm, dry and itchy

## **Medications**

You may be given medications during your treatment. They do not make your tumour go away. These medications help with the symptoms and side effects that the metastases and treatments may cause.

### **Dexamethasone**

Dexamethasone (or “Decadron”) is a type of medication known as a steroid. When a tumour grows in your brain, your brain can swell (get bigger). Dexamethasone makes the brain around the tumour swell less. Swelling can

happen after surgery or radiation treatments. Swelling in the brain can make your symptoms worse.

Early side effects of dexamethasone include:

- trouble sleeping. Talk to your health care team about taking dexamethasone at a different time (for example, earlier in the day) to help you sleep
- mood changes. You can feel easily bothered, irritated or mad
- increased appetite (wanting to eat more)
- weight gain (due to more water in your body and wanting to eat more). Weight gain is often seen more in the face and stomach
- possible increase in blood sugars. If you have diabetes, this will affect your sugar levels. Tell your doctor if you have diabetes
- trouble fighting infections. You might get more infections. The most common infections are those caused by fungi, such as candida or “thrush”

Side effects with longer use (several months to years) can include:

- muscle weakness. This happens mainly to the muscles at the top of your legs and arms. This can make it hard to get up from a chair or walk up stairs
- thinning skin. This can make you bruise more easily
- acne-type rash
- bone thinning

### **Anti-seizure medication**

You may have seizures because of your tumour. Not all seizures are the same. Seizures can feel like muscle spasms you cannot control, briefly blacking out and other symptoms. Anti-seizure medications prevent you from having a seizure.

Common medications used to help manage seizures include:

- Dilantin (also called “phenytoin”)
- Keppra (also called “Levetiracetam”)
- Valproic acid
- Clobazam
- Vimpat (also called “lacosamide”)

Some common side effects of anti-seizure medication:

- dizziness (feeling light-headed, weak or not steady)
- feeling that thinking is “foggy”, or that you cannot think clearly
- fatigue (feeling tired)
- lack of coordination (problems with balance and movement)
- blurred vision

Talk to your doctor about the side effects specific for your medication. You may need to have blood tests done to make sure you are on the right dose.

### **Anti-nausea medication**

Nausea (the feeling of having to throw up) is a common side effect of brain metastases and cancer treatment. Anti-nausea medications are used to treat nausea (the feeling of having to throw up).

Common medications used to help manage nausea include:

- Gravol (also called “dimenhydrinate”)
- Ondansetron

You and your doctor may prescribe (give) you other medications for nausea.

Some common side effects of anti-nausea medications include:

- dizziness (feeling light-headed, weak or not steady)
- fatigue (feeling tired)
- blurred vision
- dry mouth
- constipation (not being able to poo)

Talk to your doctors and nurses about any concerns or questions you have.

## **What can I expect after treatment?**

It can be hard to know what is going to happen with brain cancer. Here are some questions to ask your doctor:

- How well will my cancer respond to treatment?
- How much will my cancer respond to treatment and by when?

It is also hard to know how your treatment may affect your future symptoms.

Talk to your doctor about what to expect in the future.

There are many support resources to help you. You can learn more about cancer. You can learn how to help yourself and your family. You can also connect to other people who have cancer or had cancer who can help you along your journey. See the Patient Education website at [www.uhnpatienteducation.ca](http://www.uhnpatienteducation.ca) or visit the Princess Margaret Patient and Family Library on the Main Floor of the hospital.



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