

# Brain Metastases

## About the brain

The brain is a remarkable and complex organ and weighs about the same as a large bag of sugar. It controls every single thing you do. It enables you to think, learn, create and feel emotions, as well as controls every blink, breath and heartbeat. Most of the brain's activity is beyond our awareness, and we rely on its huge capabilities every moment of every day to keep our systems working. We process food, regulate our temperature, and make our lungs work without a thought.

When things go wrong in the brain, it can show up in changes in how we behave, move or see, or even in how food tastes to us, depending on where in the brain the problem is.

## Primary cancer

A tumour at the part of the body where cancer starts is called a primary tumour or primary cancer. Cancer can affect any part of the body, including, for example, the liver, the skin, the lungs or the brain. In the case of lung cancer, the primary tumour is in the lung. As the cancer grows, it can affect nearby normal tissue by pressing on it, damaging it or even growing into it.

## Metastases

Sometimes, cancer cells break away from the primary cancer and spread elsewhere in the body, and the cancer can appear in a new location.

The cancer cells travel around the body through the bloodstream or the lymphatic system. When the cancer spreads in this way, the new tumour is called a metastatic or secondary tumour.

Brain metastases are somewhat common in lung cancer. They occur in around 10% of cases of non-small cell lung cancer (NSCLC) and up to 50% of cases of small cell lung cancer (SCLC).

Brain metastases may not currently affect how you feel or what you can do, but they can create various problems, including:

- Headaches
- Feeling sick or nausea
- Lethargy or severe fatigue
- Difficulty moving parts of the body or problems with balance and co-ordination
- Numbness or loss of normal touch and feel sensation
- Mood swings and changes in behaviour
- Fits or seizures
- Confusion
- Trouble reading or talking

How and when these symptoms develop with brain metastases depends on their size and where they are in the brain.

## How Doctors assess brain metastases

Once your doctor suspects that cancer has spread to your brain, whether or not you have symptoms, they may carry out different checks and tests to assess the extent and possible impact of the tumours.

These procedures can help your medical team get a clearer picture of what is going on, and gather more information to help you think about what you want to do next:

- **Careful neurological examination (nervous system tests)**

There are other tests used to check your nervous system, looking for problems that could be linked to having a brain tumour. The tests could include checking:

- hand and limb strength, balance and co-ordination
- reflexes, such as your knee-jerk reflex
- hearing, vision and skin sensation
- memory and mental agility (using simple questions or arithmetic)

- **CT scan (computerised tomography)**

A CT scanner uses X-rays and a computer to create detailed, 3D images of the inside of the body. The scan lasts 10 to 20 minutes, though your appointment may be longer. You will normally be able to go home straight after it and eat, drink and get on with your day.

- **MRI scan (magnetic resonance imaging)**

Magnetic resonance imaging is a type of scan that uses strong magnetic fields and radio waves to create detailed images of the inside of the body.

MRI scans are the current best way to identify and assess brain metastases. You may get an injection of a contrast dye called gadolinium to make images clearer during the scan.

An MRI scanner is a short cylinder, open at both ends. You will lie on a motorised bed that is moved inside the scanner. The scanner is quite narrow and can trouble people who suffer from claustrophobia. The MRI team can explain and help you if that worries you.

When it's working, the scanner makes loud tapping noises. You'll either be given earplugs or some headphones to wear so you can listen to music while the scan takes place. The scan can take up to an hour to complete but is usually much shorter.

If you have a pacemaker, it usually means you are not able to have an MRI. Having something metallic in your body doesn't always mean you can't have an MRI scan, but you should make sure you tell the radiographer if you have a metal plate, an artificial

joint or a cochlear implant, for example.

Overall, the scan is safe and most people can have it.

- **Biopsy (tissue sample)**

Sometimes it will be clear from these tests that there are brain metastases. Sometimes there is doubt about the nature of anything abnormal that is seen and a biopsy or tissue sample will be suggested. This will always be carefully discussed with you by your cancer team. They will explain why this is needed and how it will be performed in your case and how long you will need to be in hospital.

The sample is sent to the hospital's pathologist who examines it closely to identify what type of cancer it is. It may show that the tumour is a primary brain cancer, having developed from brain cells.

However, it may show that the tumour is in fact a secondary cancer that has developed from a primary cancer elsewhere. The tumour may be formed by cancerous cells that have spread (metastasised) for example, from the cancer in your lungs. The results may be ready in a few days though it can take a bit longer. Your medical team will tell you when you can expect to hear.

Knowing what type of cancer it is helps make sure you get the very best treatment for you.

### **The next steps – deciding what's right for you**

Having brain metastases means that your primary lung cancer has spread from its original location. There are a number of options for helping people with brain metastases:

- Commonly the normal brain around a tumour is water-logged or swollen. This is called oedema and worsens the effect of the tumour itself. In that case, doctors usually recommend a course of steroid tablets to reduce the swelling and symptoms tend to improve quite quickly.
- Removal of the tumour is most effective when there is only one seen and when the tumour in other parts of the body appears to be well controlled.
- Radiotherapy and chemotherapy can be used to shrink the tumour and to stunt further growth.

Your team will be working to provide you with the best possible care.

### **An emotion-filled time**

This can be an emotional time. The detection of a brain tumour, whether one or several, is always most upsetting. You will always have some time to decide what treatment is right for you, whether that is on your own or with the support of your family or others close to you.

Together with other aspects of your treatment, your lung cancer team will work hard with you to control any symptoms that are troubling. They will work with you to provide all the support you need and help you make treatment decisions and receive care based on what is most important for you.

This is a good time, if you have not done already, to create a written plan for your future care so that what is done with you and to you is exactly what you want.

### **Care towards the end-of-life**

Many patients living with cancer fear symptoms that can't be controlled and pain towards the end of their life. It is true that brain functions may worsen if tumours do not respond as hoped.

However, with brain tumours, pain and other symptoms are generally well controlled as sleepiness slowly takes over.



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