

## Brain tumours - cancer

Brain cancer affects adults of all ages and is one of the few cancers that occur in children. Most brain tumours are gliomas, which develop from glial cells. Symptoms and treatment depend on which part of the brain is affected.

The brain and spinal cord make up the central nervous system. Brain and spinal cord tumours can be either malignant (cancerous) or benign (not cancerous). Approximately 400 Victorians are diagnosed with cancerous tumours of the central nervous system each year.

### About the brain

The brain controls your thoughts, intelligence, memory and emotions. It coordinates body functions (such as movement, blood circulation and production of hormones) and interprets information from our senses (sight, hearing, smell, touch and taste). It weighs about one and a half kilograms and is made up of nerve cells (neurones).

The nerve fibres run out of the brain and join together to make the spinal cord. Together the brain and spinal cord form the central nervous system. This system helps all the different parts of the body to communicate with each other.

### Primary brain tumours

There are over 100 different types of brain tumours. They are commonly named after the type of cell they come from. Most brain tumours develop from glial cells. These cells grow from the supporting cells of the brain. These tumours are called 'gliomas'.

Some types of brain tumours are malignant (cancerous) and others are non-cancerous (benign).

- **Benign brain tumours** – are often slow growing and are unlikely to spread, but they can press on and damage the surrounding brain tissue. Usually, this type of tumour can be successfully removed with surgery.
- **Malignant brain tumours** – vary in how they grow and respond to treatment. Some are contained inside a capsule and are easy to remove, while others have thin filaments spreading through the brain making them very difficult to take out.

Tumours that begin in the brain are known as primary brain tumours.

### Risks and causes

The causes of primary brain tumour are not fully understood. Researchers around the world are investigating possible causes. We know that brain and spinal cord tumours are more common in people with certain inherited or genetic conditions. They are also more common in people exposed to very high doses of radiation. However, for most people, the cause of their brain tumour is not known.

### Symptoms

Symptoms will depend on which part of the brain the tumour affects. Generally, a growing tumour and swelling brain tissue presses on the brain causing symptoms. Symptoms can include

- Headaches – this is the most common symptom and may be severe and persistent, or come and go
- Seizures (fits)
- Nausea and vomiting
- Difficulty speaking or thinking of words
- Disturbed vision, hearing, smell or taste
- Weakness or paralysis in parts of the body
- Loss of balance
- Irritability, drowsiness or personality changes
- Loss of consciousness.

It is important to remember that headaches and feeling sick are very common symptoms of many illnesses. If these are the only symptoms you have, it is very unlikely that you will have a brain tumour. Always see your doctor if symptoms persist.

### Diagnosis

If your GP suspects a brain tumour, you will be referred to a specialist doctor called a neurologist or neurosurgeon. Some of the tests they will do may include:

- **Neurological examination** – such as checking your muscle strength, reflexes, memory and your ability to tell hot from cold on your skin (sensation tests).
- **Eye test** – the optic nerve, which connects the eye to the brain, tends to bulge a little if a tumour is present.
- **CT scan** – three dimensional x-rays. A dye will be injected or swallowed if you are having a full body scan, so that anything unusual will show more clearly.
- **Magnetic resonance imaging (MRI)** – similar to a CT scan, but magnetism instead of x-rays is used to create a picture. This test will almost certainly show up any brain tumour.
- **X-rays and blood tests** – to test your general health.
- **Angiogram** – injected dye is x-rayed as it flows through the blood vessels of your brain. This is not done for all types of brain tumours.

There may be other scans and tests that you will need to help diagnose your tumour. This will depend on the type of tumour you have and whether or not it has spread to other parts of the body.

Test results can take a few days to come back. It is very natural to feel anxious waiting to get your results. It can help to talk to a close friend or relative about how you are feeling. You can also contact your local cancer information and support service.

### Treatment

Treatment aims to remove the tumour or at least slow its growth and relieve the symptoms. Some of the treatment options include:

- **Surgery** – some tumours can be completely removed. In other cases, a tumour may have spread throughout the brain and may be very close to important structures in the brain. In this case, only pieces of it can be removed.
- **Radiotherapy** – using x-rays to kill cancer cells. In children, low doses are used because the x-rays can slow a child's development and growth. Treatment is carefully planned to do as little harm as possible to normal body tissues.
- **Chemotherapy** – using anti-cancer drugs to stop the cancer cells from multiplying. Chemotherapy is rarely used for adults, but often used for children because of the possible side effects of radiotherapy.
- **Steroid therapy** – drugs to reduce the swelling around the tumour. These do not treat the tumour itself but they do help to relieve the swelling and pressure caused by the tumour.

All treatments have side effects. These will vary depending on the type of treatment you are having. Many side effects are temporary but some may be permanent. Your doctor will explain all the possible side effects before your treatment begins.

### Spinal cord tumours

These are rarer than primary brain tumours. There are a few different types of spinal cord tumours. How successful treatment is will depend on the type of tumour.

### Secondary brain tumours

Many malignant brain tumours are 'secondary cancers'. This means they developed from a cancer that began elsewhere in the body. For example, breast cancer cells may spread to the brain and cause a tumour. This is known as breast cancer with brain secondaries.

The symptoms of secondary brain tumours are similar to those of a primary tumour, but they are treated differently.

### Where to get help

- Your doctor
- The Cancer Council of Victoria Information and Support Line Tel. 13 11 20

- Multilingual Cancer Information Line, Victoria – see the Cancer Council Victoria website for contact details

### **Things to remember**

- Brain tumours can be either malignant (cancerous) or benign (not cancerous).
- Malignant (cancerous) brain tumours affect adults of all ages and are one of the few cancers that occur in children.
- Symptoms and treatment will depend on which part of the brain is affected.
- Many malignant brain tumours are secondary cancers, which have similar symptoms to those of a primary tumour but are treated differently.

### **This page has been produced in consultation with, and approved by:**

Cancer Council Victoria

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