



Brain tumours and cancer

Brain tumours can affect brain function in a number of ways and to varying degrees, depending on where they grow and how severe they are.

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An overview of brain tumours and brain cancer

There are more than 100 types of brain tumours, which are broadly categorised according to:

- where they originated
- whether they are cancerous or benign, and
- how fast or slow they grow and invade surrounding brain tissue.

They are graded on a scale of one to four (I to IV), from benign and slow growing (I) to the most malignant and aggressive (IV).

Primary brain tumours originate in the brain and can be cancerous or benign. It is very rare for these tumours to spread to another part of the body.

Secondary brain tumours are cancerous tumours that started as cancer in another part of the body and spread to the brain through metastasis. Some common examples are lung, breast and skin cancer.

Brain cancer refers to all brain tumours that are cancerous, regardless of where they first appeared.

Treatment

Surgery is used to remove brain tumours as long as it is considered safe to do so. Radiotherapy and chemotherapy can be used to try and destroy any sections left behind. If the tumour is in a position where surgery is life threatening or could cause too much damage, radiation is used as a treatment. Immunotherapy can also be used as a way to fight the cancer through boosting the body's natural immune system.

Symptoms

Growing tumours put pressure on the brain and can block the fluid surrounding it, which then builds up and creates swelling. This can lead to a wide variety of symptoms, even in the long-term. Treatments, while often alleviating symptoms, can also be among the causes. The most common symptoms are:

- headache
- nausea and vomiting
- cognitive difficulties (e.g. memory, planning, general attention)
- weakness
- impaired coordination (e.g. clumsiness, difficulty walking)
- seizures
- vision or hearing problems
- emotional and behavioural changes (e.g. mood swings, depression)

The type of tumour and its location will determine the effect it has on particular brain functions. For example, if the temporal lobe is affected, then memory, hearing and language might be impaired. If the tumour has an impact on the frontal lobe, decision-making, planning and movement can be affected.

Brain tumours and brain cancer in children

Children with brain cancer or benign tumours are treated differently to adults because of the effect treatment can have on their development. Surgery remains the first choice of treatment if possible. Chemotherapy is usually chosen over radiotherapy as a follow up or replacement therapy because of the long-term effects radiation has on developing brains. For this reason, radiotherapy is not recommended for children under three years of age, and only given to older children when tumours don't respond to chemotherapy.

Children experience a similar wide range of symptoms, which vary according to age. They can include:

- vomiting
- headaches
- problems with balance, walking and coordination
- abnormal eye movement
- change in behaviour (e.g. lethargy)
- seizures
- abnormal head position (e.g. wry or stiff neck)

All the symptoms listed overlap with many medical conditions and are not necessarily an indication of brain tumours or brain cancer.

References and Further Information

Australian Institute of Health and Welfare – Brain and other central nervous system cancers

Queensland Brain Institute – Brain cancer

National Cancer Institute – Childhood Brain and Spinal Cord Tumors Treatment Overview (PDQ®)– Patient Version

Australian Government, Cancer Australia, Children's Cancer – Treatment

Cure Brain Cancer Foundation – Headsmart