

# Low-grade glioma

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Information sheet 03

## Introduction

Our information on low-grade gliomas will help you talk with your doctor or medical team about your condition. It should not be used as a substitute for professional care.

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## What is a glioma?

The brain is made up of nerve cells (neurons) and supportive tissue (glia). Supportive tissue is made up of three cell types:

- astrocytes, which provide the brain's framework and help control the chemistry of brain cells
- oligodendrocytes, which help as insulators in the transmission of messages in the brain
- ependymal cells, which line the cavities in the brain

Most primary brain tumours start in the supportive tissue and are collectively called gliomas.

- Gliomas can be separated further depending on the type of cell where it started:
  - Astrocyte – astrocytoma
  - Oligodendrocyte – oligodendroglioma
  - Ependymal lining cell – ependymoma
  - Mixed cell tumours
  - The World Health Organisation grades astrocytomas into four grades. Grade 1 tumours are the least malignant and Grade 4 are the most malignant. Pilocytic astrocytoma is graded as 1 and astrocytoma and oligodendroglioma are graded as 2. Together these grades are called low grade gliomas.
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## How common are gliomas and who gets them?

There are about eight new cases of primary brain tumours diagnosed for every 100,000 people every year.

This means there are about 4,500 new cases in the UK each year. About 20% of these brain tumours are low grade gliomas. Doctors do not know what cause them and they do not appear to be hereditary. There also does not appear to be a link between brain tumours and the type of work you do, infections or head injury.

- Pilocytic astrocytoma mostly occurs in children in the cerebellum or brain stem, but a third occur in the cerebral hemispheres.

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- Astrocytomas account for 10% of adult primary brain tumours and most are in the frontal lobe.
  - Oligodendrogliomas account for 5% of gliomas. They often contain both oligodendrocytes and astrocytes and are called 'mixed glioma'. They occur most frequently in young adults, but in rare cases also occur in children and the elderly.
  - Ependymomas occur most frequently in children in the brain stem and occasionally in the ventricles (fluid filled sacs in the brain).

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## What are the common symptoms?

The symptoms depend on how big the tumour is and where it is in the brain. Symptoms may be different for each person.

A brain tumour that is slow growing, like a low grade glioma, may be present for many years without any symptoms. The first signs are usually seizures or headaches. Eighty to 90% of people with low grade gliomas have seizures. You may also have numbness or weakness.

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## How is a low grade glioma diagnosed?

Once doctors suspect you have a brain tumour, you will have to undergo a thorough neurological examination as well as, some or all of the following tests.

- **CT Brain scan (Computed Tomography)** is a specialised X-ray. It will take 10-20minutes.
- **MRI Brain scan (Magnetic Resonance Imaging)** is a specialised imaging technique that gives very clear pictures of the brain and will show where and how big the tumour is. It usually takes 30-40 minutes and uses magnetism instead of X-rays. People with pacemakers cannot have this test and those with any other metallic implants should tell the doctor well before the test.
- **EEG (Electroencephalogram)** measures the electrical activity coming from the brain. It does not use pictures but tells a little about how the brain is working. It is often used to confirm epilepsy.

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## Can my glioma be treated?

Your doctor will plan your treatment with you, considering your general health, your symptoms, how big the tumour is and where it is in the brain.

### Surveillance

With many low grade gliomas the best treatment is to keep an eye on the tumour with regular CT or MRI scans. If the tumour is not causing any symptoms, surgery could do more harm than good, as operations always could be risky.

The tumour may remain unchanged for many years and not cause any problems. If the tumour grew bigger or caused symptoms, you may wish to talk to your doctor about other forms of treatment.

### Surgery

Tumours may be operated on if they can be reached without a high risk of causing severe damage to the brain. Or, if it is suspected that the tumour is beginning to transform into a higher grade, a biopsy may be taken to provide a diagnosis for further treatment.

Low grade gliomas can sometimes not easily be reached by surgery. In these cases, a biopsy – examination of a small sample of the tumour – may be done to help diagnose the tumour.

In some cases an awake craniotomy, where you are awake, but pain free and sedated during your operation may be used to help reduce the risk of damage to important areas of the brain.

Surgery is usually not possible when the tumour is in an area of the brain that controls breathing, thinking or movement.

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## Radiotherapy

This is the use of high energy X-rays to destroy tumour cells. It may be done after surgery, depending on where the tumour is, how big it is and the symptoms.

For further information <http://www.braintumouruk.org.uk/radiotherapy-overview>

## Chemotherapy

Chemotherapy is treatment with drugs that destroy tumour cells. It is usually not necessary for this type of tumour.

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Brain Tumour UK is the leading, caring charity committed to fighting brain tumours. Our personalised support is available online, on the phone, by email and through our support groups. Our scientific research improves the quality of life for brain tumour patients and identifies better treatments. We raise awareness to change things for the better, for everyone affected by a brain tumour.

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