

Meningioma (in adults)

What you need to know



Almost a quarter of all brain tumours in adults are meningiomas.

They occur most often in older people (aged 50+) and in women.

They're very rare in children.



CARE CAN'T WAIT

If you'd like to talk to someone about how you're feeling, or would like to find out where you can get further support (including details of support groups), you can contact The Brain Tumour Charity's Information and Support Team:

Phone: **0808 800 0004**

(free from landlines and most mobiles)

Email: support@thebraintumourcharity.org

Live chat: thebraintumourcharity.org/live-chat

Website: thebraintumourcharity.org/getsupport

Closed Facebook groups:

thebraintumourcharity.org/facebook-support

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What is a meningioma?

A meningioma (pronounced men-in-gee-oh-ma) is a tumour that grows in the set of 3 membranes just inside the skull, called the meninges. The function of these membranes is to cover and protect the brain and spinal cord.

You may hear the names of the individual membranes. They're called the dura mater, the arachnoid mater and the pia mater (see diagram on next page).

Types of meningioma brain tumour

Brain tumours are generally graded from 1-4, according to what they look like under the microscope and their behaviour, such as how quickly they're growing.

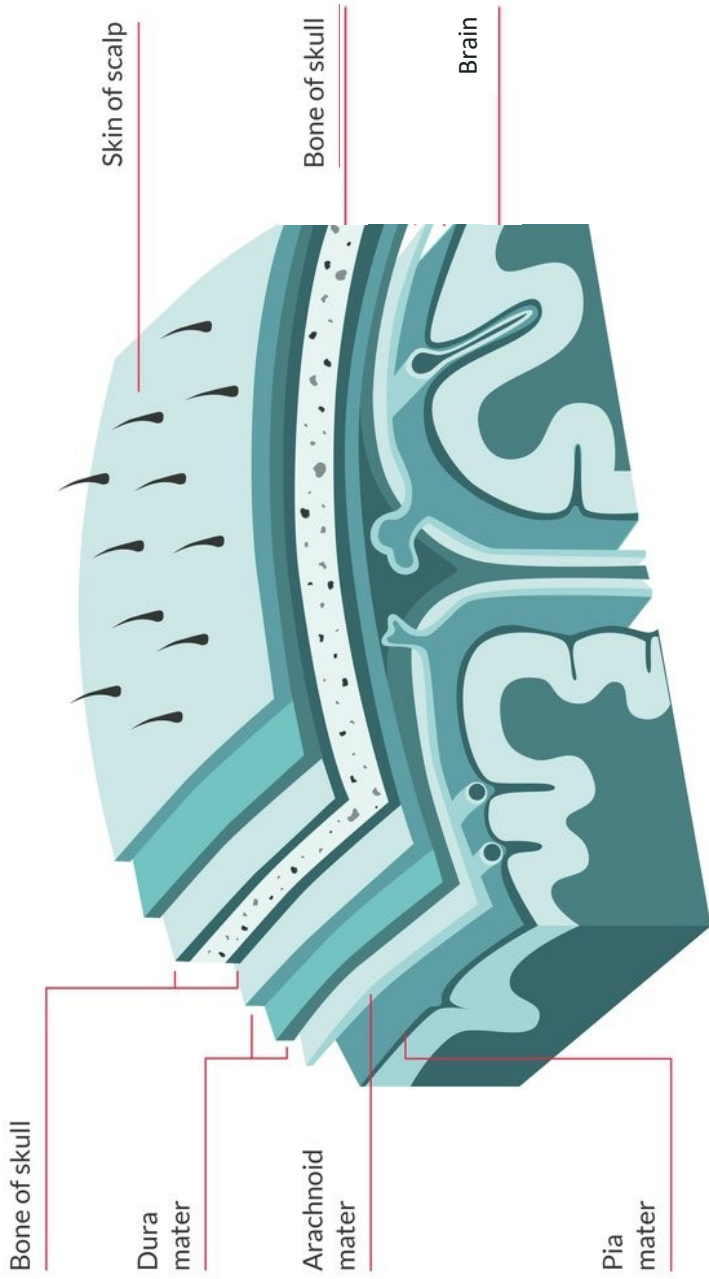
Meningiomas can be graded 1, 2 or 3. There are no grade 4 meningiomas.

Grade 1 meningiomas are slow growing and less likely to return after treatment.

Most meningiomas are grade 1. They may not cause symptoms for many years and may not need immediate treatment.

Grade 2 meningiomas are slow growing, but may be more likely to come back (recur) after treatment, possibly as a higher grade.

Grade 3 meningiomas are a very rare type. They're faster growing and have a higher chance of returning after treatment.



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Meninges – the layers of membranes that cover and protect the brain.

Within these grades, there are different types of meningioma, which you may hear at your diagnosis or during consultations with your healthcare team.

Grade 1

- Meningothelial meningioma
- Fibrous (fibroblastic) meningioma
- Transitional (mixed) meningioma
- Psammomatous meningioma
- Angiomatous meningioma
- Microcystic meningioma
- Secretory meningioma
- Lymphoplasmacyte-rich meningioma
- Metaplastic meningioma.

Grade 2

- Chordoid meningioma
- Clear cell meningioma
- Atypical meningioma.

Grade 3

- Papillary meningioma
- Rhabdoid meningioma
- Anaplastic meningioma.

For more information about brain tumour grading, see our webpage:

thebraintumourcharity.org/how-brain-tumours-are-graded/



Although most meningiomas are low grade (mainly grade 1) and slow growing, some don't behave as expected and can grow quicker than others.

What are the symptoms and side-effects of a meningioma?

Meningiomas can often be present in the brain without causing any symptoms for many years. Symptoms usually begin gradually, as they gently push and compress brain tissue, rather than invading it.

Symptoms may include:

- headaches
- sickness (vomiting)
- weakness in an arm or leg
- loss of hearing
- loss of eyesight
- personality changes
- being confused
- seizures (fits).

However, as with other brain tumours, the symptoms will depend on which part of the brain is affected.



For more information about symptoms based on tumour location in the brain, see: thebraintumourcharity.org/brain-tumour-signs-symptoms/brain-tumour-location-symptoms/



Susan's story

"Five years ago when I was diagnosed, I felt like my life was over, but now, despite everything, I'm really happy.

"It can be easy to think a diagnosis means your life is over, but there are still happy times to come.

"If you're struggling, don't give up - find a goal, something to move forward for, and go for it.

"All any of us have is right now, and you have to keep picking yourself up and moving forwards."

How are meningiomas treated?

Single meningiomas

Single meningiomas are treated mainly according to their grade, but their size, location and symptoms will also affect the treatment you're offered.

Multiple meningiomas

Sometimes people may have more than 1 meningioma. Treatment for multiple meningiomas may be different, as the tumours may be of different grades and have different growth rates.

If this is the case, some treatments, such as active monitoring (see page 10 of this booklet) may not be suitable.

Surgeons prefer not to perform repeat surgery, as any surgery carries some risk, but if your tumour comes back or you have more than 1 tumour, surgery may be considered depending on your general health and the growth rate of your tumours.

With multiple meningiomas, there's also the possibility of stereotactic radiosurgery. (See page 12 of this booklet.)

Your healthcare team should discuss these options with you.

Grade 1

Active monitoring (often called watch and wait)

Active monitoring is frequently the treatment approach used for grade 1 meningiomas.

This is the active monitoring of your condition, without giving any immediate treatment, unless symptoms develop, or worsen, or your scan changes.

If you're on active monitoring (watch and wait), you'll see your specialist for regular check-ups/MRI scans, usually every 3, 6 or 12 months.

You may only begin treatment if:

- there's a marked increase in tumour size
- you develop symptoms, or worsening of symptoms, that badly affect your quality of life
e.g. uncontrollable seizures
- the tumour becomes a higher grade (starts growing more quickly).



Depending on your tumour and age, your need for treatment could take many years to happen, or may not happen at all.

Why is active monitoring used?

If your tumour is low grade, only growing very slowly and it's causing no, few or controllable symptoms that you feel you can live with, active monitoring it has the advantage that you don't need to have brain surgery with all its risks and side-effects. Find out more at:

thebraintumourcharity.org/watch-and-wait/

You may find not having any treatment difficult at first, but people usually find it gets easier with time.

Your healthcare team or our Support Line can give advice on coping.

Or you may find it helpful to talk to others in a similar situation by joining one of our closed Facebook groups.

thebraintumourcharity.org/facebook-support-groups/

If you find you're getting anxious around the time of your scans, you may find our Scanxiety webpages useful:

thebraintumourcharity.org/scanxiety-adults/

thebraintumourcharity.org/scanxiety-children/

Surgery

Surgery may be offered after a period of active monitoring or it can be offered straight away after diagnosis. It's generally offered if the tumour is causing, or likely to cause, problems or symptoms that affect your day-to-day living. This will partly depend on its size and location within the brain.

It may be the only treatment needed, especially if all of your tumour can be removed.



For more information about neurosurgery, see our webpage and fact sheet.

thebraintumourcharity.org/treatments/neurosurgery-adults/

Radiotherapy

Radiotherapy may be used in the following circumstances:

- If all of your tumour can't be removed, then radiotherapy may be used after surgery.
- If the tumour is in part of the brain which means it's not possible to operate on (non-operable).
- If your tumour has come back (is a recurrent tumour).

If your tumour can't be operated on, a type of radiotherapy called stereotactic radiosurgery (SRS) or stereotactic radiotherapy (SRT) may be used instead of conventional radiotherapy.

SRS and SRT allow high doses of radiation to be given to a very focussed, precise area. This means it can be used instead of surgery to avoid crucial parts of the brain. It's only suitable for small tumours (less than 3cm at the widest part).



**For more information on radiotherapy,
see our webpage and fact sheet:**

**[thebraintumourcharity.org/treatments/
radiotherapy/](http://thebraintumourcharity.org/treatments/radiotherapy/)**

**and our Stereotactic radiotherapy
webpage and fact sheet:**

**[thebraintumourcharity.org/treatments/
stereotactic-radiotherapy/](http://thebraintumourcharity.org/treatments/stereotactic-radiotherapy/)**

Getting a second opinion

If you're uncertain about the decision to put you on active monitoring (watch and wait), even after talking to your healthcare team, you can ask your consultant or healthcare team for a second or further opinion, either on the NHS or privately.

Although there isn't a legal right to have a second opinion, a health professional will rarely refuse to refer you for one. Healthcare professionals are used to being asked about a second opinion - they won't be offended, nor will your care be affected.

For more information, see our webpage on Getting a second opinion:

thebraintumourcharity.org/second-opinion/

If you're having difficulty getting referred for a second opinion, you can call our Support Line on:

- 0808 800 0004
- email support@thebraintumourcharity.org
- Or get in touch with us online via **thebraintumourcharity.org/live-chat**

The Patient Advice and Liaison Service (PALS) in your hospital or your local citizens' advice service (CAB) may also be able to offer advice.

Grades 2 and 3

Surgery and/or radiotherapy

The treatment for grade 2 and 3 meningiomas is usually surgery (where possible), followed by radiotherapy.



For more information on neurosurgery, see our webpage and fact sheet.

thebraintumourcharity.org/treatments/neurosurgery-adults/

For more information, on radiotherapy, see our webpage and fact sheet:

thebraintumourcharity.org/treatments/radiotherapy/

and our Stereotactic radiotherapy webpage and fact sheet:

thebraintumourcharity.org/treatments/stereotactic-radiotherapy/

Chemotherapy

Chemotherapy is rarely used in the treatment of meningiomas, as meningiomas are very resistant to currently available chemotherapies.

Chemotherapy may still be used in some circumstances, such as a high grade meningioma (grade 3) recurring after surgery or radiotherapy.



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Elena, a ballerina's story

"After receiving such scary news, talking about it all is paramount.

"Get as much honest advice and direct information as you can from your medical team.

"Think about the pros and cons of surgery, as well as any possible side-effects. This helped me to prepare for potential hurdles which I may have had to overcome.

"Also I can't reiterate enough how important it is to listen to your mind and your body. Take time to rest. Although life goes on and staying positive will help, we're not invincible. Take a couple of steps back as and when you need to."

Questions you may want to ask your doctor

- What is the grade of my meningioma? What does this mean?
- How many patients with a meningioma do you treat each year?
- What are my treatment options?
- What treatment plan do you recommend? Why?
- What is the goal of each treatment? Is it to get rid of the tumour, to help me feel better, or both?
- What are the potential complications of each treatment?
- Are there long-term complications I should know about?
- Do I need to have treatment now?
- Do I need to make a decision about my treatment straight away? How long can I wait?
- What support services are available to me? To my family?
- If I have any questions or concerns at any stage, who is my key worker/specialist nurse and how do I get in touch with them?
- Are there any printed materials or leaflets that I can take with me? What organisations do you recommend?

Other questions you may have

What causes meningiomas?

As with most brain tumours, it's still not known exactly why meningiomas begin to grow.



There's no evidence to suggest that the tumour could have been caused by anything you've done (or not done).

How do meningiomas develop?

Meningiomas, like all brain tumours, are the result of uncontrolled growth of brain cells.

Normal cells grow, divide and die in a controlled way, in response to signals from the genes present in all your cells. These signals, along with checkpoint proteins, work together to tell a cell when to grow and when to stop growing.

When a cell divides, mistakes can sometimes be made when copying the genes into the new cell. Mistakes (mutations) in specific genes of a cell can make the cell behave as if it's receiving a growth signal, even if it's not, or can deactivate the checkpoints that would normally stop the cell from dividing.

As a result, any cells affected will continue to divide and can develop into a tumour.

A great deal of research into the possible causes of meningiomas is focussing on our genes and the molecular changes that can occur in our cells.

A number of risk factors have been identified.

Risk factors

A risk factor is something that increases your chance of developing a tumour, but most do not directly cause the tumour.

This means that some people with several risk factors may never develop a tumour, while others with no known risk factors do develop a tumour.

Age

Meningiomas are more common in people aged over 50, and particularly in people over 65 years.

Gender

Low grade meningiomas are more common in women. It's thought that this may be linked to female hormones.

(See **Hormones** risk factor below)

(Higher grade meningiomas [grades 2 and 3] are equally common in men and women.)

Hormones

As well as meningiomas being more common in women, it's been noted that meningiomas can grow faster during pregnancy. Some studies have also suggested a link between breast cancer and meningioma risk.

In addition, it's been found that some meningiomas have specialised cells (called receptors) that interact with the female hormones, progesterone and oestrogen. This has led doctors to believe that female hormones may play a role in increasing your risk of developing a meningioma.

Research is looking at the role of hormones in the growth of meningiomas to understand the significance of this.

Radiation treatment

Exposure to radiation, particularly to the head and particularly in childhood, may increase the risk of developing a meningioma later in life. This could include accidental exposure to radiation or radiation therapy as a treatment for various medical conditions.

Obesity

Women who are obese, i.e. have a body mass index (BMI) of 30 or more, have a 60% higher risk of developing a meningioma than women who are normal weight (BMI 18.5–24.9).

This is thought to be due to the fact that fatty tissue produces hormones such as oestrogen. (See Hormones risk factor above.)

The risk of meningioma in men is not linked to their BMI.

Genetics

A small number of meningioma brain tumours occur as a result of rare genetic conditions. For example, the rare condition neurofibromatosis type 2 (NF2) causes (usually low grade) tumours to grow along the nerves, including those in the brain and spinal cord. As a result, it's known to increase the risk of developing brain tumours, including meningioma.

How are meningiomas diagnosed?

Meningiomas can usually be diagnosed using a scan or scans. This means that a biopsy (an operation to remove a small piece of the tumour) is rarely needed to get a diagnosis.

Usually you'll be given an MRI scan, as these can provide detailed images of the brain and the tumour from which the grade of tumour can usually be diagnosed.

You may also be given a CT scan to see if the tumour has affected the bone of the skull or whether the tumour has calcified. Calcified meningiomas tend to grow very slowly, if at all.

Usually CT and MRI scans can now provide enough information for a surgeon to also plan an operation to remove the tumour, if this is the recommended treatment. (See section: How are meningiomas treated? on page 9.)



For more information about scans, see thebraintumourcharity.org/scans-adults/

About this information resource

All of our information is produced using robust processes, which follow best practice and quality guidelines of health information production, to ensure accuracy and reliability.

Written and edited by our experienced Information and Support Team, the accuracy of medical or other specialist information in this resource has been verified by leading professionals specialising in relevant areas of expertise.

Our information resources have been produced with up-to-date, reliable sources of evidence, as well as the assistance of members of our community, to make sure it makes sense to everyone and includes the information they want to see.

We hope that this information will complement the medical or social care advice you've already been given. Please do continue to talk to your healthcare team if you're worried about any medical issues.

If you'd like a list of references for any of our information resources, or would like more information about how we produce them, please contact us.

We welcome your comments on this information resource, so we can improve. Please give us your feedback via our Information and Support Team on 0808 800 0004 or [**support@thebraintumourcharity.org**](mailto:support@thebraintumourcharity.org)

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About The Brain Tumour Charity

Going further for a cure

As the UK's leading brain tumour charity, we're here to accelerate a positive change in how people affected by brain tumours are diagnosed, supported and cured.

At The Brain Tumour Charity, we believe that no-one should have to live with a brain tumour or lose a loved one to a brain tumour. Advances in both treatments and quality of life care need to be made - and they need to be made quickly.

We know that if we put our heads together, we're more than up to the challenge. So we're building a movement of people from every walk of life - all coming together to accelerate a cure.

Find out more and get involved:
thebraintumourcharity.org



**WE'RE
HERE FOR YOU
AT EVERY STEP**

thebraintumourcharity.org

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