

What is skull base meningioma?



Image supplied by Andrea Wadeson



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You have been diagnosed with a skull base meningioma.

This is a benign (non cancerous) tumour that arises from the protective lining of the brain (the meninges) at the base of the skull

There are many different areas that these tumours can arise from within the skull base and your surgeon or specialist nurse will give you more details about your specific tumour.

The vast majority of meningiomas are slow growing with an average growth rate of 1-2mm per year. Some do not grow at all.

It is understood that meningiomas make up at least one quarter of primary brain tumors. Meningiomas do not spread to other areas of the body.

Meningiomas are rare tumours but the prevalence is thought to be 1:38,000.

They are found more frequently in women and in people over 40 though some patients under this age will be diagnosed with a meningioma.

What has caused your meningioma

As with most brain tumours, the cause of meningioma is almost always unknown. A small number of patients may develop a meningioma following radiotherapy to the brain/head. This is rare and happens many years after radiotherapy treatment.

Another potential but uncommon cause could be a genetic condition. Your surgeon will discuss your specific case with you.

What are the symptoms?

Symptoms vary depending on the location of the tumour. Not all patients will have symptoms and some tumours may have been found incidentally during routine scanning for another complaint.

Many symptoms relate to compression of cranial nerves as they pass through the skull base.

- Common symptoms include:
- Imbalance
- Hearing loss
- Changes or deterioration in vision
- Change or loss of smell
- Changes in facial sensation or, less commonly, movement
- Swallowing difficulty
- Change in voice sounds

Less commonly patients may experience symptoms such as headache, poor co-ordination, change in personality, confusion and memory loss and seizures.

What tests will I have?

Diagnosis of a meningioma is usually made from a scan. This may be a CT scan (a computerized tomography scan) or an MRI scan (a magnetic resonance imaging scan).

Dependant on your symptoms, you may also be sent for other investigations such as blood test, visual tests, hearing tests or a small camera to look at your throat. Each test will be explained in full if required.

As the majority of the tumours are slow growing there is often no need to carry out further investigation as a matter of urgency.

What are the treatment options?

Treatment varies according to individual circumstances such as tumour size, growth, location, symptoms and your health.

There are three treatment options which will be considered for any meningioma:

1. Active monitoring with follow-up scans
2. Surgery
3. Radiotherapy

Such treatment options will always be discussed in a multidisciplinary team (MDT) meeting, although the final decision is always one which will be decided by you in conjunction with your treating team.

The MDT (multidisciplinary team) meets every 2 weeks to discuss each individual case. This means that you will get the benefit of many expert opinions as to the appropriate treatment for you. More information about our MDT can be found in the separate patient information leaflet about it.

Some patients may be appropriate for continued observation and may have periodic scanning with a CT or MRI scan. This may be because your tumour is stable (not growing), you have no symptoms or because surgery or radiotherapy would not be beneficial. Your surgeon will discuss this with you in more detail.

Surgery is often the first mode of management for meningioma. Surgery is very different dependant on where your tumour is and the risks of surgery are likely to vary dependant on approach and tumour location.

Anterior skull base meningiomas (those at the front of the head) are likely to be approached via an incision around the hairline of your forehead. This may be right along the hairline (from one side of the forehead to the other) or part way across.

Your surgeon or specialist nurse will discuss this in greater detail if you wish.

Symptoms and risks of this approach also vary but may include changes in vision, smell, taste, hormone function, swelling around the forehead and eyes, seizures and potential changes to personality. Many symptoms are temporary and many are low risk but your surgeon will discuss these in greater detail.

Some anterior skull base meningiomas can be accessed through the nose (transphenoidally). This is carried out via an endoscope passed up the nose and is minimally invasive.

It is generally carried out by a neurosurgeon and an ENT (ear, nose and throat) surgeon, working jointly. Many patients will be able to go home 2-3 days after surgery.

Symptoms and risks are similar to those described above though many patients also find they have nasal and sinus congestion for a few weeks following surgery. You will be given a nasal spray and pain medication to aid this.

Meningiomas in the posterior skull base (toward the back of your head) are likely to be approached via an incision behind or above the ear or toward the back of the head itself. Again, your specific approach will be discussed with you.

Symptoms and risks of this approach also vary but may include changes to balance, hearing, facial movement, facial sensation, coordination, swallow and voice. Again, symptoms are often temporary and low risk but will be discussed specifically with you.

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With any surgical approach there may be some more significant risks of bleed, stroke, blood clot next to the brain or death. These risks are usually very small (1% or less) and the surgeon will discuss your individual case and associated risks.

There is also a small risk associated with the fluid that cushions the brain (CSF) leaking from your wound, nose or ear after surgery. This occurs in around 3-4% of cases and should be dealt with quickly. Whilst on the ward, the team will observe for leaking. We will also give you instruction on what to do if this occurs at home and who to contact.

Rarely, this leak can lead to an infection within the fluid and affect the lining of the brain. This is called meningitis and is usually treated successfully with intravenous antibiotics but you may feel unwell with headaches, sickness and feeling very tired for several days.

There are also risks of wound infection which occur in around 1-2% of patients. Again, this can usually be treated relatively quickly with intravenous antibiotics.

Any complication will extend your recovery period though we will continue to discuss this with you throughout your stay.

Most patients will stay in hospital between 4-8 days depending on surgical approach. All patients will spend at least one night on the high dependency ward where you will have lots of wires and tubes attached.

This is just so that we can monitor you closely and may include a catheter (a tube to take your urine away), a fluid drip and wires to measure your pulse and blood pressure. You will have a dressing or a bandage on your head.

It is vital that we observe you closely at first and will be waking you and asking you questions very regularly over the first day or so.

Once the team is happy that you are stable, usually the day after surgery, you can be moved to a general neurosurgical ward where your recovery will continue. Though you may feel very tired, nauseous or have a headache we will encourage you to get out of bed with the staff of physiotherapist as soon as possible.

You should be able to eat and drink as you feel able unless you have any swallowing difficulties. This will be discussed with you.

Generally patients are starting to feel better after 2-3 days and are able to manage their own hygiene and mobility needs.

We would expect you to be able to go home once you are mobile independently and your medical needs are stable.

Some patients may require ongoing rehabilitation on another ward or in a hospital closer to home. This will be discussed as necessary.

It is very common to be tired for several weeks or even months after the surgery though generally patients are able to get back to a good level of activity within 3-4 months.

If you have any of the symptoms described previously your surgeon or specialist nurse will discuss the expectations of recovery with you specific to your case.

It is important to return to normal activity slowly over a 5-6 weeks period. This means you should refrain from strenuous activity such as lifting heavy objects, bending excessively or straining.

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You should try to do very little in the first 2 weeks with a gradual re-introduction of gentle activity such as walking over the following few weeks.

Driving will be discussed on an individual basis and you may need to take a period of time off driving. You may also need to let the DVLA know.

We would advise that you return to work after 3 months though feel free to discuss this with your team.

Radiotherapy can be given to patients either as a primary treatment for their tumour (without prior surgery) or after surgery if this is necessary. Your surgeon will discuss your specific treatment plan with you.

The aim of radiotherapy is to stop the DNA in the cells from reproducing whilst limiting damage to surrounding structures.

It does not take the tumour away but should stop it from growing further. It is highly successful at controlling meningiomas after surgery but not all patients will require radiotherapy following tumour removal. This is usually only appropriate for patients whose meningioma is atypical on histology.

Control of meningiomas with radiotherapy alone is still very successful but may only be appropriate for patients where surgery can not be carried out. This will be discussed with you in clinic. We have specialist clinical oncologists who plan and manage patients requiring radiotherapy.

The type of radiotherapy that you receive will be dependant on your specific circumstances.

Fractionated IMRT radiotherapy works by dividing up of the radiation dose. Meningiomas are normally treated with between 30 and 33 fractions

which are given daily, five days a week, over six weeks. This dosage means there is a higher chance of the tumour cells being hit by the radiation when they are most vulnerable i.e. when they are dividing, and it also gives the normal cells a chance to recover between treatments, so a higher total dose can be given than in just a single treatment.

Stereotactic radiosurgery (SRS) is radiotherapy that can be given as a single treatment or occasionally as a number of treatments when it is known as fractionated SRS.

The machine used to deliver the radiotherapy produces high energy x-ray photons which can be delivered in a very accurate way. The machine only produces radiation when it is actually switched on so there is little radiation hazard associated with these machines.

SRS is not appropriate for all patients due to the location of your tumour and the effect of the high volume of radiation on structures such as the optic nerve and brainstem. Your specific case will be discussed with you.

There are side effects of radiotherapy which may vary dependant on tumour location. They are usually minimal and most patients can continue normal activity through the treatment.

You may experience tiredness for several weeks after treatment. You may have some hair loss though this only occurs in the treated area and normally is not permanent.

You may have some nausea but this is can be controlled with medication.

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