

Patient information

Skull Base Meningioma

Head and Neck Department - Aintree Hospital

What is Skull Base Meningioma?

A meningioma is a type of tumour that grows from the protective membrane (The meninges) which cover the brain and spinal cord.

A skull base meningioma is one that grows at the base of the skull.

There are many areas within the skull base region where a tumour may occur. Your surgeon or specialist nurse will give you more details about your specific tumour.

Meningiomas in general are slow growing tumours which do not spread elsewhere in the body. The vast majority have an average growth rate of one-three mm per year and some do not grow at all. Because of this not all need to be treated immediately.

However, if your meningioma is very large, causing a lot of pressure on adjacent brain or nerves, it may need to be treated sooner.

Meningiomas can be split into three grades based on their appearance under the microscope

Grade 1 – The most common type of Meningioma. Very slow growing tumour which is less likely to return following treatment.

Grade 2 – Slow growing tumour, however more likely to recur following treatment.

Grade 3 – Fast growing, aggressive in nature, likely to recur following treatment.

What has caused my meningioma?

For most people with a meningioma the cause is unclear. These tumours are most commonly found in middle-aged or older people, and in particular women.

It is recognised that there may be a link between some female hormones and rate of growth, although further research is currently looking into this.

A rare genetic condition called Neurofibromatosis type two is linked to a higher risk of developing a meningioma. If your consultant feels that you need any further investigations for this condition, they will discuss this with you during your outpatient clinic appointment.

In a very small number of patients, a meningioma may develop where radiotherapy to the head or spine has previously been given. This is rare and happens many years after the radiotherapy treatment.

What are the symptoms?

The symptoms of a meningioma depend on the size and location of the tumour. They usually develop as a result of compression of surrounding structures such as the brain, vessels or cranial nerves.

Meningioma tumours commonly grow inward, indenting and causing pressure on the brain or spinal cord. Occasionally, cranial meningioma's can involve the adjacent skull, causing thickening of the adjacent bone (known as hyperostosis).

Patients may experience a variety of symptoms.

These can include:

- Gradual worsening of headaches over weeks or months.
- Balance disturbance.
- Blurred or double vision.
- Visual loss in one or both eyes.
- Reduction or loss of smell and taste.
- Loss of hearing.
- Swallowing difficulty.
- Weakness in the face, arm or legs, or even pin and needles and numbness in the limbs.
- Bowel or bladder dysfunction.
- Personality and behavioural changes, confusion, memory loss.
- Seizures (fits).
- Not everyone will have symptoms. On occasions, tumours may be found:
 - During routine scanning for another complaint.
 - During eye examination by an optician. This may reveal abnormalities, which then will lead on to further investigations. This is called an incidental finding.

How is my meningioma diagnosed?

Meningiomas have certain characteristics that can be identified on a scan, so in the majority of cases this is how a consultant will identify if your tumour is a likely meningioma.

The scan can be either MRI (Magnetic Resonance Imaging) or CT scan (Computerized Tomography). Both scans usually require an injection of contrast medium (dye) into a vein. This allows clearer vision of the tumour.

Depending on your symptoms you may require other investigations, such as visual assessment, hearing tests or a small camera passed into your nostrils to look at your throat. (See FEES, page six).

What type of specialist will I see?

If you have a meningioma of the floor of the skull underneath your brain, you will be seen by a Consultant Neurosurgeon who specialises in Skull Base Surgery.

What are the treatment options?

Treatment will vary according to individual circumstances, such as tumour size, growth, location, symptoms and your overall general health.

Ultimately it is your choice to proceed with treatment once we have ensured that you have fully understood the risks and benefits of each treatment option.

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

1. Interval Imaging.
2. Surgery.
3. Radiotherapy.

Interval Imaging

If your tumour is small and not causing any symptoms we may suggest no active treatment until clear tumour growth is demonstrated.

This means that we do not perform any intervention, and simply monitor the situation by repeating an MRI scan and assessing your clinical symptoms.

This shows if the meningioma is growing. Therefore you will undergo a period of observation known as 'watch, wait and rescan'.

An MRI scan is the best type of scan to use for monitoring these tumours. This scan takes around 45 minutes. It is painless but quite noisy.

Occasionally MRI is not possible, for instance if you have magnetic metal work inside your body. In this instance a CT scan will be performed instead.

Once the scan is done, the specialist will arrange an outpatient appointment in our Skull Base clinic to discuss the findings with you.

This close monitoring enables the team to reassess your options at any given time. However, it is important that between hospital visits you inform the specialist nurse of any new or worsening symptoms or concerns.

What happens if my meningioma grows during this time?

If the scan shows there is growth, we will discuss your treatment options with you. Options include: continuing to watch and wait and re-scan or intervention by way of radiotherapy or surgery.

These forms of treatment will be fully discussed with you in clinic to ensure you are fully informed about which type of treatment is best for you.

Surgery

Surgical intervention aims to remove all, or as much of the tumour as is safely possible. It is a major operation performed under general anaesthetic.

It is not always possible to remove the entire tumour, because meningioma can be adherent to surrounding nerves or brain tissue. If this is the case, it is safer to leave a tiny amount of tumour rather than risk permanent neurological damage.

The approach for surgery depends upon the tumour size and location. There are general risks of craniotomy and specific risks in relation to your individual case, your surgeon will explain these in depth with you to support you in making an informed decision about treatment.

If surgery is decided as a treatment option, you will need to attend a pre-operative assessment appointment at The Walton Centre. Here, the clinical nurse specialist will discuss the process and recovery period in more detail and you will have the opportunity to ask any questions you may have.

You will also have the opportunity to meet with the Anaesthetist (Doctor who specialises in general anaesthetic) to discuss any concerns and risks associated with the procedure.

Post operatively you will be monitored on a neurosurgical ward. Staff on the wards are highly experienced with the complex needs of patients following removal of a meningioma.

Length of stay and follow-up

The average length of stay for this operation is five days. This is dependent on your recovery and any symptoms experienced after the surgery.

The clinical nurse specialist team will meet with you at discharge to offer advice prior to going home.

The nurse specialist will initially follow you up via the telephone. This takes place approximately two weeks after discharge following surgery.

You will have an MRI scan around 8 -12 weeks after surgery and the consultant will see you in clinic after the scan to monitor your recovery and arrange follow-up.

You will be given the phone number for the specialist nurse in case you have any questions or concerns.

Who performs the surgery?

Surgery will take place in The Walton Centre NHS Foundation Trust. It is carried out by a team of Neurosurgeons – a Consultant, who specialises in skull base surgery, a senior clinical fellow with a specialist interest in skull base surgery and a Specialist Registrar – who is undergoing formal neurosurgical training.

What are the risks of surgery?

General Risks of Craniotomy

Following any type of surgery there is a risk in the immediate post-operative period. Risks include:

- Infection (Wound infection).
- Meningitis (Infection of the meninges).
- Bleeding.
- Hydrocephalus (Build-up of fluid on the brain).
- Leakage of cerebro-spinal fluid (CSF).
- Seizures.
- Small risk of death.

Location of Meningioma	Associated Risks
Anterior Region	
Olfactory groove meningioma	<ul style="list-style-type: none">• Reduction in sense of smell (hyposmia).• Complete loss of sense of smell (anosmia).• Changes in personality and behaviour.• Visual loss or visual field defect.• Seizures.
Sphenoid wing meningioma	<ul style="list-style-type: none">• Visual loss.• Visual field defects.• Double vision (diplopia).• Loss of sensation in face. Pain in face.• Loss or reduced pituitary function.• Seizures.
Central Region	
Suprasellar meningioma	<ul style="list-style-type: none">• Unilateral or bilateral visual loss.• Double vision.• Loss of sensation in face and facial numbness.• Loss or reduced pituitary function.
Posterior Region	
CP angle meningioma	<ul style="list-style-type: none">• Temporary or permanent damage to facial nerve.• Walking and balance disturbance.• Reduced or complete loss of hearing.• Loss of sensation in face. Pain in face.• Speech and swallowing difficulties.
Post Fossa meningioma	<ul style="list-style-type: none">• Difficulty walking.• Loss of balance.• Vertigo and nausea.• Swallowing difficulties.

Radiotherapy

Radiotherapy is increasingly used as a treatment for meningioma. It is used as first line treatment, or to treat residual tumour following surgery.

It involves radiation which is targeted directly to the tumour. It works by stopping cells from dividing and therefore stops tumour growth.

There are two ways of carrying out radiotherapy:

Stereotactic radiosurgery

Fractionated radiotherapy

You will receive an outpatient appointment with an oncologist to discuss your individual treatment plan.

Stereotactic radiosurgery (SRS)

Stereotactic radiosurgery treatment involves delivery of high dose focused radiation to the tumour in one single treatment.

There are different types of SRS – the most appropriate treatment for your individual case will be discussed with you.

Although the radiosurgery machine delivers a high dose of radiation to the tumour, very little radiation reaches the surrounding normal brain. The aim is to stop the tumour growing. The tumour is not removed.

There are risks and side effects associated with radiosurgery but these risks are site specific.

The potential risks will be discussed with you during your consultation with the consultant and neuro oncologist.

Fractionated radiotherapy

Fractionated radiotherapy is also a type of radiation treatment which aims to stop the meningioma from growing but it is delivered in multiple sessions (fractions) over a period of time (weeks).

There are risks and side effects associated with fractionated radiotherapy.

The consultant and neuro oncologist will discuss this with you during your consultation.

If I have radiotherapy do I need follow-up after treatment?

Following radiotherapy you will continue to be monitored with interval imaging to monitor for any tumour growth.

An outpatient appointment will be made following your scheduled MRI scan to discuss the findings with you.

You are not likely to need any further treatment for your meningioma if it stops growing. You should be able to return to a normal daily routine.

What happens after my treatment?

Aftercare of patients is individualised depending on different factors:

- What treatment you have had.
- The grade of the meningioma.
- Symptoms.

Depending on your symptoms you may also need the input from other disciplines such as speech and language therapists, dieticians, vestibular (balance) physiotherapists, neuropsychologist, audiology, ophthalmology and neurology.

Nurse specialist led clinic

If your condition remains stable and your consultant feels it is appropriate then you will be offered follow up by our clinical nurse specialist team. This can take place at The Walton Centre in a face to face consultation or in a telephone clinic.

If your condition changes, you will be referred back to your consultant.

Hearing Tests

We may offer you hearing tests called PTA (pure tone audiogram) and Speech Audiometry at certain points in your pathway.

This enables us to see how the tumour is affecting your hearing, and how you are able to communicate with other people.

Hearing Aids

If we feel you would benefit from a hearing aid, you will be referred to your local audiologists who will assess and discuss the options available to you.

You may also wish to discuss this with your GP who can also refer you to your local audiologist.

If your hearing has been affected by the meningioma and you are also hard of hearing on the side with no tumour, then it may be worth considering a lip reading class to gain additional skills and confidence with communication. Information on support groups and available resources are listed at the end of this document.

Tinnitus and Balance Problems

Tinnitus, a ringing, buzzing or whooshing noise can be quite troublesome and often becomes worse after any form of intervention. There are a number of effective therapies and support groups, which can help with management of tinnitus.

For those patients with balance disturbance or dizziness we can arrange a vestibular assessment by a specialist physiotherapist, and teach you exercises to retrain the balance system and provide strategies for dealing with difficult environments.

Speech and Language Therapy

If you have any communication or swallowing difficulties you may be referred to the Speech and Language Therapists (SALT) for their specialist involvement.

If your consultant has any concerns about your swallow we may undertake a diagnostic procedure called a Fibre optic Endoscopic Evaluation of Swallowing (FEES) in clinic. This procedure involves passing a small camera into your nostrils to allow the consultant to assess your swallowing function.

The SALT team or medical team may feel it is necessary to investigate any swallowing problems you may have with a video fluoroscopy (VFSE). This is an X-ray undertaken in the radiology department that looks at the way your swallowing works.

Ophthalmology

If you have a meningioma that extends into or around the eye (orbital region) it may cause symptoms that affects how the eyes work or look. These symptoms may include visual loss, visual field loss, or double vision. You may notice a bulging to one or both eyes or drooping of the eye lid. If this is the case it may be necessary to refer you to an ophthalmologist (eye doctor).

Can I drive if I have a meningioma?

You must inform the DVLA about your diagnosis of a meningioma. Certain factors can restrict your right to drive including surgery, seizures, symptoms, vision, and radiotherapy/SRS.

Note: It is the DVLA (not your consultant) that makes the decision concerning you driving and the length of time you must refrain from driving.

It is your legal responsibility to contact the DVLA.

You can contact the DVLA via:

Telephone: 0300 790 6806 or

Website: www.dvla.gov.uk

Clinical Trials

Sometimes it isn't always clear what the best treatment option is.

In order to clarify and help plan care for patients in the future, we have clinical trials running, both locally and nationally.

If you are eligible to participate in a clinical trial, your consultant will discuss it with you during your consultation.

Feedback

Your feedback is important to us and helps us influence care in the future.

Following your discharge from hospital or attendance at your outpatient appointment you will receive a text asking if you would recommend our service to others. Please take the time to text back, you will not be charged for the text and can opt out at any point. Your co-operation is greatly appreciated.

Further information

Many questions can arise after diagnosis of a meningioma. Your assigned 'key worker' can provide further advice, information and support.

The key worker is usually the clinical nurse specialist (CNS). We advise that if you have any questions, no matter how small, or if you have any changes in your symptoms to contact the CNS

You may wish to discuss your diagnosis with your GP.

Skull Base Team

The Skull Base Team consists of specialists from The Walton Centre NHS Foundation Trust and Aintree University NHS Foundation Trust.

Consultant Neurosurgeons

**Miss C Gilkes
Mr Jawad Yousaf**

Consultant ENT surgeons

**Miss N Munir
Mr A Youssef**

Consultant ENT Surgeon and Rhinologist

Mr S. Leong

Oncologists (Radiation Specialists)

**Dr A Shenoy
Dr A Haridas
Jillian MacColl Oncology Clinical Nurse Specialist**

Neurosurgical Clinical Nurse Specialist

**Emma Wilby
Laura Hartles**

**Macmillan Clinical Support Coordinator
Sam Lunt**

**Lead Audiologist
Tony Kay**

**Balance Physiotherapy Team
Olivia McPhee
Cathy Morrow**

There is also a wider multidisciplinary team who may be involved in your treatment including radiologists, radiographers and therapists. Together they work with other disciplines and ward staff to ensure that the highest quality of care is delivered to you.

Contact details of Skull base team:

Consultant seen in clinic: _____

Clinical Nurse Specialist: _____

Clinical Nurse Specialist Team Telephone:

0151 525 5648

Bleep via the switchboard 0151 529 3611 bleep 5342

Secretaries

Miss Gilkes: Pam Armitage 0151 529 5671

Mr Yousaf: Tina Hughes 0151 556 3350

Mr Youssef & Miss Munir: Carol Taylor 0151 529 3404

For Walton admission, appointments or scan enquiries please call:

Pam Armitage: 0151 529 5671

Tina Hughes: 0151 556 3350

Chaplaincy service

The hospital provides a chaplaincy service if you would like to see a chaplain, please leave a message on 0151 529 3195.

The Brain Charity

The Brain Charity provides support that complements medical provision, to people with a neurological condition, their families and professionals who care for them throughout their journey.

Norton Street

Liverpool L3 8LR

Tel: 0151 298 2999

www.thebraincharity.org.uk

British Tinnitus Association

**The British Tinnitus Association
Ground Floor, Unit 5
Acorn Business Park, Woodseats Close
Sheffield S8 0TB**

**Tel: 0800 018 527
info@tinnitus.org.uk**

**Action on Hearing Loss
Information Line:
Tel: 0808 808 0123
Text phone: 0808 808 9000
Email: informationline@hearingloss.org.uk**

**Meningioma UK
Tel: 01787 374084
Email: enquiries@meningioma.uk.org
www.meningioma.org.uk**

**Brain and Spine Foundation
Tel: 0808 808 1000
www.brainandspine.org.uk**

**Brain Tumour UK
Tel: 0845 4500 386
www.braintumouruk.org.uk**

**The Brain Tumour Charity
Tel: 0808 800 0004
Email: support@thebraintumourcharity.org
www.thebraintumourcharity.org/**

**Macmillan Cancer Support
Tel: 020 7840 7840 (General enquiries)
www.macmillan.org.uk**

**Brain Tumour Action
Tel: 0131 466 3116
www.braintumouraction.org.uk**

**Epilepsy Action
Tel: 0808 800 5050
www.epilepsy.org.uk**

All Trust approved information is available on request in alternative formats, including other languages, easy read, large print, audio, Braille, moon and electronically.

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體、音頻、盲文、穆恩體 (Moon) 盲文和電子格式，敬請索取。

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