

Awake craniotomy for your brain tumour

This leaflet explains more about what to expect when you come into hospital for your awake craniotomy, including the benefits, risks, alternatives and what will happen before, during and after your procedure.

If you have any further questions, please speak to your neurosurgeon or your clinical nurse specialist.

What is an awake craniotomy?

A craniotomy is an operation which involves temporarily creating a window in your skull to access an area of the brain which needs attention. It is the most common type of operation used to treat a brain tumour.

An awake craniotomy is an operation that is performed in the same way, but the patient is awake during part of the procedure. This is recommended when the tumour is near areas of the brain that are important for controlling speech, language or movement. Being awake during the surgery enables your team to identify areas of the brain which are involved in controlling these functions (mapping), as well as monitoring these functions during the tumour removal stage of your operation.

Despite the brain being made up of many millions of nerves, it contains no sensory nerves. For that reason, awake brain surgery is painless and you will have no awareness of your surgeon touching your brain. The skin and muscles around the skull do contain sensory nerves, but these can be blocked using an injection of local anaesthetic (similar to a dental block).

What is cortical mapping?

Using a series of precise electrical currents, the surface and inside of your brain can be stimulated whilst you perform specific speech, language or movement tasks, for example, name a picture or wiggle your toes. Whilst you won't feel the current, you may notice changes, for example, errors when saying a word (for a few seconds) or feel different sensations in your body. This does not mean that anything has gone wrong and is nothing to worry about. It means that the part of the brain the surgeon is stimulating is involved in that activity and lets the surgeon know where they can or cannot operate. It does not necessarily mean that the surgeon will be unable to remove parts of the tumour.

There is the possibility that you may experience a seizure (sometimes called a “fit”) during the surgery when a particular part of the brain is stimulated. If this happens, the surgeon will apply cold sterile water to the surface of the brain to stop the seizure. In some cases, patients will be sleepy and temporarily weak or have difficulty speaking after a seizure. If this happens, we will wait a while to monitor your recovery. If this takes a long time, we sometimes stop the operation at this stage, wait a few days for you to recover and then proceed on another day.

Whilst you are sedated (prior to the craniotomy) we may place several small acupuncture-sized needles in your arms and legs on the opposite side of your body to the tumour. This provides an early warning system for seizures as well as for monitoring the impact of your surgery on your motor (movement) function (called motor mapping/monitoring).

This will be explained to you by your surgeon prior to your operation.

Why should I have an awake craniotomy?

Your MRI scan will have shown that your tumour is either within or close to an area of the brain which controls an important function such as speech, language and movement. We will have recommended an awake craniotomy to reduce the risk of permanent damage to your speech, language or movement and to help with removing as much tumour as possible.

What are the risks?

Your surgeon will go through the risks of surgery with you. The risks depend on a number of things including the size, location and type of tumour, your age, health and medical history. In principle, the risks of an awake craniotomy are less than an asleep craniotomy (in that we can monitor and preserve function). An awake craniotomy also has the advantage of requiring less anaesthetic (therefore patients typically feel fresh and awake after surgery). The main risk is of triggering seizures (which we can manage). We may also give you anti-seizure medication at a higher dose during your operation to reduce the risk.

Are there any alternatives?

This surgery has been recommended for you because it is considered to be the safest option. Although there are risks with any surgery, there are also risks involved in not having surgery, as the tumour may continue to grow and may cause permanent damage to the brain. Your surgeon may discuss with you the option of a biopsy as an alternative (which removes only a small piece of the tumour). In some cases, tumours can be managed without surgery but your surgeon will explain to you the advantage of removing as much as possible as well as obtaining a sample of your tumour to make a diagnosis and guide your treatment.

Asking for your consent

It is important that you are involved in decisions about your care. For this treatment, you will be asked to sign a consent form to say that you agree to have the treatment and understand what it involves. You can withdraw your consent at any time, even if you have said 'yes' previously. If you would like more details about our consent process, please ask for a copy of our policy.

How can I prepare for an awake craniotomy?

You can continue your normal day to day activities before an awake craniotomy. Please make sure you continue to take all your medications (e.g., anti-seizure medication) unless you have been told to stop them in your pre-operative assessment or by your surgical team.

What happens before my awake craniotomy?

Depending on the timescale between deciding on surgery and your operation date, you may have a pre-assessment clinic visit arranged to see a nurse for pre-operative work up, including blood tests and a COVID test.

Before your awake craniotomy, you will be reviewed by an anaesthetist experienced in awake cranial surgery. This will give you the chance to ask any questions you may have about sedation or pain relief during the operation.

If your tumour is within or close to an area involving speech and language, you will be seen by the Speech and Language Therapist (SLT) who will discuss any difficulties you are having in conversation (you may be having none) and will take you through the tests that will be used in theatre. You will have the opportunity to discuss any concerns ahead of your surgery.

You are allowed to drink clear fluids, which includes water, diluted fruit squash, tea or coffee (without milk) up until two hours before your surgery. Solid food is allowed up until six hours before the surgery.

What happens during my awake craniotomy?

On the morning of surgery, you will be taken to the operating theatre. You will be able to talk to the team and ask questions. If you are staying awake for the whole operation ('awake-awake' surgery), the anaesthetist will insert a drip into your arm and may give you mild sedation drugs to help you feel relaxed and comfortable. If you are having 'asleep-awake' surgery, the anaesthetist will administer either a deeper level of sedation or a full general anaesthetic and you will be asleep at this point.

A catheter may be inserted into your bladder to monitor fluid output and to stop you needing the toilet during the surgery.

If you are awake throughout, the surgeon will check that you do not feel any pain and will numb your scalp using local anaesthetic. The surgeon will make a cut through the scalp and clip the scalp back to expose the skull. A drill will then be used to cut out a piece of skull so the surgeon can see the brain. The drill can be a bit noisy for a short time, but you may not hear it due to the effects of sedation.

Once the brain is exposed, cortical mapping will start. If you have been asleep, you will be woken at this point. If your speech and language are being monitored, the SLT will start testing your speech and language and talking to you. After cortical mapping is complete, the surgeon will remove the tumour. You will continue to complete the speech, language and / or movement tasks while the tumour is being removed.

After the surgeon has removed as much of the tumour as possible, the piece of bone will be put back and fixed into place and your scalp will be closed with either stitches or, more likely, staples. The clamp will be taken off your head and a wound dressing applied.

Will I feel any pain?

The brain does not have any pain receptors so you will not feel the operation itself. Throughout the procedure you will be able to talk to the team and let them know if you feel any pain from your scalp so that they can give you something to help.

Will I be able to move during my awake craniotomy?

We aim to keep you as comfortable as possible during the operation and if you feel the need to move, please let us know. You will not be able to move your head as it is attached to the clamp to keep it securely in place. It is fine to cough or sneeze if you need to.

Will I be able to watch what is happening?

No. Clear plastic drapes will be attached to the front of your head and the surgeon will be working behind this drape. This is to keep the area sterile. There will always be someone close to you on your side of the drapes to whom you can talk and ask questions at any time. Although you won't be able to see your surgeon, you will be able to talk to them and ask questions.

What happens after my awake craniotomy?

You will be taken to the recovery room and then to the high dependency unit for monitoring for 24-48 hours, before being taken to the ward. Most people feel tired after the operation. You can eat, drink and move around as soon as you feel ready. If you experience any pain after the surgery, please let the staff know. Pain relief medication will be given to ease pain.

You will be reviewed by the ward therapists to check your safety before you go home. The SLT will check your speech and language. If you are experiencing any difficulties with speech, language or movement, the therapy team will treat you on the ward and provide

you with strategies. If necessary, they will refer you for further treatment for after your stay at St George's Hospital.

What do I need to know after I go home?

Before and during your admission, you will be seen by the Clinical Nurse Specialist team. One of the nurses will be appointed as your key worker, to be a point of contact for support. The Clinical Nurse Specialists will advise you and answer your questions about many aspects of your care and what you need to know after leaving hospital.

Useful sources of information

The Brain Tumour Charity thebraintumourcharity.org 0808 800 0004

Brain & Spine Foundation brainandspine.org.uk 0800 808 1000

Brains Trust brainstrust.org.uk 01983 292405

Contact us

If you have any questions or concerns about your awake craniotomy, please contact

Clinical Nurse Specialists 020 8725 2573.

Speech and Language Therapy 020 8725 3662.

For more information leaflets on conditions, procedures, treatments and services offered at our hospitals, please visit www.stgeorges.nhs.uk

Additional services

Patient Advice and Liaison Service (PALS)

PALS can offer you on-the-spot advice and information when you have comments or concerns about our services or the care you have received. You can visit the PALS office between 9.30am and 4.30pm, Monday to Friday in the main corridor between Grosvenor and Lanesborough wings (near the lift foyer).

Tel: 020 8725 2453 **Email:** pals@stgeorges.nhs.uk

NHS Choices

NHS Choices provides online information and guidance on all aspects of health and healthcare, to help you make decisions about your health.

Web: www.nhs.uk

NHS 111

You can call 111 when you need medical help fast but it's not a 999 emergency. NHS 111 is available 24 hours a day, 365 days a year. Calls are free from landlines and mobile phones.

Tel: 111

AccessAble

You can download accessibility guides for all of our services by searching 'St George's Hospital' on the AccessAble website (www.accessable.co.uk). The guides are designed to ensure everyone – including those with accessibility needs – can access our hospital and community sites with confidence.



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