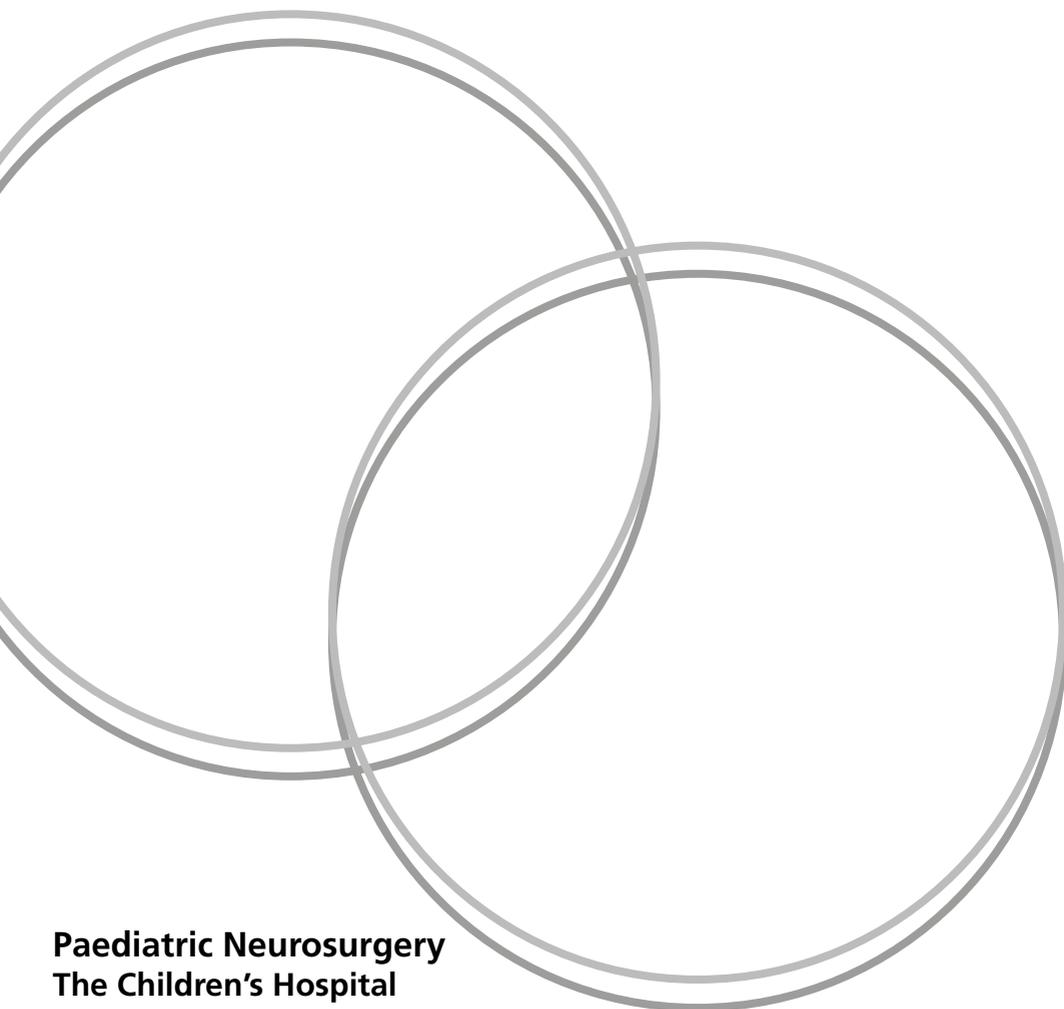




Oxford University Hospitals  
NHS Foundation Trust

# Craniotomy

**Information for  
parents and carers**



**Paediatric Neurosurgery  
The Children's Hospital**

## **What is a craniotomy?**

A craniotomy is an operation to access the brain. A doctor (called a neurosurgeon), who specialises in surgery of the brain and spine, will carry out the operation.

## **Why does my child need a craniotomy?**

A craniotomy is often carried out when there is a blood clot, a tumour (an abnormal growth of cells) or a cyst that needs to be removed. Removing these will relieve high pressure within your child's brain/skull.

## **What does the operation involve?**

The operation will be carried out under a general anaesthetic. This means your child will be unconscious and not be able to feel anything.

A consultant anaesthetist (doctor who helps to put your child to sleep) will talk to you and your child (if appropriate) about the anaesthetic.

## **What are the risks?**

The exact likelihood of complications depends on your child's medical condition.

Your child's neurosurgeon will discuss all of the risks with you before the operation. Some of the risks include:

- infection
- leaking from the wound
- stroke (paralysis or nerve damage)
- seizure.

Your child's surgeon will talk with you about more specific risks, depending on the location of the cyst/bleed or tumour.

## **Are there any alternatives?**

Your surgeon will discuss the reasons why your child needs this operation with you. You can also ask the surgeon what will happen if your child doesn't have the procedure.

## **Anaesthetic risks**

In modern anaesthesia, serious problems are uncommon. Risk cannot be removed completely, but modern equipment, training and drugs have made general anaesthesia a much safer procedure in recent years. Throughout the whole of life, a person is at least 100 times more likely to suffer serious injury or death in a road traffic accident than as a result of anaesthesia<sup>1</sup>.

Most children recover quickly and are soon back to normal. Some children may suffer side effects like sickness or a sore throat.

These usually only last a short time and there are medicines available to treat them if necessary.

The exact likelihood of complications depends on your child's medical condition and on the nature of the surgery and anaesthesia your child needs. The anaesthetist can talk to you about this in detail before the surgery.

## **Consent**

We will ask you for your written consent (agreement) for the operation to go ahead. If there is anything you are unsure about, or if you have any questions, please ask the doctor before signing the consent form.

## **Fasting instructions**

If your child is coming into hospital to have this procedure as a planned operation (not as an emergency procedure), please make sure that you follow the fasting (starving) instructions. These should be included with your appointment letter or would have been given at the pre-operative assessment appointment.

If this surgery is an emergency, the nurses on the ward will give you fasting instructions.

Fasting is very important before an operation. If your child has anything in their stomach whilst they are under anaesthetic, it might come back up while they are unconscious and get into their lungs.

## **Pregnancy statement**

All girls aged 12 years and over will need to have a pregnancy test before their operation or procedure. This is in line with our hospital policy.

We need to make sure it is safe to proceed with the operation or procedure, because many treatments including anaesthetic, radiology (X-rays), surgery and some medicines carry a risk to an unborn child.

The pregnancy test is a simple urine test and the results will be available immediately. If the result is positive, we will discuss this and work out a plan to support your child.

## **What happens before the operation?**

Your child may already be an inpatient on the ward before their surgery, after being admitted as an emergency. If they are not, you will be asked to bring them in to hospital at 7.30am. They need to come to Children's Theatre Direct Admissions (TDA). This is based on Robin's Ward at the Children's Hospital in Oxford.

When you arrive, a nurse or healthcare assistant will greet you and show you to the waiting area. The nurse will check your child's paperwork and put some name-bands around their wrists or ankles. They will also measure your child's temperature, heart rate and breathing rate.

Your child will then be seen before their surgery by the neurosurgical team. The doctors will also take your child's medical history and samples of blood. This is to make sure the right type of blood is available during the surgery, if it is needed. The blood test will also be sent to check their electrolyte level (biochemistry) and for any signs of infection.

The nurse or healthcare assistant will look after you and your child until your child is in theatre. There are also play specialists available to help your child prepare for the operation and to keep them distracted with play activities both before and after the operation. They will also help with preparing them for their anaesthetic. There are toys and gaming devices available for all ages.

The nurse and healthcare assistant will make sure you understand the routine of the day and your child's care before the operation. They can answer any questions you both may have.

If your child is unwell and this procedure needs to be carried out as an emergency, your child will already be an inpatient (so will not need to be taken to TDA). They will still need to have blood samples taken before the surgery.

## **In the anaesthetic room**

A nurse and one parent/carer can come with your child to the anaesthetic room. Your child can also take a toy or comforter.

It may be possible to give the anaesthetic with your child sitting on your lap. Your child may either have anaesthetic gas to breathe, or an injection through a cannula (a thin plastic tube that is placed under the skin, usually on the back of the hand). Local anaesthetic cream (EMLA or Ametop, sometimes known as 'magic cream'), can be put on their hand or arm before injections so they do not hurt as much. It works well for 9 out of 10 children.

If the anaesthetic is given by gas, it will take a little while for your child to be anaesthetised. They may become restless as the gases take effect. If an injection is used, your child will normally become unconscious very quickly indeed. Some parents may find this upsetting.

Once your child is asleep you will be asked to leave quickly, so that the medical staff can concentrate on looking after them. The nurse will take you back to the ward to wait for your child.

Your child will then be taken into the operating theatre to have the operation. The anaesthetist will be with them at all times.

## **What happens during the operation?**

Before the operation starts, some of your child's hair may have to be shaved. The surgeons will try to shave the smallest area possible and it will grow back in time, after the operation.

The surgeon will make an incision (cut) on their scalp. Small holes will be drilled into the skull and then a piece of bone will be cut out to reveal their brain. The size and location of the incision and the piece of bone will depend on the reason why your child is having the operation. The neurosurgeon will discuss this with you before the surgery.

The surgeon will then begin to operate on the part of the brain that is causing the problem. This can take several hours.

While your child is in theatre it is very important that you go out for a while, have a meal and go for a walk. The nursing staff will telephone you when the operation is over.

When the operation is finished, the surgeon will usually replace the piece of bone. The surgeon will discuss with you if they feel they may need to leave the bone flap off due to swelling that might develop after the surgery. If the bone flap is replaced it will fuse back together with rest of the skull bone over the next 6 weeks.

The scalp will be stitched back together using dissolvable stitches, which will gradually fall out over the next 7-14 days, but can take up to 6 weeks.

A narrow tube, called a drain, may be kept in the wound to take away blood and fluid for 24-48 hours. The wound will either be covered with a dressing or transparent glue.

## After the operation

After a craniotomy your child may have to stay in Children's Critical Care for extra support whilst they are recovering. Your child may need to be in one of these units for 24-48 hours. They will be transferred back to the ward when a bed is available and the consultants are happy with their recovery. You will be able to visit these units before the operation, if you wish.

You will be able to visit your child while they are in this unit. Please speak to your nurse about overnight accommodation if you wish to stay. Rooms are allocated on a priority basis. As this is a critical care area other visitors are requested to leave by 8pm.

The nurses will regularly check your child's pulse, breathing, blood pressure, temperature and wound. They will also make sure your child has adequate pain relief.

The nurse will need to look in your child's eyes with a small torch, to check that they are reacting as they should. They will also ask them a couple of questions (if they are old enough/able to answer) to check they are not confused.

Some children remain sleepy for a little while after their operation, while other children wake up quickly. If your child is still sleeping, it is important for the nurse to wake them up, to check they can be easily woken.

The nurses will also need to assess how much movement and sensation your child has in their limbs. Once your child begins to recover, the frequency of these checks can be reduced. We will also regularly inspect your child's wound, to check for leaking or bleeding.

## **Recovery from the anaesthetic**

When your child is awake from the anaesthetic they can start drinking and, if they are not sick, they can begin to eat a light diet. Often, children are given fluids through their cannula until they are able to tolerate their normal diet again.

Occasionally, the anaesthetic may leave your child feeling sick for the first 24 hours and they may vomit. The best treatment for this is rest and small, frequent amounts of fluid, toast or biscuits. We can also give medication to help with this, but it should settle with time.

## **Pain assessment and pain relief**

Your child's nurse will use a pain assessment tool to help assess your child's pain score after their operation. This is a chart which helps us to gauge how much pain your child may be feeling.

You and your child will be introduced to this assessment tool either at their pre-assessment visit or on the ward before their operation. You can continue to use this assessment at home to help manage your child's pain if you wish.

Your child may have a special infusion pump attached directly to a vein in their arm to give them pain relieving drugs. This is called a Patient Controlled Analgesia pump (PCA). Your child's nurse (or your child, if they are old enough) can press a hand-held button when they feel pain or discomfort and the pump will deliver a pre-programmed dose of painkilling drugs directly into their vein. The machine controls the amount of drugs they receive, so they cannot have too much in one go.

During the operation your child will have had a narrow tube inserted into their bladder, called a catheter. This is because a side effect of the painkiller morphine (usually used with the PCA) is not being able to pass urine, which can be uncomfortable. The catheter helps urine to drain away, into a bag. The catheter will remain in place until the morphine is stopped.

The PCA is usually stopped after 24 hours.

After the PCA has been stopped your child will be given regular pain relief by mouth to help keep them comfortable. If your child feels sick, or is too sleepy to swallow their medicines, they can be given through their cannula.

Your child may need to be given extra medications after a craniotomy, such as:

- steroids, to help reduce any swelling in the brain
- anti-convulsants, to prevent seizures (fits)
- antibiotics, to prevent infection.

Your doctor will discuss these medicines with you before they are given to your child.

## **Recovery on the ward**

The nurse will continue to carry out regular observations of your child when they're back on the ward after their operation. This allows them to make sure your child is recovering well. The nurse will need to carry out these checks throughout the night, as well as during the day, but this frequency will decrease as your child recovers.

The surgeons will give specific instructions about how much your child can move about after the operation, but it is likely that they will need to stay in bed for 24-48 hours.

During this time, your child will be encouraged to turn from side to side. This can be uncomfortable, but will prevent their neck or back from becoming stiff and can help them recover. If your child finds it difficult to move, the nurse will help to reposition them every 2-4 hours.

When the surgeons say that your child can start to move around, the physiotherapists will be there to provide support and guidance.

The hospital experience is strange and unsettling for some children so do not be concerned if your child is more clingy, easily upset, or has disturbed sleep. Just be patient and understanding.

It is likely your child will be ready to go home between 5-10 days after the operation. When your child is transferred back to the ward you will be able to stay overnight with them on the parent beds provided.

# **Discharge advice – leaving hospital**

## **Wound care and hygiene**

In the first few days after the operation, the area around your child's craniotomy site (wound) may become swollen. One or both of their eyes and their forehead may become swollen too. This swelling will go down within a few more days after surgery.

The wound on your child's scalp may be covered by a thin dressing, but is usually left without one. The wound will need to be kept clean and dry for a minimum of 72 hours. Your child's doctor will tell you if their hair can be washed after this time.

Your nurse can help you wash your child's hair for the first time, to reassure you that you won't hurt them. A mild/baby shampoo can be used, but avoid soaking or rubbing the wound, as this causes the stitches to dissolve too quickly, which may result in the wound opening or not healing well.

Fresh, clean water should be used to wash and rinse their hair, as this reduces the risk of infection. It is also important to avoid using conditioner, moisturisers or body lotion around the wound area, as they can also cause the stitches to dissolve too quickly and be a risk for infection.

The stitches used to close the wound will gradually dissolve; this usually takes around 7-14 days, but can take up to 6 weeks. Your child should be discouraged from scratching the wound, as this could cause an infection. If the wound becomes red, inflamed or painful, or leaks clear fluid or pus please call the ward on the number given at the back of this leaflet.

Occasionally non-dissolvable stitches will need to be used. The surgeon will discuss this with you before the surgery if they think they will need to be used.

The skin around the scar may feel numb. This is normal and will improve with time.

## **Follow-up care**

Your child may suffer with headaches and feeling sick for some time after surgery. You can give them children's paracetamol, but not more than once every 4-6 hours.

You can also give them children's ibuprofen every 6-8 hours, but only give a maximum of 4 doses in a 24 hour period. Please make sure you follow the correct dosage instructions for your child's age.

Your child's doctor will tell you when they need a follow-up appointment. The letter confirming this will come by post within 2 weeks. Please contact the hospital switchboard and ask to speak to your consultant's secretary if this does not arrive after this time.

## **Getting back to normal**

Depending on why your child had a craniotomy, your child will usually stay in hospital for about a week after their operation, although this can vary significantly from child to child.

Your child may feel tired and lethargic for several weeks after the operation. This is normal. When your child returns to school depends on how they feel when they return home. Most children usually go back to school a couple of weeks after they have come out of hospital. Some children go back to school part-time to start with. This can be discussed with your child's teacher.

They can go back to sporting activities such as PE, bike riding, swimming, etc. 6-12 weeks after discharge (depending on how they feel). If a bone flap has been removed this will be longer and your surgeon will discuss this with you.

Your child can go away on holiday (including flying) when they feel well enough and have had their follow-up appointment. Please make sure your insurance company is aware your child has had a craniotomy.

## Signs to look out for

When your child is back at home, they should continue to recover from their craniotomy. However, there is a chance they may start to show some symptoms which need to be seen by a neurosurgeon. These symptoms may be similar to ones they had before their craniotomy. They may include:

- drowsiness
- limb weakness
- confusion
- visual problems (problems with sight)
- increased headaches
- having a fit (seizure), or their fits becoming more severe or frequent
- fever (high temperature)
- the wound site becoming red, painful, inflamed or beginning to leak.

If your child has any of these symptoms you should contact the ward urgently (contact numbers are at the end of the leaflet).

## How to help with your child's recovery

A healthy balanced diet is important for your child's recovery, as it gives them energy to recover and helps with wound healing.

Regular pain relief is also important, as it helps reduce any discomfort.

This will help your child to keep moving, which can speed up their recovery.

## How to contact us

If you have any further questions, or worries or queries about your child once you get home, please contact us. We are available 24 hours a day, 7 days a week.

### **Robin's Ward**

Tel: **01865 231 254/5**

### **Melanie's Ward**

Tel: **01865 234 054/5**

### **Neurosurgical Nurse Specialist**

Tel: **01865 226 535**

To contact your child's consultant's secretary, please phone the John Radcliffe Hospital Switchboard:

Tel: **0300 304 7777**

**If your child requires urgent treatment, please call 999 or go to your nearest Emergency Department.**

### **How can I give feedback about my experience?**

We would like to hear about your experience with our Childrens Services. There are different ways to feedback to us:

Online: **[www.ouh.nhs.uk/childrens-feedback](http://www.ouh.nhs.uk/childrens-feedback)**

Email: **[childrens.patientexperience@ouh.nhs.uk](mailto:childrens.patientexperience@ouh.nhs.uk)**

Or ask for a paper survey to fill in.

## Further information

You may find the information on the following websites helpful:

**[www.brainandspine.org.uk/craniotomy](http://www.brainandspine.org.uk/craniotomy)**

**[www.shinecharity.org.uk](http://www.shinecharity.org.uk)**

## References

<sup>1</sup> From the Royal College of Anaesthetists (2014) Fourth Edition  
Your child's general anaesthetic. Information for parents and guardians of children.

**[www.rcoa.ac.uk/patientinfo](http://www.rcoa.ac.uk/patientinfo)**

***We hope that this information is useful to you  
and would welcome any comments about  
the care or information you have received.  
Please bring this leaflet with you on the day  
of your child's operation.***

## Further information

If you would like an interpreter, please speak to the department where you are being seen.

Please also tell them if you would like this information in another format, such as:

- Easy Read
- large print
- braille
- audio
- electronic
- another language.

We have tried to make the information in this leaflet meet your needs. If it does not meet your individual needs or situation, please speak to your healthcare team. They are happy to help.

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[www.ouh.nhs.uk/information](http://www.ouh.nhs.uk/information)



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