Stereotactic Radiotherapy for Acoustic Neuromas (CyberKnife)

This leaflet has been given to you to provide some written information about the treatment that is being planned for you in addition to the explanations that you have received from your doctor. If you have any questions please get in touch with the specialist radiographers (contact details can be found at the end of this leaflet).

What is stereotactic radiotherapy?

Radiotherapy is a treatment which involves precisely targeting high energy X-rays (ionising radiation) at a specific area, with the aim of destroying any abnormal cells there.

Some patients may benefit from having highly focused radiotherapy known as stereotactic radiotherapy (SRT). If only one treatment is given, it is often referred to as stereotactic radiosurgery (SRS).

Stereotactic radiosurgery has been given at the Queen Elizabeth Hospital for many years using a head frame and a modified conventional radiotherapy machine (linear accelerator). We are now giving stereotactic radiosurgery and stereotactic radiotherapy using a CyberKnife unit. This is a unit that has a radiotherapy machine, which can generate high energy X-rays, mounted on a robot arm. This means that the treatment can be delivered from many different angles, so that the normal tissue around the area being treated receives a much lower dose than with conventional radiotherapy. It enables high doses of radiation to be delivered with sub-millimetre accuracy, as the CyberKnife takes X-ray images to track the position of the tumour throughout the treatment. The CyberKnife unit is located within the Cancer Centre in the Heritage Building at the Queen Elizabeth Hospital.

It is extremely important that you are not pregnant or become pregnant during your course of radiotherapy. Even a small amount of radiation may damage an unborn foetus so it is very important to let the radiographers know at once if you think there is even a possibility that you may be pregnant, before any radiation exposures are given on the CT scanner or CyberKnife unit.

Having radiotherapy does not make you radioactive. There is no need to restrict your contact with other people, including children and pregnant women.

Why do I need to have stereotactic radiotherapy?

Stereotactic radiotherapy and radiosurgery are suited to small clearly defined tumours which are difficult to remove. Having considered your case, the team of doctors (surgeons, clinical oncologists and radiologists) involved in treating acoustic neuromas have proposed stereotactic radiosurgery or radiotherapy as a treatment option. If you are unsure why this option has been suggested to you, please feel free to ask.

Are there any alternative treatments to stereotactic radiosurgery or stereotactic radiotherapy?

In some cases acoustic neuromas can also be treated with surgery and you can discuss with your consultant whether this is an option for you. Other forms of radiotherapy have also been used to treat acoustic neuromas, including image-guided intensity modulated radiotherapy and proton beam therapy. If you would like any further information on these techniques, please ask your clinical oncologist.

What are the benefits of stereotactic radiosurgery or stereotactic radiotherapy?

For most patients, the aim of stereotactic radiotherapy is to stop the acoustic neuroma from growing. Note that the treatment does not typically reverse existing symptoms such as hearing loss. Your consultant will discuss this in more detail when you first see them. If you do decide to have stereotactic radiotherapy, you will be asked to sign a consent form, stating that you have been informed of the risks and benefits. This does not mean that you cannot change your mind about your treatment choices.

When is stereotactic radiosurgery or stereotactic radiotherapy given?

Stereotactic radiosurgery is given in a single treatment on a weekday and stereotactic radiotherapy is given on consecutive weekdays. The treatment is delivered in the CyberKnife suite in the radiotherapy department in the Cancer Centre, Heritage Building, Queen Elizabeth Hospital Birmingham.

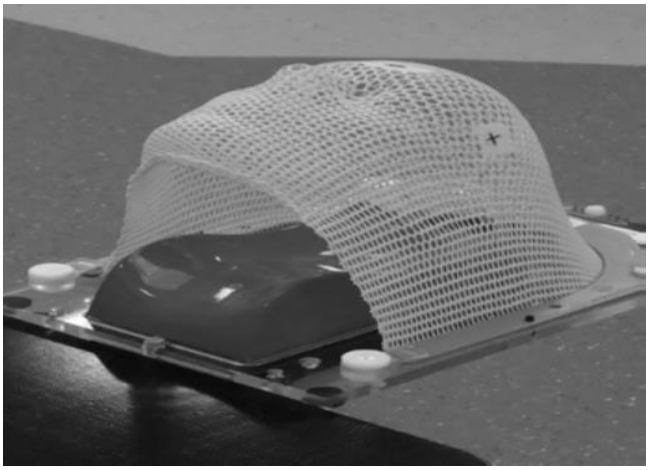
What needs to happen before I start stereotactic radiosurgery or stereotactic radiotherapy?

Stereotactic radiotherapy requires appropriate preparation and has to be carefully planned. Firstly, you will have an appointment with a clinical oncologist in an outpatient clinic, who will explain the details of the planned therapy. After this appointment, we will organise some scans, which you will need to have done in addition to any previous imaging you may have had. This will include a planning CT scan which is done within the radiotherapy department and a MRI scan which is also performed at the hospital.

What needs to happen for my stereotactic radiosurgery or stereotactic radiotherapy to be planned?

Your first visit to the radiotherapy department is to the Mould Room where the mask is made. This mask is made several days or weeks prior to starting radiotherapy. It fits over your head and is attached to the treatment couch. The mask is needed to ensure that you are in exactly the same position as you were for your planning CT scan so that the treatment can be given very precisely to the correct area.

Making the mask involves warming a sheet of a thermoplastic material so that it softens and can be gently draped over your head and moulded to you. The mask then needs to stay in position for about ten minutes whilst it hardens and sets. The plastic is warm and feels a little like having a warm flannel placed over your face. The plastic has small holes in it so that you can still breathe easily. The mask needs to be a close fit in order to be effective but it should not be painful.



After the mask is made, you will have a CT scan which is carried out with the mask on. The radiographers will put some marks on the mask to guide them when you return for your radiotherapy treatment. It is important that if you are uncomfortable or struggling with the position, you inform the radiographers.

After your CT scan, the radiographers will give you the details of your first radiotherapy treatment appointment and show you where the CyberKnife suite (Radiotherapy room 9) is.

The radiographers will also give you a prescription for a short course of steroids which needs to be started day before your treatment. The steroids help reduce swelling of the acoustic neuroma, which happens after treatment, thereby reducing side effects and symptoms of treatment. You will also receive an antacid to prevent acid reflux as steroids may cause this.

Please Note: if steroids are not started the day before treatment, we may not be able to treat you on the day of SRS/SRT.

The radiographers will ask if you have a preference for a morning or afternoon appointment for your treatment and they will pass this onto the treatment radiographers. Please be aware that although the treatment radiographers will always try their best to give you appointments around your preference, it may not always be possible to accommodate these requests. If you require hospital transport for your treatment, please discuss this with the CT radiographers.

What happens when I come to the CyberKnife unit?

Your treatment will be on a weekday. This appointment normally takes around one hour. The radiographers will explain what is going to happen and show you the CyberKnife. When you have seen the machine and asked any questions you may have, the radiographers will ask you to lie on the treatment couch, where they will position you in the same way as you were for your planning CT scan. The radiographers will then move you into the correct position. The radiographers will then leave the room to take some X-ray images to confirm your position before they start the treatment. They may come in and out of the room and adjust your position slightly. The treatment machine will then move around you so that the treatment can be delivered from lots of different angles. The machine will only be on for brief periods before moving to the next position. You will not feel anything whilst you are having radiotherapy but you may hear and see the machine moving around you. The CyberKnife machine will not touch you at any point during treatment.

Whilst you are on the treatment couch, the radiographers will continue to take and assess X-ray images during your treatment to ensure your position remains the same.

These images are taken to ensure that you are in the correct position; they cannot be used to assess how well the treatment is working. These images involve a very small additional dose of X-rays. However, these images are essential to ensure accurate treatment and overall serve to reduce the risk of side effects.

The radiographers will ask you to stay as still as possible so that the treatment can be given to the correct place. The radiographers cannot stay in the room with you whilst the machine is on but they are operating the machine and watching you all the time on cameras. If for any reason you need the radiographers then just raise a hand and they will immediately stop the treatment and come in. You are welcome to bring a CD with you so you have something to listen to whilst you have your treatment.

What side effects may occur during my stereotactic radiosurgery or stereotactic radiotherapy treatment?

Stereotactic radiosurgery or stereotactic radiotherapy has fewer side effects than conventional radiotherapy, as less healthy tissue is exposed to high doses of radiation. However, you may experience some side effects.

Side effects will not happen or be the same for all people. For example, short-term side effects may include tiredness, nausea, slight headaches, feeling off balance tinnitus and facial irritation. Such side effects often occur due to temporary tumour swelling post treatment and often subside within the first year.

Long-term side effects are classed as those that are present more than three months after radiotherapy. Severe effects are relatively infrequent but can include damage to the trigeminal nerve and facial nerve, resulting in facial weakness or pain. Treatment can also cause deterioration in hearing, tinnitus (ringing in ears) and balance, however often the aim of early treatment is to preserve these functions. These changes may be permanent in some patients. Swelling of the acoustic neuroma can occur following treatment and occasionally this can cause a blockage to the fluid which surrounds the brain, causing a persistent headache. Short-term treatment with steroids or occasionally a surgical procedure may be required under these circumstances.

Any treatment given using ionising radiation carries a very small risk of causing a cancer many years after treatment.



Your consultant will discuss the possible side effects in more detail when you consent to treatment and these will be detailed on your consent form, of which you will be given a copy. When you come for treatment you will be seen by the radiographers and you will be given the CyberKnife radiographers' telephone number. If you have any concerns or questions, please speak to the radiographers (number at the back of the booklet).

CCTV use

The treatment rooms are monitored during your preparation, positioning and treatment delivery, by television cameras. This is part of ensuring the accuracy of your treatment and your safety and wellbeing in the rooms at all times. We assure you that the camera image feed is live and it is not possible to make a recording. The images are viewable on screens situated in the machine control areas. The control areas are only accessed by authorised radiotherapy staff, some of whom may not be directly involved in your care at the time. If you have any concerns about your privacy or dignity, that you have not already discussed then please do not hesitate to highlight your concerns during the information discussion with the radiographers at your first appointment.

What happens after my treatment?

You will have a follow-up appointment with the CyberKnife Lead Radiographer three months after treatment. This appointment can be done as a telephone consultation or face to face. You will then go back to seeing your referring consultant after you have had your treatment and initial 3 months follow up. He or she will organise follow-up scans, the first of which is normally done around one year after your treatment.

Other information

Car parking

Car Park D is directly opposite the doors to the Cancer Centre on Mindelsohn Way. Please park here and bring in the ticket you have taken to access the car park with you. The radiographers in the treatment room will exchange this for a prepaid ticket so that you can exit the car park without paying. You will need to provide your car registration number to get the pre-paid ticket. This free car parking arrangement has been negotiated for patients who are attending for radiotherapy planning or treatment appointments only. The radiographers will not be able to give you a ticket if you are attending for a follow-up appointment.

Contact details

CyberKnife suite
Telephone: 0121 371 5060

CyberKnife Lead Radiographer
Telephone: 0121 371 7703

CyberKnife Webpage:
www.uhb.nhs.uk/cyberknife

Other Links:
www.bana-uk.com

If you cannot get through to a radiographer, please leave a message so one of the radiographers can call you back. This telephone will be checked regularly throughout the week but is not checked at weekends.

Future appointments

Date	Time	Procedure	Location

Please use the space below to write down any questions you may have and bring this with you to your next appointment.

Radiotherapy

Heritage Building, Queen Elizabeth Hospital Birmingham
Mindelsohn Way, Edgbaston
Birmingham, B15 2TH
Telephone: 0121 627 2000

Accessibility

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