Stereotactic Radiotherapy for Brain Metastases using 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).

Throughout your care there may be different health professionals who can guide and support you during and after treatment. To help you manage your care you will be allocated a key worker during your treatment. Your key worker is a named person who can act as a point of contact. The key worker will be a member of the team who is currently involved in your care and so may change during the course of your care, as appropriate. The key worker will not provide all the care and support you need, but will be able to put you in touch with the right people to help you or will help you to get the information you need.

The key worker will always be a trained health professional who may also have another role to play in your care. For example, it may be a clinical nurse specialist, radiographer, Macmillan nurse, doctor, community nurse, psychologist, physiotherapist, or social worker.

What is a brain metastasis?

When cancer has spread to the brain from a 'primary' cancer elsewhere in the body, it is called a secondary brain tumour or a brain metastasis. If there are multiple cancer deposits in the brain, the term used is brain metastases.

What are the treatment options for brain metastases?

Brain metastases are common, and treatment will vary depending on:

- Your type of cancer
- How well you are
- How well-controlled the cancer is in the rest of the body
- The size and number of brain metastases present

Treatment may involve:

- Surgery to remove the brain metastasis
- Surgery to relieve symptoms from the brain metastasis
- Radiotherapy to the whole brain
- Radiotherapy targeted specifically at the brain metastasis, for example stereotactic radiotherapy
- Chemotherapy
- Targeted Radiotherapy after surgery

Your team of doctors (surgeons and oncologists) will decide which treatment is right for you based on the size and position of your brain metastases. Your doctor will discuss the options with you in clinic.

What is stereotactic radiotherapy?

Stereotactic radiotherapy is a highly focused and accurate treatment which involves precisely targeting multiple X-rays at the cancer deposits that are visible on your brain scan. The aim is to destroy the cancer cells within the targeted region. If only one treatment is given, it is often called stereotactic radiosurgery (SRS).

At Queen Elizabeth Hospital Birmingham, we give stereotactic radiotherapy using a CyberKnife. This is a specialised radiotherapy machine mounted on a robotic arm so that the radiotherapy can be given very accurately to small areas within the brain.

In the same way that having a normal X-ray does not hurt, you will not feel anything whilst you are having radiotherapy.

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; therefore, 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 for brain metastases using CyberKnife has been recommended for you as a treatment option by your team of doctors. This treatment is best suited for patients with cancer that is well-controlled in the rest of the body and who have a low number of brain metastases that are relatively small.

What are the benefits of stereotactic radiotherapy?

The accuracy of CyberKnife means that a high dose of radiotherapy can be focused on a very precise area. This means that, generally, only one treatment is needed. The treatment is given to try and permanently stop the growth of the brain metastasis. The overall aim of this treatment is to maintain a good quality of life.

When is stereotactic radiosurgery or stereotactic radiotherapy given?

Stereotactic radiosurgery is given in a single treatment on a weekday and stereotactic radiotherapy is given in three treatments on consecutive weekdays. The treatment is delivered in the CyberKnife suite (radiotherapy room 9) in the Radiotherapy Department in the Cancer Centre (Heritage Building).

What needs to happen before I start stereotactic radiotherapy?

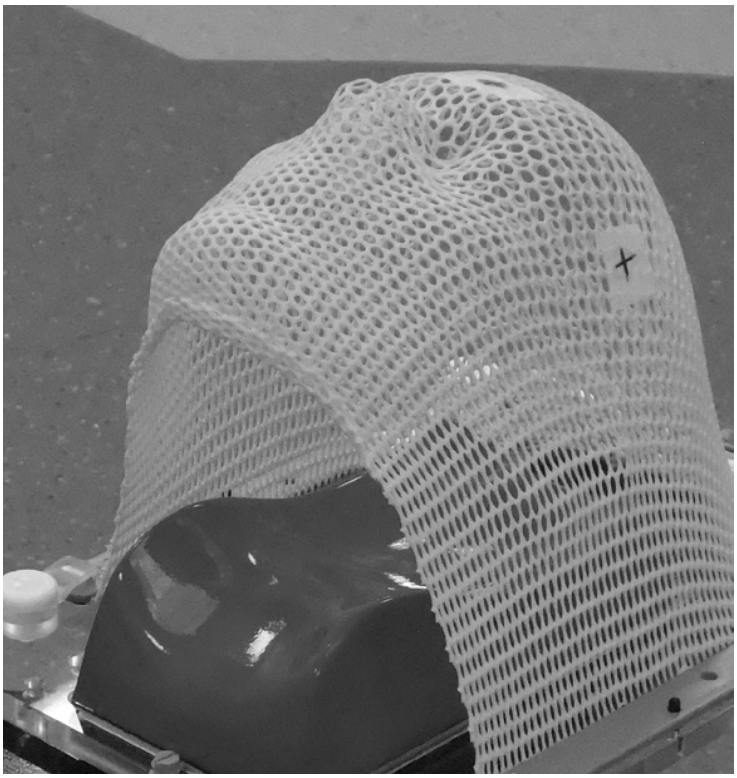
Stereotactic radiotherapy requires careful planning and preparation. You will need to have some further scans in order to plan your treatment appropriately. This will include a planning CT scan, which is done within the Radiotherapy Department and a MRI scan done in the main hospital building.

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

During your treatment you will lie on a couch and wear a mask. Your first visit to the Radiotherapy Department is to the Mould Room where the mask is made. This mask is made in the two weeks prior to starting radiotherapy. It fits over your head and is attached to the treatment couch. The mask is needed to keep you in exactly the same position, so that treatment can be given very

precisely to the correct area.

Making the mask involves warming a sheet of plastic so that it softens and becomes flexible. It can then 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 like having a warm flannel over your face. The mask needs to be a close fit but has small holes in it so that you can still breathe easily.



After the mask is made, you will have a CT scan which is performed with the mask on. The CT scan will be performed and then repeated with contrast (dye) which will involve an injection into a vein. The contrast is used as it makes it easier for the doctor to plan your treatment. It is important that if you are uncomfortable or struggling with the position that 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. They will try to accommodate you if you have a preference for morning or afternoon appointments and provide information on hospital transport for your treatment if necessary.
After your CT scan, the team will plan your treatment.

What happens when I come to the CyberKnife unit?

Your treatment will be on a weekday. This appointment normally takes around 1.5 hours. The radiographers will explain what is going to happen and show you the CyberKnife unit. The machine moves around the room and can make some noises. When all your questions have been answered, the radiographers will ask you to lie on the treatment couch, put your mask on and then move you into the correct position.

The radiographers will then 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, and will only be on for brief periods before moving to the next position. You do not feel anything whilst the treatment is being delivered but you may hear and

see the machine moving. You must stay as still as possible.

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 perfect. Assessing these images may take some time and require discussion with other members of the team. These images involve a very small additional dose of X-rays, but are essential to ensure accurate treatment.

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, 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.

CCTV use

The treatment room is monitored during your preparation for treatment, 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 staff, some of whom may not be directly involved in your care at that 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 can go home after your treatment. You should be taking steroid tablets as advised by your doctor. More details about the use of steroids are given below.

Use of steroid tablets

Often you will be given a course of steroids to help reduce the effect of any swelling from the tumour, which can be made temporarily worse with stereotactic radiotherapy. This is most

commonly in the form of Dexamethasone. It is common practice to gradually reduce the dose of steroids after radiotherapy. The aim is to minimise any side effects from steroids while still controlling the swelling. Sometimes symptoms return when the steroid dose is reduced, and you must inform your medical team immediately if this happens. Occasionally you may require steroids for a longer period of time. If this is this case, the pharmacy will issue you with a steroid card, which you must carry around with you so that everyone is aware that you are on steroids. It is also very important that you do not stop taking your steroids unless your medical team advise you.

What side effects may occur after my stereotactic radiotherapy treatment?

Stereotactic radiotherapy has relatively few side effects, and these differ between patients. Commonly, patients experience tiredness. Some patients can get headaches which usually settle with simple painkillers, like paracetamol. Occasionally, patients need long courses of steroids as the treatment can cause swelling in the brain. There is also a small risk of an epileptic fit after the treatment.

Long-term complications are unusual. Damage can occur to the normal brain because of the stereotactic radiotherapy, this is called necrosis. Necrosis means that some of the cells have died, however most people who develop this do not have any symptoms and it improves without any intervention. It can cause swelling which may be treated with steroids. Very occasionally, an operation may be required to remove the dead cells. Any swelling or damage to the brain carries the potential for an associated disability which depends upon the region of the brain involved. Your consultant will discuss the possible side effects in more detail when you consent to treatment. If you have any concerns with side effects, either above or those raised through discussion, please do contact your consultant or key worker.

Following your treatment

You will have a follow-up appointment with the brain radiotherapy oncology team two to three weeks after treatment. This appointment can be done as a telephone consultation or face to face. At this appointment you will be given further advice on your steroids. The team will also discuss the timing of any further scans of your brain. Typically, a scan is performed three months following treatment. Commonly, you will be referred back to the oncologist managing your primary cancer.

Radiotherapy to the whole brain

Your doctor may also discuss using radiotherapy to the whole of your brain, as well as targeting the visible areas of cancer with stereotactic radiotherapy. This is because cancer cells can occur in other parts of the brain and may be too small to show up on a scan. Radiotherapy to the whole brain may kill these small areas of cancer and stop them causing problems in the future. This type of radiotherapy is delivered daily over five to ten sessions on an outpatient basis. It is associated with some side effects and your doctor(s) can discuss the risks and benefits in more detail.

Other information

Car parking

Car Park D is directly opposite the doors to the Cancer Centre. 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 pre-paid 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 Lead Radiographer:
Telephone: **0121 371 7703**
CyberKnife Suite
Telephone: **0121 371 5060**

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

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

Accessibility

To view this information in a different language or use the text-to-speech reader visit www.uhb.nhs.uk, click the yellow and black circular icon in the bottom right of the web page to open the ReachDeck toolbar and then use the search bar to search by the name of the leaflet. If you require this information in another format such as braille or audio please email interpreting.service@uhb.nhs.uk.

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