



University Hospitals Birmingham
NHS Foundation Trust



Stereotactic Ablative Body Radiotherapy for Spinal Metastases using CyberKnife

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This leaflet has been given to you to provide some written information about the treatment that is being planned for you. This is 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 Spinal Metastases?

Metastases are when the primary/original Cancer has spread to other parts of the body, in this case the spine. Spinal metastases are common in patients with some types to cancer. It is the third most common site for cancer cells to metastasize. More than one, and up to three, metastases are called oligometastases.

What are the treatment options for spinal metastases?

- Spinal metastases can be treated with medication for pain
- Surgery can also be possible

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- Conventional external beam radiotherapy techniques can be used
 - Stereotactic Ablative Body Radiotherapy (SABR) using the CyberKnife can be used. Conventional and SABR are described below

Your team of doctors (surgeons and oncologists) will decide which treatment or combination of treatments is right for you based on the size and shape of your metastases. Your doctor will discuss the options with you in clinic. Occasionally, we may recommend starting the radiotherapy planning process and then, based on findings, decide the best option for you. If this is the case, we will ask you to come back to clinic so we can update you prior to your treatment starting.

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

What is Stereotactic Ablative Body Radiotherapy (SABR)?

SABR is a highly focussed treatment which involves precisely targeting many radiotherapy beams at the spinal metastases which is visible on your scan. The aim is to destroy the cells within the targeted region. At the Queen Elizabeth Hospital, we give SABR using a CyberKnife. This is a specialised radiotherapy machine mounted on a robot arm so that the radiotherapy can be given very accurately to small areas.

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

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 radiotherapy or SABR?

Radiotherapy or SABR (using CyberKnife) for spinal metastases has been recommended for you as a treatment option by your team of doctors to try and stop the cancer cells growing.

What are the benefits of SABR?

The accuracy of CyberKnife means that a high dose of radiotherapy can be focussed on a very precise area. This precise delivery is very important as the spinal metastases are commonly close to, or touching, critical structures like the spinal cord. The CyberKnife ensures that very little or acceptable doses reach the critical organs.

When is SABR given?

SABR is given in three or five alternate day treatments on a weekday. The treatment is delivered in the CyberKnife suite (radiotherapy room 9) in the radiotherapy department in the Heritage Building at the Queen Elizabeth Hospital.

What needs to happen before I start SABR?

SABR requires careful planning and preparation. You will need to have some further scans done 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 SABR treatment to be planned?

At the CT scan, with your permission, you will be given three permanent marks on the skin around the area of treatment (one on either side and one on your front). These are very small, around the size of a freckle but are permanent. We need these markers to ensure you are in the same position for treatment as you were for your planning scans.

After your CT scan, the radiographers will give you the details of your first radiotherapy treatment appointment and show you where your treatment room is. They will try to accommodate you if you have a preference for morning or afternoon appointments, and can provide information on hospital transport for your treatment if necessary. The CyberKnife radiographers will provide you with a steroid prescription which you need to start on the day of your treatment. The radiographers will explain how to take the steroids.

After your MRI and CT scans, the team will plan your treatment. The planning is complex and time consuming so you will not start your treatment until at least two weeks after your scans.

What happens when I come to the CyberKnife unit for SABR treatment?

Your treatment will be given to you on alternate days as an

outpatient, which means you go home each day after treatment. Each appointment normally takes up to an hour to an hour and a half. The radiographers will explain what is going to happen and show you the CyberKnife unit. When all your questions have been answered, the radiographers will ask you to lie on the treatment couch and then move you into the correct position using the small permanent marks made at CT as guidance.

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. The treatment machine does not touch you at any point and 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 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 need 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 CCTV cameras. If for any reason you need the radiographers, simply call out 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.

Use of steroid tablets

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 SABR treatment. This is most commonly in the form of dexamethasone.

What side effects may occur after my SABR treatment?

SABR treatment has relatively few side effects, and the side effects that do occur can differ between patients.

Commonly patients experience tiredness.

Pain is another common side effect, but the steroids given during treatment should help minimise this.

If we are treating your cervical spine you may experience nausea, sore swallowing and small, long-term risk of stricture (a narrowing) or fistula (abnormal connection between two structures).

If we are treating your thoracic spine you may experience nausea, chest pain, rib fracture, small, long-term risk of a stricture (a narrowing) or fistula (abnormal connection between the windpipe and the oesophagus).

If we are treating your lumbar/sacral spine you may experience diarrhoea, nausea or small, long-term risk of bowel damage which might need surgical or non-surgical management.

Long-term side effects can include:

- Increased risk of a fracture or vertebral collapse. This could result in pain and might need surgical management
- Temporary or permanent damage to the spinal cord (myelopathy) or nerve damage is very rare (less than five percent), which could lead to weakness, altered sensation, paralysis or loss of ability to hold urine or control a bowel movement

Your consultant will discuss the possible side effects in more detail before you consent to treatment. If you have any concerns with side effects, either those mentioned above or those raised through discussion, please do contact your consultant or key worker.

Following treatment

You will have a follow-up appointment with your consultant in four to six weeks' time after your SABR treatment.

Other information

Car parking

Car Park D is directly opposite the doors to the Cancer Centre on Mindelsohn Way. If you park here and bring in the ticket you have taken to access the car park, the radiographers in the treatment room will exchange this for a prepaid one so you can exit the car park. This has only been negotiated for patients who are attending for radiotherapy planning or treatment appointments so unfortunately the radiographers will not be able to give you a ticket if you are attending for a follow-up appointment.

Contact details

CyberKnife Radiographers

Telephone: 0121 371 5060

If there is no answer then please leave a message so one of the radiographers can call you back. This telephone will be checked regularly throughout the week but not checked at weekends.

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

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The Trust provides free monthly health talks on a variety of medical conditions and treatments. For more information visit www.uhb.nhs.uk/health-talks.htm or call 0121 371 4323.

Radiotherapy (Cyberknife)

Queen Elizabeth Hospital Birmingham
Mindelsohn Way, Edgbaston
Birmingham, B15 2GW
Telephone: 0121 627 2000
