

# Proton beam radiotherapy

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## Information for patients

### Ophthalmology (Oncology)

Proton beam radiotherapy is carried out at the Douglas Cyclotron Unit at Clatterbridge Hospital, Bebington near Liverpool; this is the only one of its kind available in England.

The Cyclotron Unit is specifically concerned with treating cancers within the eye; the most common lesions treated are choroidal, iris (coloured part of your eye) and conjunctival (front surface of the eye) tumours.

### What is Proton Beam Radiotherapy?

Protons are Hydrogen ions that are accelerated in the cyclotron to a high energy making them penetrating. They penetrate tissue to a specific, clearly defined depth and area, and for this reason are very practical for treating small areas of the eye.

### How does the treatment work?

The treatment works by sterilising the tumour cells so that they can no longer reproduce.

The results can vary depending on the size of the tumour but for small lesions the success rate is extremely high, however larger lesions do carry a greater risk of complications.

### What are the possible complications following treatment?

Possible complications include:

- Redness of your eye and eyelid: this reaction does not usually start until after treatment has finished and becomes more intense about 3-4 weeks later.
- Some eyelash loss
- Cataract
- Retinal detachment
- Vitreous haemorrhage (bleeding in the jelly like substance of the eye). This usually resolves without treatment. However, we sometimes have to treat this condition with laser treatment.
- Glaucoma: raised pressure in the eye. This can usually be treated with eye drops or laser. However, if it does not get better we may have to consider surgery.
- Loss of vision: the amount of visual loss you have will depend on the size and location of the tumour. Your ophthalmologist will discuss this with you before your treatment.
- Blocked tear duct: this may cause a watery eye

## **How will this treatment help me?**

The treatment aims to:

- Destroy the tumour in your eye
- Allow you to keep your eye

## **What happens before treatment?**

Before you go to Clatterbridge, you will need to have an operation to have four tiny tantalum marker clips placed on the back of your eye. These clips are quite harmless and are there to mark the boundary of your treatment area. They will enable the doctor at Clatterbridge to build up a three-dimensional image of your eye and to plan the treatment. However if your tumour is on the iris or the conjunctiva, it will not be necessary for you to have this operation.

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

Prior to coming into hospital you will need to have a general anaesthetic assessment, usually this will be carried out at your first out-patient appointment once you have seen the consultant and support sister.

You will meet one of the nurses in the assessment team who will:

- Assess your general health
- Arrange for you to have an ECG, chest X-ray and blood tests
- Discuss your current medication and advise you if you have to stop taking any medication prior to surgery
- Advise you on starving prior to your operation
- Confirm the date and time of your admission
- You will also need an abdominal ultrasound scan which we will try to organise for the same day, if not you will be required to attend the day before your operation.

## **What happens on the day of my operation?**

On the day of your operation you will:

- Be admitted to the day case unit at the Royal Hallamshire Hospital, and from theatre you will be taken to ward I1 for the remainder of your stay.
- Have nothing to eat for 6 hours before your operation.
- Have nothing to drink for 4 hours before your operation.
- Have dilating drops put into the eye that we are going to treat, approximately 1 hour prior to your operation. At about the same time, we may also give you some pre-medication.

Before treatment can begin you will be asked to attend Clatterbridge for simulation, this has two main purposes:

- To prepare you for treatment
- To help develop your treatment plan

## **What happens during the simulation (treatment planning)?**

This session is usually a single visit as an out-patient and is divided into three parts:

### **1. Making you a treatment mask and mouth piece**

Since the treatment area of your eye is small, it is important that your head is kept perfectly still so that the proton beam can be accurately directed at the tumour. To help keep your head in an exact position you will need to wear a treatment mask.

The treatment mask is made in two parts. First a bite block is made from dental material, and then a head support is made from a pliable plastic to fit snugly around the upper part of your face. This whole process takes about half an hour. Once the mask has been made you will then be ready for simulation and planning of your treatment.

### **2. Treatment program preparation**

For this procedure you will be sat in the treatment chair in front of the proton beam machine and asked to look directly at a small light. The light will be moved in several different positions and a series of X-rays will be taken. The X-rays will show the position of the markers (placed at the time of your previous operation in Sheffield). This will determine the best position for you to look during your treatment.

### **3. A short consultation with one of the doctors**

Following the above procedures you will then have a consultation with the doctor who will be responsible for your care whilst attending the unit. This will give you a chance to ask any questions, or raise any concerns.

Finally you will be allowed to go home and be given a date for the final simulation and treatment week (approximately two weeks later). During this time the unit will work out the best treatment plan for you which will also be agreed by your consultant ophthalmologist.

## **Why is there a final simulation?**

A final simulation is performed to ensure your treatment plan is correct and that treatment can proceed, this will take place on the Monday of your treatment week.

## **What happens during treatment?**

You will have four daily sessions, from Tuesday to Friday. Your treatment is set up exactly as in the treatment programme preparation. Once you are in the correct position (this could take approximately 20 minutes) the radiographer will leave the room to switch on the proton beam. You will be alone for less than a minute. Whilst receiving the treatment both you and your eye will be monitored on a closed circuit television. If your eye moves or it is not in the correct position, treatment can be interrupted immediately. The treatment takes about 30 seconds. You will feel nothing. After treatment the rest of the day will be yours.



**The treatment room at Clatterbridge**

### **What happens after treatment?**

You will be able to return home after your last treatment session on the Friday. A report will be sent to your consultant Ophthalmologist and your GP.

You will be sent an appointment to see your consultant Ophthalmologist approximately six weeks after treatment. You will not have to return to Clatterbridge.

### **Where will I stay during my treatment?**

Arrangements will be made for you to stay in a local Travel Inn. Clatterbridge will pay for the cost of your accommodation (whether you require a single or a double). However meals are not included.

### **How will I get to the unit?**

People who live locally or have travelled to Bebington by car normally drive themselves to the hospital. If you are staying in a guesthouse and do not have a car with you, Clatterbridge will provide transport to and from the guest house to the Cyclotron Unit.

### **Is there anything I should look out for when I get home after treatment?**

- Your eye may become painful, red or sore
- You may have some eyelid irritation
- You may experience some loss of vision

Please contact your support sister if you are worried.

## What if I need more information?

If you would like some more information, have any concerns about your treatment or are worried about your eye once you get home please do not hesitate to call us:

Support Sister (Key Worker) Rhona Jacques

- **0114 271 2029**
- **0114 271 1900** (ask for **bleep 2026**)

Support Sister (Key Worker) Lesley Hinchliffe

- **0114 226 1341**
- **0114 271 1900** (ask for bleep **2853**)

Appointments

- **0114 271 2978**

Ophthalmologist on call (Weekends)

- **0114 271 1900** (ask for the Ophthalmologist on call)
- **0114 271 2504** (Ward I1)

## What support is available after my treatment?

You may feel quite tired for a couple of months following treatment this is perfectly normal. However if you find you continue to struggle to return to your normal activities due to the impact of your treatment additional support may be helpful.

Please contact your Support Sister (Key Worker) if you require any information on support services and or complementary therapy services in your area.

### UK support groups

You can obtain further information on the ocular oncology service provided here in Sheffield via our website:

- [www.sheffieldocularoncology.org.uk](http://www.sheffieldocularoncology.org.uk)

An American website/chat line is available for people who have lost an eye or have lost vision in one eye. You can visit this on:

- [www.LostEye.com](http://www.LostEye.com)

Further information about Clatterbridge can also be found on the Internet:

- [www.clatterbridgecc.nhs.uk/patients/treatment/protontherapy](http://www.clatterbridgecc.nhs.uk/patients/treatment/protontherapy)

## Where can I get any financial advice?

If you are experiencing financial problems and not sure what benefits you are entitled to, or need help with travelling expenses, you can get advice from:

### Macmillan Cancer Support

- 0808 808 0000

### Your local Social Security Office

- [www.gov.uk/benefits-adviser](http://www.gov.uk/benefits-adviser)

### Your local Citizens Advice Bureau

- [www.citizensadvice.org.uk](http://www.citizensadvice.org.uk)



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