
Portal vein embolisation

Interventional Radiology

Patient Information



Introduction

Your doctor has recommended that you have a procedure called a portal vein embolisation before your liver resection. This will encourage the healthy part of your liver to become bigger in preparation to remove the part affected by cancer.

What is a portal vein embolisation?

Portal vein embolisation is a technique used to increase the liver's size before liver resection surgery. During the procedure, a needle is placed through the skin (percutaneously) into the liver. The radiologist will identify the blood vessel going to the side of the liver that has the largest portion of the tumour. This blood vessel is then removed (embolised), thereby 'tricking' the liver into making the smaller side grow.

After several weeks, the side of the liver which has not been embolised should have grown to the point where there is now a sufficient amount of liver to do surgery. This procedure is usually done under general anaesthesia.

Why do I need portal vein embolisation?

The liver is a unique organ because it can re-grow (hypertrophy) after part of it has been removed. However, the body does require a certain amount of liver to be left behind following surgery to give the body enough time for this re-growth to occur. Sometimes, the tumours are located in such a way that a large part of the liver needs to be removed.

If the amount of liver left behind is too small, there is a very high risk of liver failure. This occurs in situations where:

- Less than 25% of the total volume of the liver is likely to be left behind

Or, in patients with chronic liver disease

- Less than 40% of the liver will be left behind.

In such situations, it is possible to block off the portal vein inflow of blood into the parts of the liver that are going to be

removed. They then start to shrink (atrophy) while the rest of the liver (the part that is going to be left behind) starts to grow. In a period of 2 to 6 weeks, substantial growth may be seen and a surgical resection may become possible.

Who has made the decision?

The consultant in charge of your care, and the doctor performing the procedure will have discussed your situation, and feel that this is the best treatment option for you. However, your opinion will also be taken into account, and if after discussion with your doctors you do not want the procedure carried out, you can decide against it.

Who will be doing the procedure?

A doctor called an interventional radiologist. These doctors are able to see what they are doing by using x-rays and other scanning equipment. They will be assisted by radiology nurses and radiographers.

Where will the procedure take place?

This procedure is carried out in a room in the x-ray (radiology) department.

Are there any risks or complications?

Portal vein embolisation is a minimally invasive procedure and is therefore considered very safe. However, there are some associated risks, as with any surgical procedure.

- Bleeding and unintentional embolisation are the most common complications and occur in less than 2% of patients (2 in 100 people)
- Some patients experience nausea and vomiting as well as fever. These symptoms can usually be controlled with appropriate medications
- A small number of patients may develop an infection which can usually be controlled with antibiotics. This occurs in around 5% of patients (5 in 100 people).

How do I prepare for the procedure?

- You will need to come for a pre-assessment and blood tests beforehand (2–7 days before your procedure day) to check that you do not have an increased risk of bleeding and that you are fit for the general anaesthesia
- If not already an inpatient, you will need to be admitted to the hospital as an inpatient on the day of the procedure or the day before
- You **must not** eat anything for six hours before the procedure although you will be allowed to drink clear fluids until two hours before the procedure
- You should not bring any valuables with you in case of loss or theft
- If you are taking any medication that thins your blood such as aspirin, tinizeparin, clopidogrel and warfarin, you **must** contact the radiology department
- If you have any allergies, you must let your doctor know. If you have previously reacted to intravenous contrast medium (the dye used for kidney x-rays and CT scans), then you must also let your doctor know.

Can I bring a relative or friend?

You may bring someone with you, but for safety reasons they cannot accompany you into the x-ray room.

When you arrive at The Royal Marsden

- Please report to the day care area written on your appointment letter
- Before you go to the x-ray department, we will ask you to change into a hospital gown
- You can either walk to the x-ray department or be taken there on a trolley

- You will have a fine plastic tube (cannula) put into a vein in your arm, so that you can be given fluids and receive medication while in the x-ray department. Once in place, this tube does not cause any pain
- You will be allocated a bed, which you may go to after the procedure.

What happens during the procedure?

- At the x-ray department, you will be seen by the radiologist and the anaesthetist before the procedure starts
- You will be assisted onto an x-ray table and will lie on your back
- Your blood pressure, heart rate, and oxygen levels will be checked throughout the procedure
- You will be given medicine through the IV to relax you, and the anaesthetist will administer anaesthesia so that you will be asleep
- The radiology doctor will numb the area and insert a needle into the portal vein
- A guidewire will be inserted through the needle. A small catheter is then threaded along the guidewire
- Once the catheter is where the doctor wants it to be, the embolic agent will be injected
- The doctor will use images taken during the procedure to confirm that all blood flow to that particular area of the liver has stopped
- The catheter will be removed and a small dressing will be placed on the site.

Will it hurt?

It does not hurt, as you will be under general anaesthesia. There will be a doctor or another member of clinical staff, who will be close by throughout the procedure.

How long will it take?

Every patient is different, and it is not always easy to predict, however expect to be in the department for about three hours.

What happens afterwards?

- You will be taken back to the recovery ward on a trolley or a bed
- Nurses on the recovery ward will carry out routine observations, such as checking your pulse and blood pressure, and also the treatment site to make sure that there are no problems
- You will stay in bed for a few hours, until you have recovered
- Generally you can eat and drink as normal after you have woken up
- Most patients leave the day after the procedure
- Your doctors will be in contact with you after discharge. A repeat CT scan is done in approximately 4–6 weeks to confirm regeneration and enlargement of the liver.

Contact details

If you have any questions or concerns about your procedure, or you are unable to attend for this appointment, please call:

Radiology Department **020 7808 2571**
(Monday to Friday, 8.30am – 4.30pm)

Alternatively, please call:

The Royal Marsden Hotline: **020 8915 6899**
(available 24 hours a day, 7 days a week)

Call us straight away if you are feeling unwell or are worried about the side effects of cancer treatments.

This service provides specialist advice and support to all Royal Marsden patients, as well as to their carers, and both hospital and community-based doctors and nurses caring for Royal Marsden patients.

Further information

The Royal College of Radiologists
www.rcr.ac.uk

For general information about radiology departments.

Macmillan Cancer Support
www.macmillan.org.uk

Support line: **0808 808 0000**
(Monday to Friday, 9am – 8pm)

National Institute for Health and Clinical Excellence
www.nice.org.uk/guidance

The Royal Marsden PALS Centre
(Monday to Friday, 9am – 5pm)

Chelsea **020 7808 2083 and 020 7811 8438**
Sutton **020 8661 3759 and 020 8661 3951**

Notes and questions

Notes and questions

References

This booklet is evidence based wherever the appropriate evidence is available, and represents an accumulation of expert opinion and professional interpretation.

Details of the references used in writing this booklet are available on request from:

The Royal Marsden Help Centre

Telephone: Chelsea 020 7811 8438 / 020 7808 2083

Sutton 020 8661 3759 / 3951

Email: patientcentre@rmh.nhs.uk

No conflicts of interest were declared in the production of this booklet.

Should you require information in an alternative format, please contact The Royal Marsden Help Centre.

The patient information service is generously supported by The Royal Marsden Cancer Charity.

royalmarsden.org

Registered Charity No.1095197



Revised June 2025. Planned review June 2028
© The Royal Marsden NHS Foundation Trust IR-0835-05



Radiotherapy and
Chemotherapy Services
F538021 & F538022

