



Liver Ablation (MWA)

What is Liver Ablation?

Liver Ablation is a treatment that is used for some types of cancer. It is performed by a consultant interventional radiologist (IR doctor). It can also be given by a consultant surgeon during an operation. A needle is placed into the liver tumour using image guidance (such as CT or Ultrasound). The needle produces heat within the tumour with the aim to kill the cancer cells. Most of the surrounding “normal” liver tissue is not affected.

There are two different techniques used depending upon which is more technically suitable, the position and size of the liver cancer.

Microwave Ablation (MWA)

MWA uses heat to destroy the cancer cells via a special electrode inserted into the liver (see diagram 1 below). It works by agitating water molecules to generate heat which destroys (ablates) the cancer cells. It uses similar technology to other microwave equipment but on a smaller scale. The cancer cells die and the area which has been treated gradually shrinks and eventually becomes scar tissue.

When is liver ablation used?

Liver ablation is mainly used to treat liver cancer that has started in the liver (primary), or a cancer that has spread to the liver from another part of the body (secondary).

It may be used instead of surgery for very small tumours or if you cannot have surgery or choose not to.

Primary liver cancer

Liver ablation treatment is most suitable for tumours smaller than 3cm. Larger tumours can be treated, but may need repeated ablation treatments.

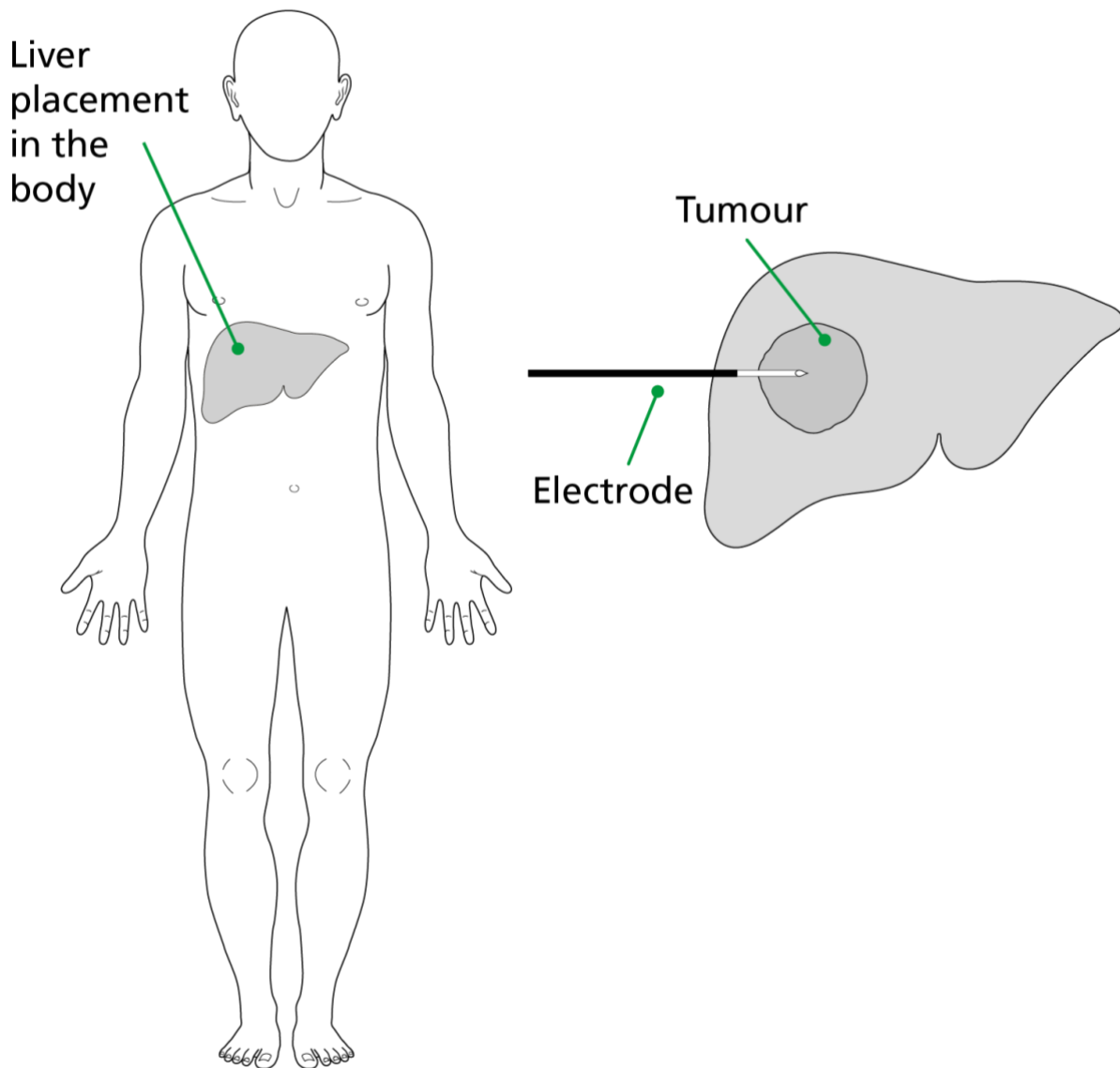


Figure 1 - Liver placement in the body

Liver ablation is suitable for people who already have liver disease, such as cirrhosis (scarring of the liver which stops it working properly) and for those who cannot have surgery.

Secondary liver cancer

Liver ablation may also be used to treat cancers that have spread to the liver from the bowel.

Liver ablation usually works best for tumours that are smaller than 3cms. Sometimes chemotherapy is given before liver ablation to try to shrink the tumours and to help ablation work more effectively. People with other cancers may also be suitable for treatment with liver ablation, but first doctors need to make sure that the cancer is contained within the liver or is well controlled.

How is liver ablation performed?

By placing one or more needle-like electrodes through the skin into the part of the liver where the tumour is.

Before the treatment you will see a consultant interventional radiologist (IR doctor) who will explain the procedure to you. This is a good time to ask any questions about anything that you're unsure about. You will then be asked to sign a form to say you agree (consent) to the treatment. **If you take drugs that can thin your blood such as Aspirin, Warfarin or Clopidogrel it is very important that you let us know immediately, as these will need to be stopped in preparation for the procedure. Your doctor will give you instructions about when to stop taking these.**

On the day of treatment you will have been asked not to eat anything for several hours beforehand. If you take any medicines you will usually be able to take them as normal.

You will be given a hospital gown to change into and a fine tube (cannula) will be placed into a vein in your arm or on the back of your hand. Ablation is usually done under a general anaesthetic and most people will have an overnight stay in hospital.

The treatment usually takes place in the operating theatre or in CT scan in the hospital radiology department. If liver ablation is given in the radiology department you will be left with 1–3 tiny holes in your abdomen (measuring between 1–3mm) which are dressed afterwards with a simple plaster and will usually heal quite quickly. You would only have a larger surgical scar if your liver ablation was given as part of an operation.

Once you're in position in the CT scan machine, a scan is done. This helps the doctor to guide the electrode into the right position and are also used to keep a close eye on what's happening during your treatment.

Once the electrode is in the right position the treatment is started and the tip of the electrode is heated. How long the treatment is applied for will depend on the size of the tumour/s.

An area of healthy tissue around the tumour is usually also treated as there may be cancer cells around the tumour that can't be seen. The treated tissue is not removed, but it slowly shrinks and dies over time.

What are the benefits of liver ablation?

Liver ablation can be used to try to cure a cancer, to reduce its size, or to relieve symptoms (palliative treatment). It can be given alone, or along with other cancer treatments.

Liver ablation may be used when surgery is not possible. This may be because someone has other medical conditions, which means they're not fit enough to have major surgery or because the tumour is near an important body structure or major blood vessel.

Liver ablation does not always manage to destroy all the cancer cells. Some people may need to have it done more than once. Liver ablation can be repeated if the tumour starts to grow again.

Possible complications and side effects Complications

The risk of complications with liver ablation is low. These are the main complications that can occur:

Bleeding from the incision site – There is usually very little bleeding during the treatment. Occasionally, some people have more serious bleeding during or immediately after the procedure. You'll be closely monitored for bleeding during the treatment and for a few hours after so that if it occurs it can be dealt with straight away.

Infection – Some people develop an infection at the site of the treatment. You may be given antibiotics to prevent this happening. If infection develops it may show up as redness or discharge, as pain at the treatment site that doesn't go away after a few days, or you may feel generally unwell. If you think you might have an infection contact your doctor for advice.

Collapsed lung (pneumothorax) – A part, or sometimes, all of the lung may collapse. The lung can collapse when treating liver cancer although this is very rare. A collapsed lung can cause breathlessness. Although this may sound frightening it's usually not serious, and the lung will get better on its own over a few days. Most people don't need any treatment for a collapsed lung other than painkillers. Some people may need to have a tube placed into their lung, for a short time, to help their lung to expand back to its full size.

Damage to organs close to the area being treated – This is rare as the doctor uses scans to guide the electrodes into place. However, some people are at greater risk because of the size or location of the tumours. In a few cases people having treatment to their liver may experience damage to their bile ducts causing jaundice (yellowing of the skin) or to their bowel. Sometimes fluid is placed within the abdomen or chest to reduce the risk of injury further.

In some cases it may be necessary to try and place some fluid (hydrodissection) in to the abdominal or pleural cavity in order to try and displace important structures or obtain better views or access to the target lesion. This is done through a fine calibre needle and the fluid will be absorbed by the body. Rarely a drain may need to be inserted at the end of the procedure to remove the fluid. Despite best efforts this technique may not be successful and the ablation may not be possible.

Side effects

These are some of the side effects you may have for a few days after your treatment:

Pain or discomfort – Your doctor will prescribe you painkillers to take regularly for a few days as you will probably have some pain or discomfort at the site of the treatment. Sometimes people have some pain in their shoulders after treatment to their liver.

For most people any pain or discomfort lasts less than a week. If you have pain after this time, or if the pain isn't controlled with painkillers, contact your doctor for advice.

Feeling unwell with a raised temperature – You might feel a little unwell for the first few days and have a slightly raised temperature. You'll probably feel tired as well. People who have treatment for larger tumours or to several tumours are most likely to be affected.

This is a normal reaction and is caused by your body clearing away the cells that have been destroyed by the treatment. Drinking plenty of fluids will help. It's a good idea to take it easy for a few days, but you should be able to get back to your usual activities after about a week. If your temperature doesn't return to normal or if it goes above 38°C contact your doctor as this may be due to infection.

Follow up afterwards

You will be given an appointment to have a repeat CT or MRI scan usually about 6 weeks after your liver ablation to see how well the treatment has worked. We will discuss the results with you in clinic and any further treatment that maybe recommended.

Any other questions?

We hope we have covered a lot of the usual questions people have, but if there is anything else you would like to know please do not hesitate to ask us. You can contact us either in person or on the telephone on the following numbers:

Consultant Interventional Radiologists
Dr Mehrzad and Dr Karkhanis via the medical secretarial team. Telephone: **0121 371 4283**,
Monday–Friday, 09:00–17:00

Clinical Nurse Specialists via their secretary:
Telephone: **0121 371 4652**, Monday–Friday, 09:00–17:00

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