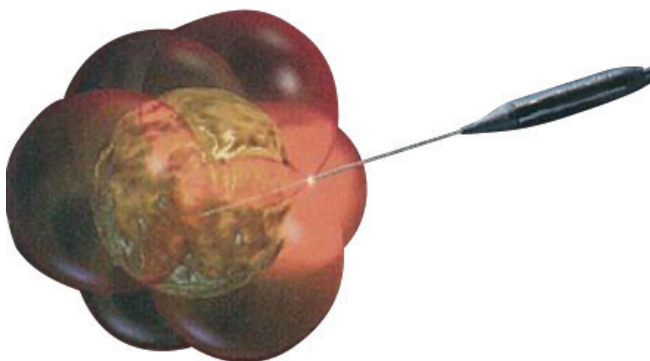


Radiofrequency Ablation



RADIOFREQUENCY ABLATION

This brochure tells you about Radiofrequency Ablation (RFA). It explains briefly what is involved, its benefits over other forms of treatment and some of the more salient risks. It is not meant to replace an informed discussion between you and your referring doctor or interventional radiologist who will be performing the procedure. If you have any questions regarding the procedure, do not hesitate to ask your referring doctor or the interventional radiology staff.

What is RFA?

This is a nonsurgical method of shrinking and killing tumour cells by heating them while sparing as much normal adjacent healthy tissue as possible. It is used in the treatment of solid tumours, including those in the liver, kidney and lung. It is an excellent alternative to treatment when surgery is not possible for a variety of reasons.

Preparation for the procedure

A blood test may be required to test for any blood clotting problems.

If you are on any medication, kindly inform your referring doctor and the Radiology Department of this. If you are currently taking any blood thinners, this may have to be stopped for 3-5 days prior to the procedure. Your referring doctor will advise you on this. Similarly, diabetic medication may have to be halted until after the procedure as fasting may be required for the procedure.

In general, fasting 4-6 hours prior to the procedure is recommended. This is especially so if sedation or general anaesthesia is required.

Arrive early at the hospital as time is often required for registration, admission and other administrative details. If the procedure is to be performed as an outpatient, please arrive at least 20 minutes before your procedure time. If the procedure is to be performed as a day-case or inpatient, please arrive at least 2 hours before the procedure time.

What happens during RFA?

The procedure is performed by an Interventional Radiologist in the Radiology Department. Special electrodes, in the form of needles are inserted through the skin, under image-guidance, into the tumour. Imaging such as CT-fluoroscopy (real-time CT imaging) and ultrasound are used. Once the needle is satisfactorily sited within the tumour, it is connected to a special Radiofrequency (RF) generator. Electrical grounding pads will be applied to the thighs. Electrical current at the frequency of radiowaves is transmitted through the tumour. This heats up the tumour in the immediate vicinity around the needle. Temperatures of up to 70-80°C are achieved, resulting in cell death. The dead tissue will shrink and scar.

The procedure is usually performed under deep conscious sedation. This will be provided by an anesthetist who, in addition to sedating you, will also monitor your vital signs and breathing to ensure your stability and comfort throughout the procedure. Rarely, general anaesthesia may be required.

The entire procedure may take 1-2 hours depending on the target lesion for ablation.

A CT scan with intravenous contrast enhancement may be required during or immediately after the procedure to evaluate the area for ablation.

After the procedure

After a period of monitoring in the recovery area of Radiology to ensure that you are stable, you will be transferred back to your room, where monitoring at prescribed regular intervals will continue. You may experience some pain and discomfort, for which medication has been prescribed. When fully awake, you may resume normal diet. If there are no complications, you may be discharged the following day.

How effective is RFA?

For small tumours, the chance of complete ablation of the tumour is high. In lesions less than 3cm in diameter, RFA is comparable to surgical resection. Inadequate ablation due to a number of factors, including difficulty in achieving safe or optimal needle positioning and poor visualization of the tumour on imaging, may occur. Normal blood flow within adjacent large blood vessels may protect the margins of tumour which are in contact with these vessels. This is called the heat-sink effect.

Benefits and Risks

BENEFITS

- Risks and complications are considered lower than open surgery
- RFA is local therapy. The heat effect is over a limited area in the immediate vicinity of the electrode. It therefore spares the neighbouring normal healthy tissue adjacent to area of heating. Functioning of the treated organ therefore has a much reduced risk of damage as compared to surgery.
- The procedure can be repeated because of this and also because it is minimally invasive.
- Pain and discomfort during and after the procedure are much less than surgery.
- In most cases, no general anaesthesia is required. Deep conscious sedation by an attending anaesthetist is usually used to ensure safety and comfort during the procedure
- Hospitalization and recovery time following RFA is shorter compared to surgery

RISKS

Overall, the risks for RFA are low. Below is a list of some of the more salient risks.

- Any invasive procedure, no matter how minimal, will carry a risk of bleeding. Most of the time, the bleeding is mild and self-limiting, requiring no further treatment. Depending on the target organ, this risk may sometimes be higher than others. Significant haemorrhage requiring surgery or further intervention rarely occurs.

- Any procedure which requires skin penetration carries a small risk of infection. As the ablated tissue is not resected but is left within to heal and scar, there is always a risk that the tissue may get infected. Cavitation and abscess formation may occur. Previous surgery or other existing medical conditions, such as diabetes mellitus, may sometimes increase this risk of infection. Antibiotic cover during the procedure reduces that risk. In high-risk cases, the antibiotic cover may continue after the procedure.
- Heat injury to neighbouring structures both within and adjacent to the target organ may occur. In the liver, this includes injury to the drainage system of the liver (the bile ducts). In the kidneys, this includes injury to urine collecting system and ureter. Injury to structures adjacent to the target organ may occur. This includes the intestines, muscles and nerves running near or through the area of ablation. Damage to the intestine may result in perforation and leaks requiring surgery. Injury to the muscles and nerves may result in weakness and numbness. In cases of RFA high up in the liver, injury to the lung, pleura and diaphragm may occur, as in cases of RFA of the lung. For superficial tumours, skin burns may occur.
- RFA of the lung carries the risk of pneumothorax, which is an air-leak from the lung, resulting in collapse of the lung. Occasionally, a chest tube may be required to treat this. In very rare cases, the air-leak persists. This is called a broncho-pleural fistula.
- Inflammation of neighbouring structures from the procedure may sometimes cause fluid accumulation. In and around the diaphragm and lungs, this may cause difficulty in breathing. A drainage tube may be needed to remove this fluid.
- Post ablation syndrome is encountered in up to 30% of cases. This is the body's response to the tumour which has been killed. Symptoms include low-grade fever (<38.5C), myalgia (muscle ache) and tiredness. This may last between a week to 10 days.
- Pain from the puncture site, pleural and diaphragmatic injury can last a few days. In some cases, this may persist for a longer period
- As electrical energy is used in RFA, very rarely, skin burns usually at or near the site of application of the grounding pads may be encountered.

In any procedure, there are risks, including death, which are very rare and unpredictable. It is not possible to list every risk. Any of these potential complications, both listed and not listed above, may require further surgical or interventional procedures for treatment.

Alternatives

There are always alternatives for treatment. As this procedure is for small tumours, the option of surgery and other treatment options should be explored. These should be discussed with your referring doctor

Follow-Up

Follow-up imaging following the procedure will be required to evaluate for adequacy of the treatment. There may be portions of the tumour which persist despite our best efforts to achieve complete ablation and a repeat procedure may be necessary. As local recurrence or new lesions requiring further treatment may occur further down the line, regular follow-up imaging is important. This should be organized by your referring doctor.

I confirm that I understand the information herein about Radiofrequency Ablation as it has been read by me and / or explained to me.

Name: _____

*Passport/NRIC No: _____

Signature: _____

Date: _____

Confirmation given before (Staff's name): _____

Staff's Signature: _____

Date: _____

*Please delete as applicable



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