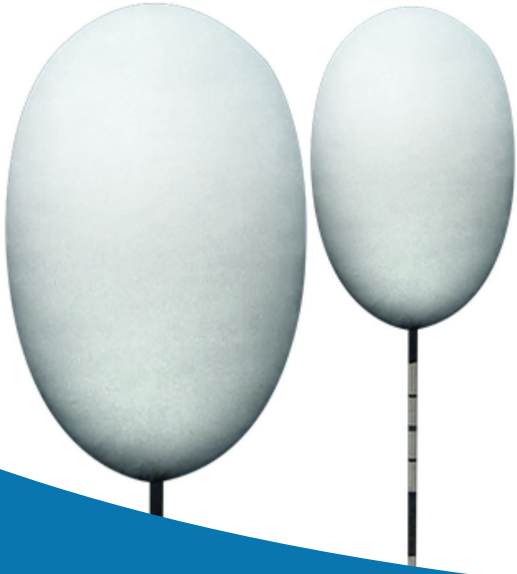
CRYOABLATION

ParkwayHealth™ Radiology

Cryoablation

Minimally Invasive Cryotherapy



CRYOABLATION

This brochure will provide you with essential information about Cryoablation. 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.

nurse if there is anything else that you would like to know.

What is cryoablation ?

This is a nonsurgical method of shrinking and killing tumour cells by freezing them while sparing as much normal adjacent healthy tissue as possible. It is used in the treatment of solid tumours, including those in the kidney, lung, liver, bone, breast and muscle. 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 cryoablation?

The procedure is performed by an Interventional Radiologist in the Radiology department. Special needles are inserted through the skin into the tumour under image-guidance such as CT-fluoroscopy (real-time CT imaging) and ultrasound. Once in the tumour, the needles are connected to the Cryoablation machine which creates an "iceball" around the needles by freezing the tissue around the needles. Temperatures as low as -40C are achieved in the central portion of the iceball. The frozen area is allowed to thaw and then this freeze-thaw cycle is repeated once more. The freeze-thaw cycles kill the tumour with which the iceball comes into contact.

The procedure is performed usually under deep conscious sedation. This will be provided by an anaesthetist 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.

RISKS

Overall, the risks for cryoablation 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 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.
- Injury to structures within the target organ may occur, including blood vessels within the organ. In the kidneys, this includes injury to urine collecting system and ureter. In the liver, this includes injury to the drainage system of the liver (the bile ducts). 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. Injury to the skin (skin freezing or frost bite) for superficial lesions may result in skin ulcerations.
- Cryoablation of the lung carries the risk of pneumothorax. This 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 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.

In any procedure, there are risks, including death, which are very rare and unpredictable. It is not possible to list every single 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.

The entire procedure may take 1-2 hours depending on the target to be treated.

Upon completion of the procedure, a CT scan requiring intravenous contrast may be performed.

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 cryoablation?

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

Benefits and Risks

BENEFITS

- Risks and complications of are considered lower than open surgery
- Cryoblation is local therapy. It spares the neighbouring normal healthy tissue adjacent to the iceball. Therefore the functioning of the treated organ has a reduced risk of damage as compared to surgery.
- The procedure is minimally invasive and therefore can be repeated.
- Pain and discomfort during and after the procedure are much less than surgery, and even other forms of local ablation such as Radiofrequency ablation.
- In most cases, general anaesthesia is not required. Deep conscious sedation by an attending anaesthetist is usually used to ensure safety, pain control and comfort during the procedure
- Hospitalization and recovery time following cryoablation is shorter compared to surgery

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 Cryoablation 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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