



## CRYOABLATION (FREEZING) of TUMOUR(S) in the KIDNEY

Information about your procedure from  
The British Association of Urological Surgeons (BAUS)

This leaflet contains evidence-based information about your proposed urological procedure. We have consulted specialist surgeons during its preparation, so that it represents best practice in UK urology. You should use it in addition to any advice already given to you.



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<http://rb.gy/9zt17>

### KEY POINTS

- Cryotherapy (freezing) can be used to treat small tumours (less than 4 cm diameter) in the kidney
- It is mainly used in patients with inherited conditions that cause multiple kidney tumours over time, in patients with only one kidney and in patients who are not considered fit for more major surgery
- It can be performed laparoscopically (by keyhole surgery), percutaneously (through skin punctures) or by a conventional incision in your loin
- The tumour is destroyed by a cooled metal probe that causes freezing, without damaging the surrounding kidney
- You will require regular follow-up after the procedure, to be sure that there is no tumour remaining and no recurrence at a later stage

### What does this procedure involve?

It involves freezing the tumour(s) in your kidney using metal probes cooled by passing argon gas into them. It can be performed:

- **percutaneously** – by direct skin puncture using CT scanning to find the tumour and guide the freezing probes into the correct position
- **laparoscopically** – using a telescope put into your abdominal cavity and inserting the freezing probes into the tumour, through additional

punctures, under direct vision

- **by open surgery** – through an incision in your loin and inserting the freezing probes into the tumour under direct vision

We usually biopsy the tumour at the same time as the treatment, to confirm the diagnosis.

## What are the alternatives?

- **Observation alone** – leaving the tumour in your kidney and observing it carefully for any signs of enlargement
- **Open radical nephrectomy** – removing the whole kidney and its surrounding tissues through an abdominal or loin incision
- **Laparoscopic radical nephrectomy** – removing the whole kidney and its surrounding tissues using a telescopic (keyhole) technique; this can be performed using robotic assistance
- **Open partial nephrectomy** – removing only the part of the kidney containing the tumour, through an abdominal or loin incision
- **Laparoscopic partial nephrectomy** – removing only the part of the kidney containing the tumour, using a telescopic (keyhole) technique; this can be performed using robotic assistance
- **Radiofrequency ablation** – using an electric current to “heat up” the tumour under X-ray control, without damaging the surrounding kidney

## What happens on the day of the procedure?

Your urologist (or a member of their team) will briefly review your history and medications, and will discuss the surgery again with you to confirm your consent.

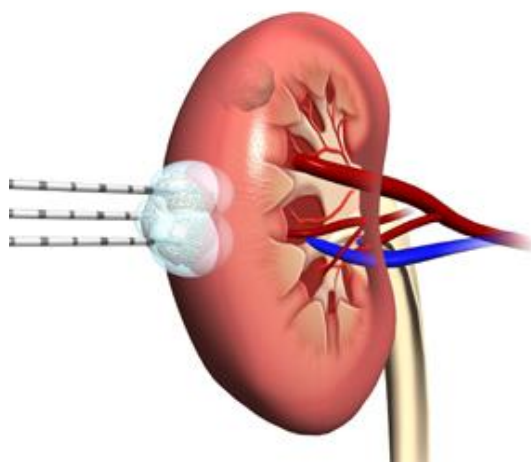
An anaesthetist will see you to discuss the options of a general anaesthetic or spinal anaesthetic. The anaesthetist will also discuss pain relief after the procedure with you.

We may provide you with a pair of TED stockings to wear, and we may give you an injection to thin your blood. These help to prevent blood clots from developing and passing into your lungs. Your medical team will decide whether you need to continue these after you go home.

## Details of the procedure

- we normally carry out the procedure under a general anaesthetic










- we usually give you an injection of antibiotics before the procedure, after you have been checked for any allergies
- we put a catheter through your urethra (waterpipe) into your bladder to monitor your urine output; this is usually removed the following morning
- we access your kidney using a telescope (after inflating your abdomen with carbon dioxide gas), a loin incision, or small punctures guided through your skin by CT scanning
- we usually take needle biopsy samples from the abnormal area to confirm the diagnosis of a tumour and to assess its extent
- we put several freezing probes into the tumour (either under direct vision or using CT scanning)
- we normally use two separate freezing/thawing cycles, resulting in formation of an “ice ball” that includes the tumour (pictured)
- we monitor the process using intra-operative ultrasound and temperature probes (needles) put into your kidney, close to the tumour
- once the probes have been warmed up to body temperature, we remove them from your kidney
- we use a special paste that promotes clotting to control any bleeding from the punctures into your kidney
- we use absorbable sutures to close your wound or skin puncture sites; these usually disappear within two to three weeks
- the procedure takes 90 to 120 minutes to complete
- you can expect to be in hospital for two to three days






## Are there any after-effects?

The possible after-effects and your risk of getting them are shown below. Some are self-limiting or reversible, but others are not. We have not listed very rare after-effects (occurring in less than 1 in 250 patients) individually.

The impact of these after-effects can vary a lot from patient to patient; you should ask your surgeon's advice about the risks and their impact on you as an individual:

After-effect	Risk	
For laparoscopic (keyhole) approach only		
Shoulder tip pain due to irritation of your diaphragm by the carbon dioxide gas		Almost all patients
Temporary abdominal bloating (gaseous distension)		Almost all patients
For all types of approach		
Temporary insertion of a bladder catheter		All patients
Bleeding requiring transfusion or further surgery		Between 1 in 2 & 1 in 10 patients
Bulging below your loin incision (if open surgery has been performed) due to damage to the nerves serving your abdominal wall muscles		Between 1 in 2 & 1 in 10 patients
Entry into your lung cavity requiring insertion of a temporary drainage tube		Between 1 in 10 & 1 in 50 patients
Need for further treatment if freezing is not successful in eliminating the tumour		Between 1 in 10 & 1 in 50 patients
Need for re-biopsy of the area at a later stage, to see whether the tumour has been eliminated		Between 1 in 10 & 1 in 50 patients
Infection, pain or swelling of the incision site requiring further treatment		Between 1 in 10 & 1 in 50 patients

The abnormality in your kidney may turn out not be cancer on microscopic analysis	 Between 1 in 50 & 1 in 250 patients
Involvement or injury to nearby local structures (blood vessels, spleen, liver, lung, pancreas & bowel) requiring more extensive surgery	 Between 1 in 50 & 1 in 250 patients
Anaesthetic or cardiovascular problems possibly requiring intensive care (including chest infection, pulmonary embolus, stroke, deep vein thrombosis, heart attack and death)	 Between 1 in 50 & 1 in 250 patients (your anaesthetist can estimate your individual risk)

### What is my risk of a hospital-acquired infection?

Your risk of getting an infection in hospital is between 4 & 6%; this includes getting *MRSA* or a *Clostridium difficile* bowel infection. Individual hospitals may have different rates, and the medical staff can tell you the risk for your hospital. You have a higher risk if you have had:

- long-term drainage tubes (e.g. catheters);
- bladder removal;
- long hospital stays; or
- multiple hospital admissions.

### What can I expect when I get home?

- you will get some swelling and bruising around the wound or puncture sites
- you will be given advice about your recovery at home
- you will be given a copy of your discharge summary and a copy will also be sent to your GP
- any antibiotics or other tablets you may need will be arranged & dispensed from the hospital pharmacy
- if you experience any pain, swelling or redness of your incision or skin puncture sites, you should contact your GP as soon as possible
- if you develop any post-operative symptoms that cause you to have breathing difficulty, you should contact your GP immediately

- the biopsies will be reviewed and discussed in a multi-disciplinary team (MDT) meeting; this may take up to two weeks to complete
- we will inform you and your GP of the pathology results as soon as possible
- a follow-up appointment will be made for you as soon as the pathology results are available
- we normally arrange a further CT scan for you after the procedure, to be sure that the tumour has been destroyed and has shrunk away

If your surgery has been done through a loin incision, the abdominal wall below your scar will bulge; **this is not a hernia** but is caused by nerve damage. It can be helped by strengthening up the muscles of your abdominal wall. We can arrange for you to see a physiotherapist who will show you exercises to strengthen these muscles.

## General information about surgical procedures

### *Before your procedure*

Please tell a member of the medical team if you have:

- an implanted foreign body (stent, joint replacement, pacemaker, heart valve, blood vessel graft);
- a regular prescription for a blood thinning agent (e.g. warfarin, aspirin, clopidogrel, rivaroxaban, dabigatran);
- a present or previous MRSA infection; or
- a high risk of variant-CJD (e.g. if you have had a corneal transplant, a neurosurgical dural transplant or human growth hormone treatment).

### *Questions you may wish to ask*

If you wish to learn more about what will happen, you can find a list of suggested questions called "[Having An Operation](#)" on the website of the Royal College of Surgeons of England. You may also wish to ask your surgeon for his/her personal results and experience with this procedure.

### *Before you go home*

We will tell you how the procedure went and you should:

- make sure you understand what has been done;
- ask the surgeon if everything went as planned;
- let the staff know if you have any discomfort;
- ask what you can (and cannot) do at home;
- make sure you know what happens next; and

- ask when you can return to normal activities.

We will give you advice about what to look out for when you get home. Your surgeon or nurse will also give you details of who to contact, and how to contact them, in the event of problems.

### ***Smoking and surgery***

Ideally, we would prefer you to stop smoking before any procedure. Smoking can worsen some urological conditions and makes complications more likely after surgery. For advice on stopping, you can:

- contact your GP;
- access your local [NHS Smoking Help Online](#); or
- ring the Smoke-Free National Helpline on **0300 123 1044**.

### ***Driving after surgery***

It is your responsibility to make sure you are fit to drive after any surgical procedure. You only need to [contact the DVLA](#) if your ability to drive is likely to be affected for more than three months. If it is, you should check with your insurance company before driving again.

## **What should I do with this information?**

Thank you for taking the trouble to read this information. Please let your urologist (or specialist nurse) know if you would like to have a copy for your own records. If you wish, the medical or nursing staff can also arrange to file a copy in your hospital notes.

## **What sources have we used to prepare this leaflet?**

This leaflet uses information from consensus panels and other evidence-based sources including:

- the [Department of Health \(England\)](#);
- the [Cochrane Collaboration](#); and
- the [National Institute for Health and Care Excellence \(NICE\)](#).

It also follows style guidelines from:

- the [Royal National Institute for Blind People \(RNIB\)](#);
- the [Information Standard](#);
- the [Patient Information Forum](#); and
- the [Plain English Campaign](#).



## DISCLAIMER

Whilst we have made every effort to give accurate information, there may still be errors or omissions in this leaflet. BAUS cannot accept responsibility for any loss from action taken (or not taken) as a result of this information.

**PLEASE NOTE:** the staff at BAUS are not medically trained, and are unable to answer questions about the information provided in this leaflet. If you have any questions, you should contact your Urologist, Specialist Nurse or GP in the first instance.