

# Understanding surgery

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## Surgery

Surgery is a method of treatment that physically removes tissue from specific sites in the body. Cancer cells, tumours and surrounding tissue are cut away.

Many cancers, especially if detected early, can be successfully treated in this way. The other two main methods of treating cancer are:

- Radiotherapy: high energy radiation used to destroy cancer cells in a particular part of the body.
- Chemotherapy: anti-cancer drugs, given as tablets or injections so they can circulate throughout the body. These drugs are capable of killing or damaging cancer cells.

Surgery is often the treatment of choice for many solid tumours such as cancers of the bowel, breast, head and neck.

The surgeon aims to remove the cancer cells or tumours from the body. This is done while the patient is under local or general anaesthetic. A margin of normal tissue surrounding the cancer is often removed and frequently, a sample from the adjoining lymph glands (also called lymph nodes). Lymph glands are filters for the removal of harmful agents like bacteria and toxins as well as cancer cells.

The tissue removed is then sent to the laboratory to be analysed for the presence of cancer cells. The doctor can determine from the results what further treatments, if any, need to be planned. If the lymph glands are found to contain cancer cells this means the cancer has spread beyond the organ in which it began.

# Laser surgery

Sometimes laser surgery may be used to treat cancer. It can also be used to relieve symptoms such as bleeding or an obstruction when the tumour cannot be removed.

Laser surgery uses a device that produces a very thin beam of light in which high energies are concentrated and produces intense heat on contact with tissue. The heat breaks up tissue that is then removed from the body.

## How does surgery help to diagnose cancer?

A tissue biopsy is a sample of cells, tissue or tumour that is surgically removed from a particular part of the body for examination under a microscope by a histopathologist.

If cancer cells are present the histopathologist will usually be able to diagnose the type of cancer based on the appearance of the cells under the microscope. This can provide information on how the cells may behave in the future, where they may spread and their sensitivity to different treatments. Preparation and examination of the specimens can take up to several days so you may need to wait before you get your results.

Common examples of surgery for taking tissue biopsies include:

**Needle biopsies:** This technique is used for tumours that are close to the surface of the body, for example breast lumps, as well as tumours deep within the body, as in the pancreas, liver or kidney. A local anaesthetic is placed on the skin and in the soft tissues under the skin. The tumour is pierced by a very thin needle, through which a small amount of tissue is withdrawn. During needle biopsies of internal organs, x-rays or scans guide the needle and help to ensure it is accurately positioned.

**Shave biopsy:** a cut is made parallel to the surface of the skin to take off a small sample of tissue under a local anaesthetic. Small skin cancers can be detected and often completely removed in this way.

**Incisional biopsy:** involves removing part of the tumour for diagnosis, then stitching the area up.

**Excisional biopsy:** is used for tumours that are easily reached, as in the skin or lymph nodes. The entire tumour is removed.

**Endoscopic biopsy:** specially designed long tubes or endoscopes are passed through body passages (like the bowel or oesophagus). A light source at the end of the tube allows for detailed examination of the tissues inside these organs. Biopsies are taken with instruments that are either attached to the endoscopes or can be introduced through them.

During exploratory surgery, the surgeon checks the location of the disease and takes tissue samples. For example, during a laparoscopy which is a surgical examination of the abdominal and pelvic organs performed under general anaesthetic. An instrument called a laparoscope is inserted through a small cut just below the navel and samples of tissue may be taken for analysis.

A diagnostic laparotomy is a procedure used for the examination of abdominal organs under anaesthetic. The surgeon makes a cut through a part of the abdominal wall. Samples of tissue from the spleen, liver and some lymph nodes may be taken. If necessary all the visible tumour may also be removed at the same time.

# How is surgery used to treat cancer?

Surgery may be able to:

- Cure a cancer by completely removing the cancer cells from the body. Cure may be possible if the cancer is confined to the organ in which it began and there is no evidence of spread to other tissues and organs.
- Control a cancer by removing part of the tumour. Sometimes the entire tumour cannot be completely removed because it is situated near delicate structures of the body or because it is too widely spread. The remaining cells could be treated with radiotherapy or chemotherapy.
- Control symptoms of the disease (palliation). Surgery may be able to remove a tumour or part of it that is painful or obstructing a vital organ like the bowel or lung. In this way normal function and comfort can be maintained for an extended period of time even if the cancer itself is not curable.
- Rebuild tissues that have been altered or damaged due to the effects of cancer or cancer treatments. This is the purpose of reconstructive surgery.

## Some common terms for surgical treatments

The ending -ectomy describes any surgery during which tissue is cut away and removed from the body. For example:

- Mastectomy is the term for the complete removal of breast tissue.
- Hysterectomy is the removal of the uterus.
- Laryngectomy is the term for the removal of the larynx or voice box.

The ending -ostomy describes surgery that creates an artificial opening in the body. For example:

- Colostomy describes an operation during which one end of the large bowel is removed. The other end is connected to an opening that is created on the surface of the abdomen that is called a stoma.
- When the larynx is removed, food and fluid entering the throat can enter the lungs. To make breathing safe the surgeon moves the windpipe to the front, near the base of the neck and creates an artificial opening through it called a tracheostomy.

Listed below are some common terms used to describe how much tissue has been removed:

- **Conservative or partial surgery** removes the cancer whilst sparing most of the surrounding tissue. For example, during a partial mastectomy the surgeon aims to remove the entire tumour while preserving as much of the breast as possible.
- **Total**: the removal of the entire organ or all the tissue in a particular part of the body. A total prostatectomy indicates the removal of the entire prostate gland.
- **Sub-total** indicates part of an organ is spared. During a sub-total hysterectomy the uterus is removed but the cervix is left in place.
- **Radical** is sometimes used to describe surgery that is more extensive, reaching out widely to surrounding tissues and in certain cases, surrounding organs as well. For example, during radical neck surgery following a laryngectomy the surgeon may remove the thyroid gland, the lymph glands in the neck, as well as extra neck tissue.
- An **amputation** indicates the removal of a limb or part of a limb. Amputations may be performed in extreme cases for bone cancers in the arm or leg if other standard treatments are not recommended.
- **Limb sparing surgery** may be a surgical option: the affected part of the bone is removed and replaced with a specially designed piece of metal or a bone graft from another part of the body.

If your surgeon uses terms that are unfamiliar ask them to explain their meaning more clearly. It is important that you understand exactly what is involved in a particular procedure. If you are still unclear about what is to take place during your surgery after your initial visit with your surgeon, do not hesitate to make another time to discuss it further prior to your procedure.

# Surgery for rehabilitation

The word rehabilitation in relation to cancer surgery means restoring or replacing tissues that are removed, altered or damaged during surgery. Lost tissue can often be rebuilt through reconstructive surgery or replaced with a prosthesis.

## Reconstructive surgery

Reconstructive surgery is used to rebuild tissues that have been altered or damaged during surgery for cancer.

Specialists in reconstructive surgery are called plastic surgeons, although general surgeons may perform some reconstructive procedures as well.

There are several different types of reconstructive surgery that may either use tissue from your own body or a prosthesis. For example, the surgeon can move muscle and some skin from the abdomen to build a new breast. In another case implants or internal prostheses of different shapes and sizes may be inserted inside the chest muscle to build a new breast.

If you need reconstructive surgery your surgeon will discuss the different methods and recommend what is best for you depending on:

- the part of the body that needs to be reconstructed
- how much tissue has been removed
- the quality of the remaining tissue
- your general health
- your preference
- the way it looks and functions.

The timing of the surgery depends on:

- whether you need further treatment such as radiotherapy, chemotherapy or more surgery
- your general health
- whether reconstruction is a necessity or a matter of choice.

Before you make any decisions you need to understand clearly why a particular method has been recommended to you. Some surgeons use diagrams or photographs to better explain what is involved. It may be possible for you to speak with others who have been through the same type of operation. Call 13 11 20 for information about our Cancer Connect Program.

## Using a prosthesis

A prosthesis is an artificial body part made of non-reactive material like plastic, teflon or silicone which can be fitted internally or externally on to the body.

An external prosthesis is shaped like the body part and held in place by clothing or a bandage. For example, an artificial limb is bandaged on to the amputated arm or leg.

An internal prosthesis is surgically implanted inside the body.

## About anaesthetics

Anaesthetics are drugs that can remove the sensation of pain, relax the muscles, calm fear and anxiety or induce a deep sleep. They can be used singly or in combination depending on the effects the specialist doctor or anaesthetist aims to achieve.

The anaesthetist examines you and decides on the most suitable type of anaesthetic for you.

Local anaesthetics numb the particular area of the body on which the surgery will be performed. They are used for short procedures that usually do not involve deep cuts. You stay awake but do not feel any pain or discomfort. Sometimes you may also be given sedation so that you feel drowsy.

Spinal anaesthetics (also referred to as epidural anaesthetics) are injections of drugs beneath the covering of the spinal cord. They numb the area of the body below the site of the injection. You remain awake but do not feel what is being done during the operation. They are often recommended for people who have breathing difficulties or other physical conditions that make them unsuitable for a general anaesthetic.

General anaesthetics not only block out feelings and sensations, but also induce a very deep 'sleep'. Although surgery or other painful procedures are being performed you will not be aware of them.

## **Finding out more about your treatment**

Your surgeon will provide you with the following basic information before you make decisions about your treatment:

- the name of the surgical procedure
- what this procedure involves
- the possible risks and benefits of undertaking surgery
- other surgical and non-surgical options
- the possible outcomes if you do not have surgery.

Sometimes the surgeon has to wait for the results of the biopsy on the surgically removed tissue before he can tell you whether you need more treatment and what treatment it might be.

## **Special needs**

If you have questions dealing with any special requests discuss these with your surgeon. Many hospitals are willing to make provision for special individual and cultural needs if these are important for your wellbeing.

## **What does it mean to sign the consent form?**

The consent form is a legal document which testifies that you:

- have understood the information provided about your surgery
- are satisfied with the information the doctor has provided you
- are willing to go through the operation and have the anaesthetic recommended, being aware of the risks involved.

There is a clause in the consent form that allows the doctors involved to make immediate decisions in case of an unexpected complication during the operation.

Make sure that you read the consent form carefully and are sure of what you are asked to sign. If you have any questions about the format or meaning of the words do not hesitate to ask the doctor or nursing staff for an explanation.

## **What happens when you are admitted into hospital?**

Some hospitals have pre-admission clinics where routine observations and investigations are carried out before surgery. This may mean an appointment at the hospital a week or so before your operation. The staff also gives you information about your type of surgery.

Depending on your age and general health, investigations like blood tests, x-rays, scans, ECGs and lung function tests may be performed. They provide the anaesthetist with information about how your heart and lungs will cope with the effects of the anaesthetic drugs.

Most hospitals admit patients on the day of the operation unless special preparations are required, for example before bowel surgery.

All patients are asked to fast before a general anaesthetic. When the person is unconscious and the bowel muscles relax under the effects of the anaesthetic drugs, undigested foods and fluids can flow back up the throat and be inhaled into the lungs. Fasting prevents this from happening.

As it is quite normal to feel tense and anxious before your surgery, you may be offered a sleeping tablet the night before surgery if you are already admitted and a sedative or other drugs an hour or so before the operation. These drugs are called 'pre-medications' because they are administered before the anaesthetic to help you relax and possibly enhance the effects of the anaesthetic drugs.

Deep breathing exercises and simple leg and ankle exercises are also taught to help blood circulation and prevent the formation of clots and you will be encouraged to practise these as often as possible

If you have difficulty with breathing due to a history of asthma or problems with movement due to arthritis, the doctor may refer you on to a physiotherapist.

## **Before you go into the operating theatre**

You will be requested to take a bath or shower a few hours before surgery and the area to be treated may need to be shaved to ensure the skin is thoroughly cleaned before the operation.

Metal ornaments like jewellery and hair clips can react with the electrical equipment used in theatre so you are requested to remove these.

While you are under anaesthetic the colour of your skin and nails are checked for indications of healthy blood flow. As make up and nail varnish disguise your natural colouring you are asked to remove them.

You are advised to remove contact lenses to avoid scratching the cornea when your eyes dry out under the effects of the anaesthetic drugs. Hearing aids need to be removed.

## **When you come out of the operating theatre**

Immediately after major surgery under general anaesthetic you are observed for a period of time in the recovery room until you regain consciousness.

After particular surgical procedures you may find yourself attached to various kinds of tubes. Most of these tubes are inserted while you are under anaesthetic. For example:

- Oxygen may be delivered through tubing attached to a mask to help you breathe.
- An intravenous infusion or drip may provide your body with the fluid it requires if you are unable to eat or drink.
- A catheter may be temporarily inserted into the bladder to drain away urine so you do not have the discomfort of using bedpans in the immediate post-operative period. Urine drains into a container by the bed.
- Wound drains are attached to tubes that drain away the fluid and blood from the wound. This prevents swelling and pain around the wound.

You should have this explained to you prior to your procedure.

If after surgery you need to go on a respirator (a machine to help breathing), you may go into an intensive care or high dependency unit for a short period. If you need closer observation as well as more frequent temperature, pulse and blood pressure readings you may be admitted into these units.

## What to expect after a major operation

Side effects of surgery differ from person to person. The severity of the side effects depends on the type of surgical procedure and anaesthetic administered. The most common side effects tend to be pain and nausea.

Pain relieving drugs are called analgesics. Drugs that relieve nausea are called antiemetics. These are always ordered by the surgeon or anaesthetist after your surgery and administered by nursing staff at regular intervals to keep you comfortable.

Patient controlled analgesia may be provided to you after major surgery. This means you can regulate the amount of pain relief you get by simply pressing a trigger button on a computerised pump attached to your intravenous infusion. There is a control mechanism within the machine that prevents overdosing. If you use one of these machines information is given to ensure you will be comfortable with its use.

If you are not made comfortable by the drugs ordered for you let the nursing or medical staff know and they will have your medication orders reviewed by the doctors. Tablets to relieve pain may be ordered for you on discharge with instructions on how frequently you can take them.

As your recovery progresses the various tubes and attachments are normally removed and you are encouraged to increase the range of your movements and eat and drink normally. It is usual to be transferred to a general ward from intensive care or high dependency, before being discharged from hospital.

## Returning home

Some patients may be ready for discharge as soon as their wound is healing well and they are strong enough to walk, shower themselves and eat a normal diet.

People living on their own with no home help or support may find it difficult to cope with the basic demands of daily living like cleaning, shopping and cooking. It is advisable to discuss this with the doctor, nurse or social worker before leaving hospital so that services are put into place.

Stitches, clips and dressings may be removed before discharge. In other cases this can be done by the general practitioner or during the first post-operative check up. Some stitches do not need to be removed as they will be absorbed by the body.

If you go home with wound drains left in place or need specialised treatment at home a home nursing service may be organised to see you each day. Your GP should also be kept informed about your progress.

Follow-up appointments are organised to check up on your progress. They also provide you an opportunity to ask your doctor any questions you may have. However if there are questions or problems that you need to discuss immediately do not hesitate to contact your GP or ring the hospital nursing staff or your specialist.

Sometimes you may need to continue seeing other health professionals like physiotherapists, speech pathologists or dietitians who will help you with your ongoing recovery.

# Looking after yourself at home

After surgery your body will need time to heal. Even if yours was a relatively minor surgical procedure, side effects of general anaesthetics, like feeling tired or drowsy may persist for some time.

After major surgery do not expect to go back to your normal routine immediately. Often your family and friends wish to be involved in your care but are uncertain what to do. Let them know what can be most useful for you.

If you live on your own and need assistance, explain your situation to the nurse or a social worker. You may be eligible for Meals on Wheels, visits from a home nursing service, help with domestic chores or the use of specialised equipment. Depending on the circumstances a stay in a convalescent hospital can be organised by your doctor.

To help your body recover from the effects of major surgery:

- Eat a varied and balanced diet. Choose foods that have a high nutritional value but also suit your tastes and preferences. Your doctor will inform you if you need to follow a special diet and a dietitian can be consulted.
- Take plenty of rest.
- Maintain high standards of personal hygiene to prevent infections.
- Avoid crowded places or people who have colds, coughs and other infections.
- Inform your doctor if you feel unwell, if your wound looks swollen and red or discharges fluid that seems abnormal or if you experience unusual pain or discomfort.
- You may need to avoid strenuous exercise or heavy lifting.

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