

# Testicular Cancer

J A S C A P

JEET ASSOCIATION FOR SUPPORT TO CANCER PATIENTS,  
MUMBAI, INDIA

## **JASCAP**

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JASCAP is a charitable trust that provides information on various aspects of cancer. This can help the patient and his family to understand the disease and its treatment and thus cope with it better.

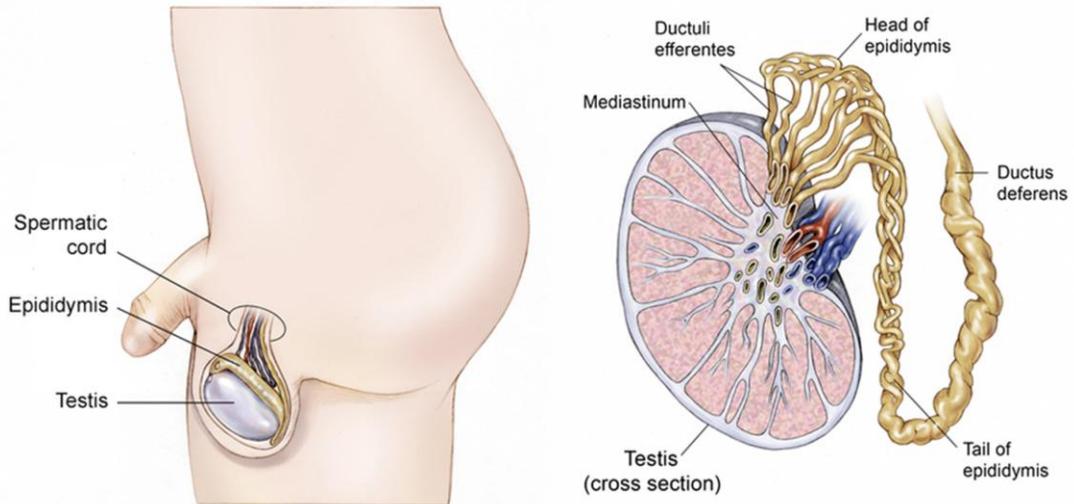
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**Donation suggested Rs.25.00**

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# Testicular Cancer

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This booklet is for you if you have or someone close to you has Testicular Cancer.

If you are a patient, your doctor or nurse may wish to go through the booklet with you and mark sections that are particularly important for you.

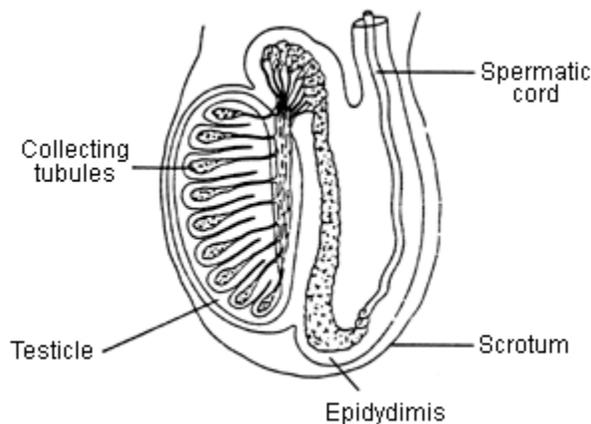
## The testicles

The testicles are two small oval-shaped organs suspended below the penis in a pouch of skin called the **scrotum**. They are part of the male reproductive system. From the start of puberty the cells lining the collecting tubules of the testicles produce sperm.

The collecting tubules inside the testicle join together to form a tube called the **epididymis**. This tube carries on to the outside of the testicle where it widens. It can be felt as a soft swelling at the back of the testicle. The wider part of the tube is called the **spermatic cord**. At its end, this forms a short tube called the **ejaculatory duct**. This duct joins the urethra (the tube from the bladder to the penis) just above the prostate gland.

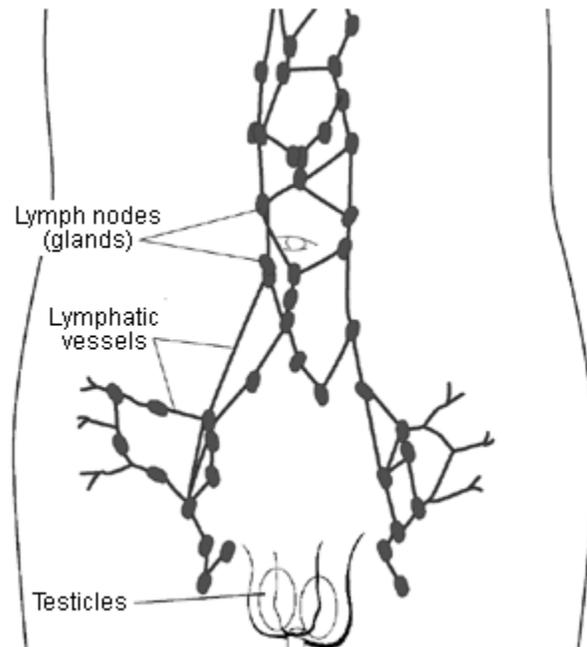
The testicles also produce the hormone **testosterone**. This hormone maintains sex drive (libido) in men and is the main cause of the development of male characteristics such as:

- a deep voice
- beard growth
- muscle development
- the ability to have an erection.



The structure of the testicle

Lymph fluid from the testicles drains to a group of lymph glands at the back of the abdomen.

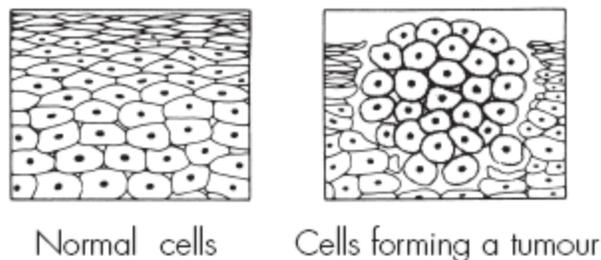


The lymph system in the abdomen

## What is cancer?

The organs and tissues of the body are made up of tiny building blocks called cells. Cancer is a disease of these cells.

Cells in different parts of the body may look and work differently but most reproduce themselves in the same way. Cells are constantly becoming old and dying, and new cells are produced to replace them. Normally, cells divide in an orderly and controlled manner. If for some reason the process gets out of control, the cells carry on dividing, developing into a lump which is called a **tumour**.



Tumours can be either **benign** or **malignant**. Cancer is the name given to a malignant tumour. Doctors can tell if a tumour is benign or malignant by examining a small sample of cells under a microscope. This is called a **biopsy**.

In a benign tumour the cells do not spread to other parts of the body and so are not cancerous. However, if they continue to grow at the original site, they may cause a problem by pressing on the surrounding organs.

A malignant tumour consists of cancer cells that have the ability to spread beyond the original area. If the tumour is left untreated, it may spread into and destroy surrounding tissue. Sometimes cells break away from the original (primary) cancer. They may spread to other organs in the body through the bloodstream or lymphatic system.

The lymphatic system is part of the immune system - the body's natural defence against infection and disease. It is a complex system made up of organs, such as bone marrow, the thymus, the spleen, and lymph nodes. The lymph nodes (or glands) throughout the body are connected by a network of tiny lymphatic ducts.

When the cancer cells reach a new area they may go on dividing and form a new tumour. This is known as a **secondary cancer** or **metastasis**.

It is important to realise that cancer is not a single disease with a single type of treatment. There are more than 200 different kinds of cancer, each with its own name and treatment.

## Types of cancer

### ***Carcinomas***

The majority of cancers, about 85% (85 in a 100), are carcinomas. They start in the epithelium, which is the covering (or lining) of organs and of the body (the skin). The common forms of breast, lung, prostate and bowel cancer are all carcinomas.

Carcinomas are named after the type of epithelial cell that they started in and the part of the body that is affected. There are four different types of epithelial cells:

squamous cells - that line different parts of the body, such as the mouth, gullet (oesophagus), and the airways

adeno cells - form the lining of all the glands in the body and can be found in organs such as the stomach, ovaries, kidneys and prostate

transitional cells - are only found in the lining of the bladder and parts of the urinary system

basal cells - that are found in one of the layers of the skin.

A cancer that starts in squamous cells is called a squamous cell carcinoma. A cancer that starts in glandular cells is called an adenocarcinoma. Cancers that start in transitional cells are transitional cell carcinomas, and those that start in basal cells are basal cell carcinomas.

### ***Leukaemias and lymphomas***

These occur in the tissues where white blood cells (which fight infection in the body) are formed, i.e. the bone marrow and lymphatic system. Leukaemia and lymphoma are quite rare and make up about 6.5% (6.5 in 100) of all cancers.

### ***Sarcomas***

Sarcomas are very rare. They are a group of cancers that form in the connective or supportive tissues of the body such as muscle, bone and fatty tissue. They account for less than 1% (1 in 100) of cancers.

Sarcomas are split into two main types:

bone sarcomas - that are found in the bones

soft tissue sarcomas - that develop in the other supportive tissues of the body.

### ***Others forms of cancer***

Brain tumours and other very rare forms of cancer make up the remainder of cancers.

## **Your feelings about having testicular cancer**

Most people feel overwhelmed when they are told that they have cancer. Even though the chance of curing testicular cancer is very high, you may still have many different emotions, a feeling of confusion and frequent mood swings. You might not have all the feelings discussed below or experience them in the same order.

These emotions are part of the process that many people go through in trying to come to terms with their illness. Partners, family members and friends often have similar feelings and may need as much support and guidance in coping with their feelings as you do.

Reactions differ from one person to another – there is no right or wrong way to feel. Some of the common emotional effects are mentioned below. However, reactions vary and people have different emotions at different times.

Our booklet on the emotional effects of cancer discusses the feelings and emotions that you may experience and has advice on how to cope with them.

Shock and disbelief  
 Fear and uncertainty  
 Denial  
 Anger  
 Blame and guilt  
 Resentment  
 Withdrawal and isolation

### ***Shock and disbelief***

'I can't believe it' / 'It can't be true'

This is often the immediate reaction when cancer is diagnosed. You may feel numb and unable to believe what is happening or to express any emotion. You may find that you can take in only a small amount of information and so you have to keep asking the same questions again and again, or you need to be told the same bits of information repeatedly. This need for repetition is a common reaction to shock.

Some people may find that their feelings of disbelief make it difficult for them to talk about their illness with their family and friends. Other people may feel an overwhelming urge to discuss it with those around them.

You might find our booklet on talking about your cancer helpful.

### ***Fear and uncertainty***

'Am I going to die?'/ 'Will I be in pain?'

Cancer is a frightening word surrounded by fears and myths. One of the greatest fears people have when they are diagnosed is 'Am I going to die?'

In fact, many cancers are curable if caught at an early enough stage. When a cancer is not completely curable, modern treatments often mean that it can be controlled for years and many patients can live an almost normal life.

'Will I be in pain?' and 'Will any pain be unbearable?' are other common fears. In fact, some people with cancer have no pain at all. If you do have pain, there are many modern drugs and other techniques which are very successful at relieving it or keeping it under control. Our information on controlling cancer pain describes these methods.

Many people are anxious about their treatment: whether or not it will work and how to cope with possible side effects. It is best to discuss your individual treatment and possible outcomes in detail with your doctor.

Some people are afraid of the hospital itself. It can be a frightening place, especially if you have never been in one before, but talk about your fears to your doctor or nurse. They should be able to reassure you.

You may find that doctors cannot answer your questions fully, or that their answers sound vague. For example, it is often impossible for them to say for certain that they have completely removed the tumour. Doctors know approximately how many people will benefit from a certain treatment, but cannot predict the future for a particular person. Many people find this uncertainty hard to live with.

Uncertainty about the future can cause a lot of tension, but fears may be worse than the reality. Gaining some knowledge about your illness can be reassuring. Discussing what you have found out with your family and friends can help to relieve some of the worry.

### ***Denial***

'There's nothing really wrong with me' / 'I haven't got cancer'

Many people cope with their illness by not wanting to know anything about it, or not wanting to talk about it. If that's the way you feel, then just say quite firmly to the people around you that you would prefer not to talk about your illness, at least for the time being.

Sometimes, however, it is the other way round. You may find that it is your family and friends who are denying your illness. They may appear to ignore the fact that you have cancer, perhaps by playing down your anxieties and symptoms or deliberately changing the subject. If this upsets or hurts you because you want them to support you by sharing what you feel, try telling them. Start perhaps by reassuring them that you do know what is happening and that it will help you if you can talk to them about your illness.

### ***Anger***

'Why me of all people?' / 'And why right now?'

Anger can hide other feelings, such as fear or sadness. You may direct your anger at the people who are closest to you and at the doctors and nurses who are caring for you.

It is understandable that you may be deeply upset by many aspects of your illness and there is no need to feel guilty about your angry thoughts or irritable moods. However, relatives and friends may not always realise that your anger is really directed at your illness and not against them. If you can, it may be helpful to tell them this at a time when you are not feeling quite so angry. If you would find that difficult, perhaps you could show them this booklet.

### ***Blame and guilt***

'If I hadn't... this would never have happened'

Sometimes people blame themselves or other people for their illness, trying to find reasons to explain why it should have happened to them. This may be because we often feel better if we know why something has happened. However, since in most cases it is impossible to know exactly what has caused a person's cancer there is no reason for you to feel that you are to blame.

### ***Resentment***

'It's all right for you – you haven't got to put up with this'

Understandably, you may be feeling resentful and miserable because you have cancer while other people are well. Similar feelings of resentment may crop up from time to time during the course of your illness and treatment for a variety of reasons. Relatives too can sometimes resent the changes that your illness makes to their lives.

It is usually helpful to bring these feelings out into the open so that they can be discussed. Keeping your resentment to yourself can make everyone feel angry and guilty.

### ***Withdrawal and isolation***

'Please leave me alone'

There may be times during your illness when you want to be left alone to sort out your thoughts and emotions. This can be hard for your family and friends who want to share this difficult time with you. It will make it easier for them to cope, however, if you reassure them that although you may not feel like discussing your illness at the moment, you will talk to them about it when you are ready.

Sometimes depression can stop you wanting to talk. If you or your family think you may be depressed, discuss this with your GP. They can prescribe antidepressant drugs for you, or refer you to a doctor or counsellor who specialises in the emotional problems of people with cancer.

## **Causes of testicular cancer**

Around 2000 men a year are diagnosed with testicular cancer in the UK. It is not known exactly what the causes are, but research is going on all the time to attempt to establish them.

Testicular cancer is more common in men who have a testicle that has failed to descend. In the unborn child the testicles develop inside the abdomen between the kidneys and descend into the scrotum at birth or during the first year of life. If this does not happen, the risk of a man developing testicular cancer is increased.

Men with a brother or father who has had testicular cancer are slightly more at risk of developing it (although the risk is still small). Research has shown that a particular gene is the cause of testicular cancer in some men. It is possible that this gene is inherited and may be the reason why testicular cancer sometimes occurs in brothers or sons of men who have had the disease.

Testicular cancer is more common in white men than African-Caribbean or Asian men. It occurs more commonly in wealthier social groups. The reasons for this are not known.

It is not clear whether injury to the testicle can cause a testicular cancer. Vasectomy does not increase the risk of a man developing testicular cancer.

## How common is the Testicular cancer in India?

Testicular cancer is a very rare cancer among men from the Indian subcontinent and also worldwide. The incidence (newly diagnosed cases of Cancer in a year) of Testicular Cancer for men from India is less than 1 man per 1,00,000 population<sup>1</sup>.

In India, between the years 2001-2003, across five urban centers - Mumbai, Delhi, Chennai, Bhopal and Bangalore, – and one rural center - Barshi, a total of 403 cases of Testicular Cancer were registered (0.91% of all cancers) for male cancer patients, across all the age groups<sup>2</sup>.

The TATA Memorial Hospital (T.M.H.) in Mumbai, India registered a grand-total of 10,747 cases of all types of male cancer patients in the year 2006, out of which 158 men (1.5% of the total male cases) were diagnosed with Testicular cancer<sup>3</sup>.

Seventeen percent of all Genito-urinary cancers among men in the year 2006 at the T.M.H. were attributable to Testicular cancer.

## Symptoms of testicular cancer

The most common symptom is swelling in part of one testicle. This is usually painless, but some men may notice an ache in their lower abdomen or in the affected testicle. There may be a feeling of heaviness in the scrotum. In a few men the testicle suddenly becomes swollen and very tender.

When a normal testicle is examined, it is round, soft and smooth. The epididymis can be felt behind it as a separate structure. Cysts and benign swellings in the epididymis are quite common and are usually harmless. Lumps in the body of the testes itself may be benign but can be a cancer. It is sensible to have any swelling examined by a doctor.

A few men may find that their first symptoms (such as backache, stomach ache, or a cough) are caused by spread of the cancer cells to other parts of the body. Rarely, tender nipples may be caused by hormonal changes within the body. If you have any of the above symptoms it is important to let your doctor know – but remember, they are more likely to be due to conditions other than cancer.

Cancers that are found early are the most easily treated. The best way to check for testicular cancer is to examine yourself once a month and the best time to do this is after

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<sup>1</sup> Globocan 2008: Cancer incidence and mortality rates worldwide

<sup>2</sup> Population based cancer registry 2001-2003 Mumbai, Delhi, Chennai, Bhopal, Barshi and Bangalore, Indian Cancer Society.

<sup>3</sup> TATA Memorial Hospital Registry Data for 2006

a warm bath or shower, when the scrotal skin is relaxed. If you would like to find out more about testicular self-examination, Cancerbackup can send you a leaflet.

If you find a swelling in a testicle, it is very important that you have it checked by your doctor as soon as possible.

## Types of testicular cancer

There are two main types of testicular cancer – **seminomas** and **teratomas**. They may be called germ cell tumours. Occasionally testicular tumours can be a mix of both types.

**Seminomas** most commonly occur in men between 25 and 55 years of age.

**Teratomas** usually affect younger men – from 15 to about 35 years.

Sometimes a type of cancer called non-Hodgkin lymphoma can occur in the testicle. This would be treated as a non-Hodgkin lymphoma.

Other rare types of testicular tumour are **Leydig** and **Sertoli cell** tumours.

## How testicular cancer is diagnosed

Usually you begin by seeing your family doctor (GP), who will examine you and take your medical details. They will then refer you to a hospital specialist for further tests, expert advice and treatment.

The specialist will give you a full physical examination and take your medical history. Often, the doctor can tell by feeling the lump, whether it is likely to be a cancer.

You may have an ultrasound scan of the scrotum and the testes. This test can help to tell whether a lump is a cancer or is due to other causes. An ultrasound scan uses sound waves to build up a picture of the testes and scrotum. However, the only way to confirm that the swelling is cancer is for a surgeon to examine the testicle during an operation.

During the surgery the surgeon can sometimes see whether the lump is a cancer or not. A small piece of tissue is removed and immediately examined under a microscope by a pathologist (this procedure is known as a biopsy). If the biopsy shows that the lump is a cancer, the testicle will be removed (this operation is known as **orchidectomy**).

The cells are then taken to a laboratory and examined further to find out which type of testicular cancer it is.

You can usually go home the next day. If the cancer has not spread beyond the testicle, this may be the only treatment you will need, although for a few years you will have to attend the hospital regularly for check-ups.

The removal of one testicle does not affect your ability to have an erection or to father children. An artificial testicle (known as an **implant** or **prosthesis**) can be inserted into your scrotum to give a normal appearance if you wish. Your specialist can give you more details about this.

## **Further tests for testicular cancer**

If the tests show that you have testicular cancer, you will have some further tests to see if the cancer has spread to other parts of the body.

These tests may include some or all of the following:

- Blood tests (tumour markers)
- Chest x-ray and computerised tomography (CT) scan
- Magnetic resonance imaging (MRI) scan

### ***Blood tests (tumour markers)***

Some testicular cancers produce chemicals which are released into the bloodstream. The main chemicals (called **tumour markers**) are alpha-fetoprotein (AFP), beta human chorionic gonadotrophin (BHCG), lactic dehydrogenase (LDH) and placental alkaline phosphatase (PALP). If these chemicals are present in the blood, they can be used to assess whether the cancer has spread and to measure the effect of treatment on the cancer.

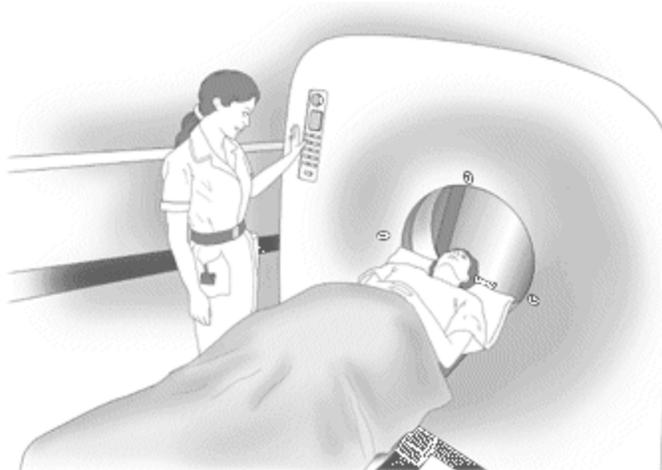
Samples of your blood will also be taken regularly throughout your treatment to check your general health and the effect that any treatment may be having on the normal cells in your blood.

### ***Chest x-ray and computerised tomography (CT) scan***

Usually, a chest x-ray or CT scan is done to check for any signs that the cancer has spread to the lungs or to the lymph nodes in your abdomen.

The CT scan takes a series of x-rays, which build up a three-dimensional picture of the inside of the body. You may be given a drink or injection of a dye (iodine) which allows particular areas to be seen more clearly. For a few minutes, this may make you feel hot all over. If you are allergic to iodine or have asthma you could have a more serious reaction to the injection, so it is important to let your doctor know beforehand.

The scan takes from 10–30 minutes and you will probably be able to go home as soon as it is over.



Having a CT scan

### ***Magnetic resonance imaging (MRI) scan***

This test uses magnetism to build up cross-sectional pictures of the body. Some people are given an injection of dye into a vein in the arm to improve the image.

During the test you will be asked to lie very still on a couch inside a metal cylinder that is open at both ends. The whole test may take up to an hour and is painless, although the machine is very noisy. You will be given earplugs or headphones to wear.

The cylinder is a very powerful magnet, so before going into the room you should remove all metal belongings. You should also tell your doctor if you have ever worked with metal or if you have any metal inside your body (for example, a cardiac monitor, pacemaker, surgical clips or bone pins). You may not be able to have an MRI because of the magnetic fields.

You may feel claustrophobic inside the cylinder so it may help to mention to the radiographer doing the MRI if you do not like enclosed spaces. They can then offer extra support during the test.

Once you have had all the tests you need, the doctor will have a good idea of the type of cancer and the stage (whether it is just within the testicle or has spread).

It will probably take several days for the results of your tests to be ready and a follow-up appointment will be made for you. This waiting period can be a very anxious time and it may help to talk things over with a close friend or relative.

## **Staging of testicular cancer**

The stage of a cancer describes its size and whether it has spread beyond the area of the body where it started. There are several staging systems for testicular cancer.

Knowing the extent of the cancer and the type of cell involved helps the doctors decide on the most appropriate treatment.

A staging system commonly used in the UK, called the TNM system, is described here:

**T** refers to the tumour size.

**N** refers to whether lymph nodes are affected.

**M** refers to whether cancer has spread to other parts of the body (metastases).

### ***Tumour size (T)***

**TIS** (testicular carcinoma in situ) Cancer cells are present within the tubules of the testes but have not moved into the surrounding tissue of the testicle.

**T1** The tumour is only in the testicle and epididymis.

**T2** The tumour has started to grow into blood vessels or lymph nodes close to the testicle.

**T3** The tumour has grown as far as the spermatic cord (and possibly also the blood vessels or lymph nodes).

**T4** The tumour has grown into the scrotum.

### ***Lymph nodes (N)***

The N refers to whether the cancer cells have spread into the lymph nodes nearby and, if so, what size of lymph node is affected (some are larger than others). If lymph nodes are affected they are said to be **positive**.

**N0** The lymph nodes have no cancer cells.

**N1** The lymph nodes affected are smaller than 2cm wide.

**N2** At least one affected lymph node is larger than 2cm but smaller than 5cm wide.

**N3** At least one affected lymph node is bigger than 5cm wide.

### ***Metastases (M)***

Metastases refer to how far the cancer has spread.

**M0** The cancer does not appear to have spread to other organs.

**M1a** The cancer has spread to the lungs or to **distant** lymph nodes (those furthest away from the testicles such as the collarbone).

**M1b** Other organs are affected; for example the brain or the liver.

Doctors also take into account the levels of tumour markers, whether the cancer has spread into the chest area and whether it has spread into soft tissues of the body other than the lung.

## **Treatment for testicular cancer**

Treatment for testicular cancer is usually very successful and most men can now be completely cured, even if the cancer has spread beyond the testicles. The treatment will

depend on the type of cancer (whether it is a teratoma or a seminoma) and whether it has spread beyond the testes.

There are three main types of treatment surgery, chemotherapy and radiotherapy.

- At the hospital
- Benefits and disadvantages of treatment
- Giving your consent
- Second opinion

### ***At the hospital***

If your tests show that you have testicular cancer, you will be looked after by a multidisciplinary team. This is a team of staff who specialise in treating testicular cancer and in giving information and support. It will normally include:

- surgeons who are experienced in testicular surgery
- specialist nurses who give information and support
- oncologists – doctors who have experience in testicular cancer treatment using chemotherapy and radiotherapy
- radiologists who help to analyse scans and x-rays
- pathologists who advise on the type and extent of the cancer.

Other staff will also be available to help you if necessary, such as:

- physiotherapists
- counsellors and psychologists
- social workers.

If you have any questions about your treatment don't be afraid to ask your doctor or a nurse. It often helps to make a list of questions before you go for appointments. You may also like to take a close friend or relative with you when you see the doctor.

If you work, it may be helpful to ask the doctor or specialist nurse, whether the treatment may affect your ability to work.

### ***Benefits and disadvantages of treatment***

Many people are frightened at the idea of having cancer treatments, because of the side effects that can occur.

Some people ask what would happen if they did not have any treatment. If no treatment is given, the cancer is likely to continue to grow and develop slowly and spread to other parts of the body. It can then stop these parts of the body working properly.

Although many of the treatments can cause side effects, these can usually be controlled with medicines.

### **Early-stage testicular cancer**

In people with early-stage testicular cancer, surgery alone may cure the cancer. But often, treatment with chemotherapy or radiotherapy is also given to reduce the risk of the cancer coming back. These treatments are successful in curing the cancer in over 95% of men (more than nine out of ten).

### **If the cancer comes back**

If testicular cancer comes back, the treatment can again get rid of the cancer in most men.

### **Advanced stage**

If the cancer comes back again, or has spread widely in the body, further treatment may still be able to get rid of the cancer. In the rare situation where a cure is not possible, treatment may be able to control the cancer, leading to an improvement in symptoms and a better quality of life. However, for some men in this situation the treatment will have little effect upon the cancer and they will get the side effects without any of the benefit.

Making decisions about treatment in this situation can be difficult, and you may need to discuss in detail with your doctor whether you wish to have treatment. If you choose not to, you can still be given supportive (palliative) care – with medicines to control any symptoms.

### ***Giving your consent***

Before you have any treatment, your doctor will explain its aims to you. They will usually ask you to sign a form saying that you give your permission (consent) for the hospital staff to give you the treatment. No medical treatment can be given without your consent, and before you are asked to sign the form you should have been given full information about:

- the type and extent of the treatment you are advised to have
- the advantages and disadvantages of the treatment
- any other treatments that may be available
- any significant risks or side effects of the treatment.

If you do not understand what you have been told, let the staff know straight away so that they can explain again. Some cancer treatments are complex, so it is not unusual for people to need repeated explanations.

People often feel that the hospital staff are too busy to answer their questions, but it is important for you to be aware of how the treatment is likely to affect you. The staff should be willing to make time for you to ask questions.

You can always ask for more time to decide about the treatment if you feel that you can't make a decision when it is first explained.

You are also free to choose not to have the treatment. The staff can explain what may happen if you do not have it. It is important to tell a doctor or the nurse in charge, so that they can record your decision in your medical notes.

You do not have to give a reason for not wanting to have treatment, but it can be helpful to let the staff know your concerns so that they can give you the best advice.

### ***Second opinion***

Usually a number of cancer specialists work together as a team and they use national treatment guidelines to decide on the most suitable treatment for a patient. Even so, you may want to have another medical opinion. Most doctors will be willing to refer you to another specialist for a second opinion, if you feel it will be helpful. The second opinion may cause a delay in the start of your treatment, so you and your doctor need to be confident that it will give you useful information.

If you go for a second opinion, it may be a good idea to take a friend or relative with you, and have a list of questions ready, so that you can make sure your concerns are covered.

## **Surgery for testicular cancer**

Surgical removal of the testicle (**orchidectomy**) is usually the first treatment for seminoma or teratoma. It also allows your doctor to make an exact diagnosis.

It is uncommon for cancer to affect both testicles. A very small number of men develop a new cancer in the remaining testicle. For this reason, a small biopsy of the unaffected testicle may be done at the time of the initial orchidectomy or at an appointment after the surgery.

The testicular biopsy is a procedure in which a cut is made in the skin of the scrotum. A small sample of cells is taken from the testicle. If no signs of early cancer are present, no treatment needs to be given to that testicle. If the earliest stage of cancer is present (**tumour in situ**), this can usually be cured by a low dose of radiotherapy to the testicle.

Further surgery is sometimes needed after radiotherapy or chemotherapy, to remove any cancer cells that may still be in the lymph nodes of the abdomen or chest.

## **Further treatment after surgery for testicular cancer**

If the cancer has not spread and was completely removed with the testicle, the operation may be the only treatment you will need.

Monitoring (follow-up)

Teratoma  
Seminoma

### ***Monitoring (follow-up)***

After your operation, it is very important for you to be seen regularly in the outpatients clinic by your doctor for blood tests, chest x-rays and CT scans. This is because in some men the cancer may come back in the lymph nodes at the back of the abdomen or in the lungs.

If your doctor feels that the risk of the cancer coming back is very low, you will be seen regularly in the clinic and will not have any further treatment unless your tests show that the cancer has come back. This is known as **surveillance (monitoring)**. It is very important to go for these appointments. This is because in the small proportion of men whose cancer comes back, the regular tests will detect the cancer when it is still very small and further treatment can give a very high chance of cure.

If the risk of the cancer returning is thought to be higher, further treatment may be given to help prevent it. This is known as **adjuvant therapy**. The type of treatment will depend on the type of cancer.

### ***Teratoma***

Teratoma is very sensitive to chemotherapy. If the teratoma seems to be contained within the testicle, two sessions of chemotherapy may be given to reduce the chance of the cancer coming back after orchidectomy.

Three or four sessions of chemotherapy may be given if the teratoma has spread beyond the testicle, or if it comes back after orchidectomy.

### ***Seminoma***

Seminoma is very sensitive to both chemotherapy and radiotherapy. Even if the seminoma has not spread, men may be offered a single dose of chemotherapy after the surgery. The chemotherapy reduces the chance of the cancer coming back. Radiotherapy to the lymph nodes at the back of the abdomen may be given instead of the chemotherapy.

Chemotherapy and radiotherapy may sometimes be given if the seminoma has spread to the nodes at the back of the abdomen.

If the lymph nodes are large, or if the seminoma has spread beyond the lymph nodes (this is rare), men are treated with three or four sessions of chemotherapy.

## **Chemotherapy for testicular cancer**

Chemotherapy is the use of anti-cancer (cytotoxic) drugs to destroy cancer cells. The drugs circulate in the bloodstream and can reach cancer cells anywhere in the body. The drugs most commonly used to treat testicular cancer are cisplatin, etoposide and bleomycin. They are usually used together, which is known as BEP chemotherapy.

When it is given  
Side effects  
Contraception

### ***When it is given***

Chemotherapy may be given to men with teratoma, either to prevent the cancer coming back after surgery or to treat any cancer that has spread to the lymph nodes at the back of the abdomen, or elsewhere in the body.

Men with seminoma usually have chemotherapy if there are a lot of cancer cells in the nodes at the back of the abdomen, or if the seminoma has spread beyond these lymph nodes.

The chemotherapy drugs are given by injection into a vein (intravenously). Two to four sessions of chemotherapy are usually given. Each session involves spending a few days in hospital followed by weekly outpatients visits to be given the chemotherapy drugs. If the cancer has spread to other parts of the body, a longer course of chemotherapy may be necessary, or the treatment may be given weekly.

Chemotherapy using a single dose of just one drug (called carboplatin) is given to treat seminoma if the cancer does not seem to have spread. As an alternative, radiotherapy to the nodes at the back of the abdomen may be given.

Chemotherapy may also occasionally be used to shrink down a large testicular cancer before surgery so that it can be removed more easily. This is known as **neo-adjuvant chemotherapy**.

Treatment for testicular cancer is very successful, and the cancer does not usually come back after standard chemotherapy.

High-dose chemotherapy may be used if standard chemotherapy does not completely get rid of the cancer cells (which is rare).

### ***Side effects***

Chemotherapy drugs can cause unpleasant side effects, but these can usually be well controlled with medicines. Not all drugs cause the same side effects and some people may have very few side effects. Your doctor will tell you about any problems that your treatment may cause.

### **Lowered resistance to infections**

While the drugs are acting on the cancer cells in your body, they also temporarily reduce the number of normal white cells in your blood. When these cells are reduced, you are more likely to get an infection and you may tire easily. During chemotherapy your blood will be tested regularly and, if necessary, you may be given antibiotics to treat any infection.

If your temperature goes above 38°C (100.5°F), or you suddenly feel unwell, even with a normal temperature, you may have an infection. Contact your chemotherapy nurse or doctor at the hospital straight away.

### **Anaemia**

Chemotherapy may reduce the number of red blood cells (haemoglobin) in your blood; a low level of red blood cells is known as anaemia. If you have anaemia, you will probably feel very tired and lethargic. You may also become breathless.

Anaemia can be very successfully treated with blood transfusions. This should help you to feel more energetic and ease the breathlessness.

### **Bruising and bleeding**

Platelets are a type of blood cell which help to clot the blood. If the number of platelets in your blood is low you will bruise very easily and may bleed heavily from even minor cuts or grazes. If you develop any unexplained bruising or bleeding, contact your doctor or the hospital immediately. We have separate information about platelet transfusions.

### **Feeling sick**

Some of the drugs used to treat testicular cancer can make you feel or be sick (nausea and vomiting), but there are very effective anti-sickness drugs (anti-emetics) to prevent this. It is helpful to avoid eating immediately before and after your chemotherapy. If the sickness is not controlled or continues, even with anti-sickness treatment, let your doctor know. They can prescribe other medicines that may be more effective.

### **Tiredness**

Chemotherapy affects people in different ways. Some people find they are able to lead a fairly normal life during treatment, but many find they have to take things much more slowly. Tiredness can build up over a course of treatment, and if you have a lot of chemotherapy, it can last for several months or more after your treatment has finished. It is best to cope with tiredness by planning ahead. Try to fit in rest periods and don't do things that you don't need to do. Accept help from others when you need to. There may be times when you feel less tired. A little activity can sometimes help with the symptoms of fatigue.

### **Sore mouth and loss of appetite**

Some chemotherapy drugs can make your mouth sore and cause small ulcers. It is important to rinse your mouth regularly to keep it clean. Using a child's soft toothbrush can be helpful. If you don't feel like eating during treatment, you could try replacing some meals with nutritious drinks or a soft diet.

### **Hair loss**

Unfortunately, some chemotherapy drugs will make your hair fall out. People who lose their hair often cover up by wearing wigs, bandanas, hats or scarves. If you are being treated as an inpatient, or you are on income support, you can get a free wig from the NHS. If not, you can still get a subsidised wig from the hospital. Ask the team looking after you if a wig specialist is available to visit you. If your hair falls out it is important to protect your scalp from the sun. If you lose your hair it will start to grow back within three to six months of finishing your treatment.

### **Breathlessness**

The chemotherapy drug bleomycin can occasionally cause inflammation in the lungs and this can lead to breathlessness. This is usually mild, but if it becomes a problem your doctor may stop or change the drug. After having bleomycin you may not be able to take part in certain activities, such as sub-aqua diving. If you need to have an operation after having bleomycin, you should always tell the anaesthetist that you have had bleomycin treatment.

### **Hearing changes**

Another drug, cisplatin, can cause tinnitus (ringing in the ears) and you may lose the ability to hear some high-pitched sounds. This usually improves when treatment ends. Let your doctor know if you have any problems with your hearing. They may want to send you for a hearing test.

### **Peripheral neuropathy**

You may also notice numbness or tingling in your hands and feet or difficulty doing up buttons. Your hands and feet may also become more sensitive to the cold. This is due to the effect of the drug on the nerves and is known as peripheral neuropathy. Let your doctor know if this is a problem for you.

### **Change in kidney function**

Chemotherapy can cause changes in the way that your kidneys work so you will have regular blood tests to see how well your kidneys are working.

**Although they may be hard to deal with at the time, these side effects will gradually disappear once your treatment is over.**

### ***Contraception***

It is not advisable to father a child while having any of the chemotherapy drugs used to treat testicular cancer, as they may harm the developing foetus. It is important to use effective contraception during your treatment and for a year afterwards. You can discuss this with your doctor or specialist nurse.

Condoms should be used during sex within the first 48 hours after chemotherapy to protect your partner from any of the drug that may be present in semen.

Our booklet on chemotherapy discusses the treatment and its side effects in more detail.

## **High-dose chemotherapy as a treatment for testicular cancer**

This treatment involves giving very high doses of chemotherapy to try to destroy all the testicular cancer cells.

As these high doses also damage cells in the bone marrow, certain cells in your blood called peripheral blood stem cells are collected and stored before treatment begins, then returned to the blood afterwards. This is known as **stem cell support**.

We have a separate booklet on stem cell and bone marrow transplants which gives more detailed information.

## **Radiotherapy for testicular cancer**

Radiotherapy treats cancer by using high-energy rays which destroy the cancer cells, while doing as little harm as possible to the normal cells. It is sometimes used to treat seminoma but not usually to treat teratoma.

When it is given  
Planning radiotherapy  
Treatment sessions  
Side effects

### ***When it is given***

Radiotherapy may be given to men with seminoma either to prevent the cancer coming back after surgery or to treat any cancer cells that have spread to the lymph nodes at the back of the abdomen.

The treatment is normally given in the hospital radiotherapy department as a series of short daily sessions. The treatments are usually given from Monday to Friday as an outpatient, with a rest at the weekend. Each treatment takes 10–15 minutes. Your doctor will discuss the treatment and possible side effects with you.

**External radiotherapy does not make you radioactive and it is perfectly safe for you to be with other people, including children, after your treatment.**

### ***Planning radiotherapy***

Radiotherapy has to be carefully planned to make sure that it is as effective as possible.

On your first visit to the radiotherapy department, you will be asked to have a CT scan or lie under a machine called a simulator, which takes x-rays of the area to be treated. The treatment is planned by a clinical oncologist. Planning is a very important part of radiotherapy and may take a few visits.

The radiographer, who gives you your treatment, will draw marks on your skin to help position you accurately and to show where the rays are to be directed. These marks must stay throughout your treatment, and permanent marks (like tiny tattoos) may be used. The marks are very small and will only be done with your permission.

### ***Treatment sessions***

Before each session of radiotherapy, the radiographer will position you carefully on the couch, and make sure you are comfortable. During your treatment, which only takes a few minutes, you will be left alone in the room but you will be able to talk to the radiographer who will be watching you from the next room. Radiotherapy is not painful but you do have to lie still for a few minutes while the treatment is being given.



Positioning the radiotherapy machine

### ***Side effects***

Radiotherapy to the abdomen can cause side effects such as reddening and soreness of the skin in the treated area, feeling sick (nausea), diarrhoea and tiredness.

These side effects gradually disappear once your course of treatment has finished. The tiredness may continue for some months.

### ***Skin changes***

Perfumed soaps, creams or deodorants may irritate the skin and should not be used during the treatment. At the beginning of your treatment you will be given advice on how to look after the skin in the area being treated.

### ***Sickness***

Anti-sickness tablets (anti-emetics) may be given at the start of radiotherapy.

**It is important to let your doctor know if you are having any problems. Most of the side effects are mild and can be treated successfully with medicines. The side effects should gradually disappear once your course of treatment is over.**

## Follow-up after treatment for testicular cancer

After your treatment has finished, you will be asked to go back to the hospital for regular check-ups.

To begin with, these may be every month but they will gradually become less frequent. Your doctor will ask how you are feeling and will examine you. Your remaining testicle will also be checked. You may have blood tests.

From time to time you may also have a CT scan, chest x-ray or ultrasound scan. You can also see your GP or hospital doctor if, between your follow-up visits, you have a symptom which you cannot readily explain or is not getting better.

For men whose treatment is over apart from regular check-ups, our booklet on adjusting to life after cancer treatment gives helpful advice on how to keep healthy and adjust to life after cancer.

## How treatment for testicular cancer might affect your fertility and sex life

One of the most common questions asked by men before treatment for testicular cancer is whether their sex life or fertility will be affected.

The important thing to remember is that, if the other testicle is healthy, the removal of one testicle will not affect your sexual performance or your ability to father children. This is because the remaining healthy testicle will produce more testosterone and sperm to make up for the removal of the affected testicle.

- Effects of chemotherapy
- Effect of surgery to remove lymph nodes
- Effect of radiotherapy
- Low sex drive
- Support

### ***Effects of chemotherapy***

Chemotherapy treatment for men with testicular cancer commonly causes infertility during treatment and for a time after. This is usually temporary but your doctor will advise that you consider storing sperm before having treatment. The rate at which the sperm count recovers varies from person to person, but it generally returns to normal from around 18 months or so after treatment. In men having high-dose chemotherapy, the risk of infertility is higher.

The effect of chemotherapy on semen (the liquid that contains the sperm) and sperm is uncertain. Condoms should be used during sex within the first 48 hours after chemotherapy to protect your partner from any of the drug that may be present in semen. Although there is no evidence that chemotherapy can harm children fathered after the treatment has finished, doctors usually advise you to avoid conceiving a child for about a year after treatment.

Some men with testicular cancer have a low sperm count before they start any treatment, and sometimes successful treatment with chemotherapy may actually cause the sperm production to improve.

### ***Effect of surgery to remove lymph nodes***

Sometimes it is necessary to surgically remove lymph nodes in the abdomen (retroperitoneal lymph node dissection), if they are still enlarged after radiotherapy or chemotherapy. Unfortunately, this can affect fertility, as the operation can damage the nerves that control the discharge of sperm through the penis (ejaculation). However, new surgical techniques mean that this problem can usually be avoided. If there is a possibility that you may need such surgery, and if you are fit enough to produce sperm samples for storage before treatment starts, some of your sperm can be stored.

Although this further surgery may make it more difficult for you to father a child, it will have no physical effect on your ability to get an erection or have an orgasm.

### ***Effect of radiotherapy***

Radiotherapy does not normally cause infertility. However, a small dose of radiation does reach the remaining testicle. There is no evidence that this radiotherapy has any effect on children fathered after the treatment, but men are usually advised to use effective contraception for 6-12 months after treatment has ended.

### ***Low sex drive***

Any course of treatment may make you too tired to be interested in sex, and lower your sex drive. This is common to many illnesses, not just cancer. It is worrying, but remember that it is a temporary side effect. Once the treatment is over and your body begins to return to normal, your sex drive (libido) will also return.

### ***Support***

Sexual problems are very personal - and important. Talking about them can be a great help.

Although this can sometimes be difficult, once they have summoned up the courage to talk openly to their partners, many men find that their fears of rejection are unfounded. Sexual relationships are built on many things including love, trust and common experiences. You may even find a new closeness after talking through a problem with your partner.

In some cases your doctor or nurse or a close friend or relative may also be able to offer help and advice. Some hospitals have nurses or social workers who have been specially trained to help people with sexual problems.

We have a booklet on sexuality and cancer which you may find helpful.

One common fear is that cancer cells can be passed on to your partner during sex. This is not true. Cancer is not infectious and it is perfectly safe for you to have sex.

## **Sperm storage before treatment for testicular cancer**

For many men, it is possible to preserve their fertility by storing sperm (sperm banking). If your sperm is suitable and you would like to store some for the future, you will need to produce a number of sperm samples over a period of a few days. These can be frozen and stored for some time by the hospital. When you want to father a child, your sperm can be thawed and used to artificially inseminate your partner.

Unfortunately, not every man has sperm suitable for banking. To be successfully stored, a sample must contain a certain number of active sperm cells, which would be able to fertilise a female egg. However, new techniques now make it possible for less active sperm to be effective. Active sperm can also sometimes be taken from the testes, even when there are none in the semen.

It is best to discuss possible sperm storage with your doctor before your treatment starts, so that tests can be done to check your sperm count.

For many patients with cancer, the cancer unit will provide free sperm banking, but if the hospital has to pay for this service they may charge you. The costs vary between hospitals.

If your doctor feels that it is important to start chemotherapy treatment very soon, there may not be enough time to arrange for sperm banking to be done before treatment starts.

## **Research - clinical trials**

Cancer research trials are carried out to try to find new and better treatments for cancer. Trials that are carried out on patients are known as clinical trials.

Clinical trials may be carried out to:

- test new treatments, such as new chemotherapy drugs, gene therapy or cancer vaccines
- look at new combinations of existing treatments, or change the way they are given, to make them more effective or to reduce side effects
- compare the effectiveness of drugs used for symptom control
- find out how cancer treatments work
- see which treatments are the most cost-effective.

Trials are the only reliable way to find out if a different operation, type of chemotherapy, radiotherapy, or other treatment is better than what is already available.

### ***Taking part in a trial***

You may be asked to take part in a treatment research trial. There can be many benefits in doing this. Trials help to improve knowledge about cancer and develop new treatments. You will also be carefully monitored during and after the study. Usually, several hospitals around the country take part in these trials. It is important to bear in mind that some treatments that look promising at first are often later found not to be as good as existing treatments, or to have side effects that outweigh the benefits.

If you decide not to take part in a trial your decision will be respected and you do not have to give a reason. There will be no change in the way that you are treated by the hospital staff and you will be offered the standard treatment for your situation.

### ***Blood and tumour samples***

Many blood samples and bone marrow or tumour biopsies may be taken to find out what is wrong with you. Most of these are needed to make the right diagnosis. You may be asked for your permission to use some of your samples for research into cancer. Some samples may be frozen and stored for future use, when new research techniques become available.

The research may be carried out at the hospital where you are treated, or it may be at another hospital. This type of research takes a long time, so you are unlikely to hear the results. The samples will, however, be used to increase knowledge about the causes of cancer and its treatment. This research will, hopefully, improve the outlook for future patients.

## **JASCAP resources**

### **Talking about your cancer**

Practical advice and guidance for cancer patients to help them communicate with family, friends, carers and health professionals about emotional and practical issues arising from a diagnosis of cancer and cancer treatment.

### **Talking to children about cancer**

Practical advice and guidance to help parents with cancer talk to their children about their cancer.

### **Talking to someone with cancer**

Practical advice and guidance for friends, carers and family members to help them talk to their friend or relative with cancer, and provide emotional and practical support.

***Note: JASCAP has booklets on each of the above subjects.***

## Questions you might like to ask your doctor or surgeon

You can fill this in before you see the doctor or surgeon, and then use it to remind yourself of the questions you want to ask, and the answers you receive.

1. \_\_\_\_\_

Answer \_\_\_\_\_

\_\_\_\_\_

2. \_\_\_\_\_

Answer \_\_\_\_\_

\_\_\_\_\_

3. \_\_\_\_\_

Answer \_\_\_\_\_

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4. \_\_\_\_\_

Answer \_\_\_\_\_

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5. \_\_\_\_\_

Answer \_\_\_\_\_

\_\_\_\_\_

## **JASCAP : We need your help**

We hope that you found this booklet useful.

To help other patients and their families we need and intend to extend our Patient Information Services in many ways.

Our Trust depends on voluntary donations. Please send your donation by Cheque or D/D payable in Mumbai in favour of "JASCAP".

### **Note for Reader**

This JASCAP booklet is not designed to provide medical advice or professional services and is intended to be for educational use only. The information provided through JASCAP is not a substitute for professional care and should not be used for diagnosing or treating a health problem or a disease. If you have, or suspect you may have, a health problem you should consult your doctor.

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