



Testicular Biopsy and Sperm Extraction for Fertility Preservation

This fact sheet aims to provide information about why and when a testicular biopsy or aspiration might be offered, what it involves, and the associated risks. The information does not replace talking to your doctors or nurses. It aims to act as a tool to help you prepare questions you can ask your healthcare team.

Testicular biopsy or needle aspiration involves removing a small amount of tissue from one or both testicles. The tissue is examined under a microscope to find out if sperm are present and are able to be frozen (or used immediately) for Intracytoplasmic Sperm Injection (ICSI) - a specialised form of in vitro fertilization (IVF). Some men with cancer may be offered this procedure if their treatment is known to cause possible infertility and they are unable to provide a semen sample or the sample shows no live sperm for storage.

Your testicles (testes)

The testicles are two oval shaped glands found hanging in the pouch of skin (scrotum) just under the base of the penis. The testes play the central role in male reproduction. From puberty onwards they produce sperm, which can fertilise a female egg. The testes also produce the male hormone testosterone. Testosterone aids in muscle development, hair growth, a deep voice, the ability to have an erection and sex drive (libido).

Sperm production occurs in tightly packed, fine tubes (called 'seminiferous tubules') and millions are made each day. It takes about 70 days to complete a sperm so that at any one time, sperm at different stages of their development are present. When finished they are released into the tubule and travel into the epididymis. This is a coiled tube that lies at the back of the testes and connects to the vas deferens (the duct which transfers sperm from the testicle to the urethra). At ejaculation, muscle contractions transport the sperm from the epididymis through the vas deferens and into the ejaculatory ducts at the base of the bladder. Semen is the mixture of fluids from the testis but most comes from the seminal vesicles and prostate gland.

Who will need a testicular biopsy and aspiration?

If you have cancer there are treatments that may interfere with your future fertility. These can include:

- chemotherapy or radiation therapy



- bone marrow therapy
- certain types of pelvic or testicular surgery

Fertility problems may only be for a short time until after your treatment is over. But for some men infertility can be permanent. You may be able to sperm bank (see our sperm banking fact sheet) before your treatment begins. However, some men may be making so few sperm that they do not appear in their semen. Other men are unable to masturbate due to illness, stress or damage to nerves in the spine or pelvis. In this situation testicular tissue can be taken during a biopsy and be used for ICSI. The procedure to take the tissue is known as 'testicular sperm extraction'.

Before treatment begins it is important to discuss with your doctor how your treatment may affect your future fertility. Read our Fertility preservation options for men with cancer factsheet for more detailed information about how cancer treatment can affect fertility.

The chance of being able to save sperm from the biopsy varies greatly and depends on your illness and past treatments. You will need to ask your doctor about the success rate in your particular situation.

Types of biopsies

There are two different types of biopsies. They are 'percutaneous' and 'open' biopsy. Your doctor will discuss each with you and which one you will need.

Percutaneous biopsy

Also called a fine needle biopsy, this method means inserting a fine needle through the skin into the testicle. Tissue is drawn into a syringe at the end of the needle. This is done using local anaesthetic: there is no incision or stitches. A variation on this method is called a core biopsy. A larger, circular tissue cell sample is taken using a spring loaded syringe.

Open/surgical biopsy

This method is more complex and involves your doctor making a cut into the skin and into the testicle. Tissue is taken (usually the size of one or two grains of rice) and stitches used to sew up the incision. This is done under general anaesthetic so it involves more risks. There are different types ranging from a



simple biopsy form to a micro-dissection procedure when the tubules of the testes are examined under an operating microscope. Sections of tubules that are thought to contain sperm are removed.

Before your biopsy

It is important to tell your doctor:

- If you are allergic to any medications
- Have any bleeding problems
- Are you taking anti-coagulant (blood thinning) drugs such as warfarin, heparin, aspirin or non-steroidal anti-inflammatory drugs (NSAID) such as Ibuprofen.
- About any other regular medications you take (name and dose) including any herbs, vitamins or other supplements.

You will need to sign a consent form before the biopsy. This form says you understand what you are having, the possible complications and side effects. Talk to your doctor about any concerns you have before signing the consent. It is important you fully understand what is happening. If you are having a general anaesthetic you will need to stop eating and drinking a few hours before the procedure. The medical staff will inform you when you need to stop. You may be given a sedative to take before your procedure. If this is the case you will not be able to drive yourself to and from home or the hospital.

Having the procedure

A testicular biopsy is usually done as a day/outpatient procedure. It is performed by a surgeon called a urologist (doctor who deals with male reproductive organs). It can be done in the hospital outpatient department or a special urology clinic.

If you are having a general anaesthetic (where you go to sleep) you will need to come to the hospital a couple of hours before the procedure is done, and have fast prior to having the procedure. There will be an injection into a vein in your arm for the anaesthetic drugs to be given. Sometimes the procedure is done under local anaesthetic (where you are awake). You will lie on your back and the area around your scrotum will be shaved and cleaned with antiseptic. If you are having a local anaesthetic you will be given an injection under the skin into the scrotal area to numb it. This can sting a little but it will be over quickly. You need



to stay as still as you can during the procedure. With a percutaneous biopsy you may feel some pressure when the needle enters the testis and the biopsy is taken. But it should not be painful.

If you are having an open biopsy the doctor will make a small incision into the skin. If it is done under local, you may feel a bit of pressure or discomfort at this stage. If you are asleep then you won't feel anything. The incision is closed with a few stitches, which should be dissolvable. Depending on the type of biopsy, the procedure may take as little as 15 to 20 minutes or up to two hours for the micro-dissection method.

Recovery

If you had your biopsy done under local anaesthetic you will be able to go home soon after the procedure. You will need to stay for at least 4 hours after a general anaesthetic. For both methods your doctor will give you instructions about healing. Depending on the type of biopsy you have had you may be told not to have sex for a week or two, keep the biopsy site dry and clean, do not go swimming and to avoid aspirin for a few days after. It is normal to have a small amount of discomfort, bleeding, swelling and bruising in the area. However, if you have severe pain, excessive bleeding or swelling you need to see a doctor straight away.

Risks of testicular biopsy

Overall having a testicular biopsy is safe. However, as with all medical procedures there are risks involved. It won't affect your ability to have an erection or change your fertility status. But it may cause prolonged bleeding and/infection after the procedure. These risks are serious but rarely happen. See your doctor immediately if you have:

- Severe or increasing pain or swelling in the biopsy area
- Blood soaking through your dressing/bandage
- A haematoma (collection of blood under the skin)
- A fever or chills



Results

Your doctor will be able to tell you on the same day as your procedure whether sperm were present and frozen for future use. Sometimes no sperm is found. If this occurs it may come as a shock to you. Feeling upset and unsure of what this means for you is a normal reaction. Having someone you trust stay with you at the hospital to support you on the day will be helpful. Your medical team will also offer support and talk to you about what your results mean.

Questions to ask your medical team

You may have concerns about having a testicular biopsy. Be sure to discuss these with your doctor before you have it. The questions below may help start the conversation.

- Do I need to have a testicular biopsy to preserve my fertility?
- What does the procedure involve?
- Will I need to have a general anaesthetic?
- Does it hurt to have the biopsy?
- What are the risks involved with having the biopsy?
- Is there any special care I need to take after the biopsy?
- If I am infertile, what are my options for becoming a parent?
- Where can I find surrogacy resources or support?

Further support and information

This fact sheet has only provided you with an overview of what having a testicular biopsy means. It is important you find out as much as you can so as you can make an informed decision. For more detailed information please refer to our other factsheets and the following excellent resources:

- Other fact sheets from the Future Fertility website www.futurefertility.com.au or www.futurefertility.com.nz
- Andrology Australia www.andrologyaustralia.org
- Fertility Society of Australia www.fertilitysociety.com.au/
- Fertility NZ: www.fertilitynz.org.nz
- IVF Clinics comprehensive directory: www.access.org.au
- Fertile Hope www.fertilehope.org



- Fertility After Cancer. A guide for people with cancer, family and friends. First published June 2014. © Cancer Council Australia 2014

You may also like to call a Cancer Helpline service:

- Australia 13 11 20
- New Zealand call 0800 226 237

Both these helplines will allow you to speak with an experienced cancer nurse.