

# **CT (Computed Tomography) guided bone biopsy**

**If you do not believe you should have  
been referred for this procedure please  
contact the CT department immediately.**

# **Introduction**

This leaflet gives you information about having a Computed Tomography (CT) guided bone biopsy. It explains how the procedure is carried out and some of the possible complications.

## **Why do I need a biopsy?**

An abnormality has been detected in one of your bones on a previous scan. The cause is not certain from the scan images, and your team require a sample of the abnormal bone for further tests.

The most common causes for bone abnormalities requiring biopsy are infection or a tumour. Taking a sample will help guide your future management.

## **Where will the biopsy be carried out?**

The biopsy will be done in a CT scanner in the Radiology Department.

The CT scanner uses X-rays to produce highly detailed image slices through the body which are used to guide a thin needle into the abnormal region of bone and retrieve a sample to send for further analysis.

A radiologist (a doctor who specialises in reading diagnostic images such as X-rays and CT scans) will carry out the biopsy. They will be assisted by a radiology nurse and a radiographer who will take the images.

## **How do I prepare for the biopsy?**

Before your biopsy a pre-assessment conversation is required for you to discuss the procedure and any preparation that may be needed. This might be by telephone, or you may be sent an appointment to attend a clinic in the hospital. Please have a list of all your current medications available.

Some blood-thinning medications may need to be stopped before the biopsy (we will let you know if this applies to you) but please continue to take any pain or blood pressure medication as normal.

You may also need a blood test before your biopsy to check that you do not have an increased risk of bleeding following the biopsy. The pre-assessment nurse will discuss this with you.

## **Can I eat or drink before the biopsy?**

Yes. You may have a light meal 2 hours before the procedure and clear fluids up to the appointment time.

## **On the day of the biopsy**

Report to the area stated on your appointment letter (this may be the Radiology/Imaging department or a Ward), where you will be asked to change into a hospital gown.

Although most people go home on the same day there is a possibility that you may need to stay in hospital overnight, so please bring an overnight bag with you.

You should not drive for the remainder of the day. Your car insurance may not be valid if you have had a medical procedure. Ideally you should arrange for someone to pick you up after the procedure.

## **Can I bring a relative/friend?**

Yes, but for reasons of safety they cannot join you in the CT scanning room except in special circumstances.

## **Giving your consent (permission)**

We want to involve you in the decision about your care and treatment. After you arrive, the radiologist performing the biopsy will speak to you and answer any questions you may have or address any concerns. This is encouraged as we like to know what is important to you and may influence your decisions.

If you decide to go ahead with the biopsy, you will be asked to sign a consent form. This states that you agree to the procedure and understand what it involves. You can change your mind at any time, even after signing the consent form.

The Radiology Department plays an important role in the training of future healthcare professionals. The part patients play in this is vital in ensuring we produce the right quality of healthcare professionals for the future. If at any time you would prefer not to have students present, please inform the team looking after you. This will not affect your care in any way.

## **What happens during the procedure?**

You will be asked to lie on the scanner bed, either on your back or on your front depending on the best approach. A short scan is performed to plan the biopsy approach.

Your skin will be disinfected and sterile drapes used. Local anaesthetic will be used to numb the area down to the bone, this may sting a little. A small nick will then be made in the skin using a scalpel. The biopsy needle is then slowly advanced into the abnormal bone a few millimetres at a time, while the CT scanner is used to make sure the needle position is correct. You will need to be still during this time. You may feel some minor discomfort or pressure as the biopsy is taken. One or two samples will be taken and sent for analysis. A dressing will be applied over the wound.

The whole process takes between 30 and 60 minutes. You will be awake throughout the procedure and able to talk with the radiologist and the team to let them know if you are uncomfortable.

Strong pain relief will be available to be given by nurses just before the biopsy but depending on the location of the biopsy this is often not required.

## **What are the risks involved?**

The procedure is normally well tolerated, and complications are rare. Most people go home after one hour of recovery.

The exact risks depend on the location of the biopsy:

- Pain and bruising - this should go after a few days.
- Haematoma (blood clot) which may cause some swelling and pain. A cold compress such as an ice pack wrapped in a tea towel and simple pain relief such as paracetamol are normally effective.
- Infection - this is rare but may present as redness, swelling, fever and chills. If this happens you will need to seek medical advice. Please contact the Radiology Nurses, the details are at the end of this leaflet.
- Nerve damage.
- Bone fracture - this is also rare but will require emergency medical admission for treatment.

There is also a small risk of damaging the nearby structures such as blood vessels, muscle and nerves but the CT scanner allows needle placement with millimetre precision. In most cases the bone being targeted is away from delicate structures and the planning CT will identify a safe path minimising any such risks.

If the spine is being targeted, the chance of injuring a nerve is higher, but still rare overall. Very rarely an operation is required to remove a blood clot from close to the spinal nerves.

Very rarely the sample cannot be extracted when the needle is removed. In this case another attempt can be made, or you can be rebooked for another day.

If the sample is insufficient to make a diagnosis, a repeat biopsy may be attempted.

If infection is suspected sometimes the responsible bacteria/organism cannot be grown or identified. If you

have been taking antibiotics immediately before the biopsy, the chances of this are increased.

CT scanning does involve X-rays and has the usual risks associated with ionising radiation. The amount of radiation is equal to the natural radiation we all receive from the atmosphere over a period of about 3 years.

## **How long will the procedure take?**

Every patient is different, so it is not possible to give a definite timeframe. The procedure will take about 30 minutes to carry out. However, following the biopsy you will be looked after in the recovery area by a radiology nurse who will observe you for a short while (typically one hour). If you feel well, you will then be able to go.

We recommend that someone picks you up after the procedure and you rest at home for the remainder of the day to let the site of biopsy heal.

## **Are there any side effects?**

Not usually. You should spend the remainder of the day resting. If you notice any bleeding from the site or feel unwell, please contact your GP immediately.

## **Do I have to have the biopsy or is there an alternative?**

You do not have to have a biopsy. It is possible just to monitor the abnormality with scans, but this risks the abnormality growing or spreading and may delay treatment which might lead to worse outcomes.

Often there is no other more safely accessible tissue to target, or the abnormality is only affecting the bone, which limits alternative options.

**Overall, the risks of leaving the bone abnormality undiagnosed and un-treated is felt to outweigh the smaller risks of a procedural complication.**

## **When will I get the results?**

Analysis of the sample takes 1 to 2 weeks, and your results will be given to you in a follow up appointment with your referring team.

## **Should I still take my regular medication?**

Yes, but you may need to stop any blood thinning tablets. These include, aspirin, clopidogrel, warfarin, apixaban, rivaroxaban, dabigatran and fondaparinux. If you take any of the medications listed, please contact the radiology nurses for advice.

## **Can I eat and drink afterwards?**

Yes, do so normally.

## **Interpreters**

If you need an interpreter for your procedure, please contact the department before your appointment date so we can try to arrange this.



## **Reasonable Adjustments**

If you require assistance or adjustments for your scan and/or you hold a Health Passport please contact the appointments team on the number on your letter to discuss these.

If you would like to visit the department prior to your appointment, please let the appointments team know and we can arrange this.

If you have a RESPECT form, please bring this along to your appointment. You may also wish to discuss your scan and RESPECT form with your clinician prior to attending your appointment.

## **Cancelling your appointment**

If you are unable to attend your appointment, we would be grateful if you could contact us as soon as possible. We can then offer your appointment to another patient and arrange another date and time for you.

If you have had diarrhoea and/or vomiting, please cancel your appointment unless you have been free of symptoms for 48 hours. You should contact the CT Appointments Officer on the number shown on your appointment letter, between 9:00am and 4:30pm, Monday to Friday.

# Notes

Hopefully the information in this leaflet has answered any questions you may have but remember this is only the starting point for discussion about your treatment. Make sure you are satisfied that you have received enough information about the procedure in advance. Please feel free to contact your consultant or the Radiology Department to discuss any queries you have before the procedure.

The section below is designed for you to make notes about anything you would like to ask during these discussions.

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## **Contact information**

**If you do not believe you should have been referred for this procedure, please contact the CT department immediately using the number at the top of your appointment letter.**

Alternatively, you can contact your consultant's secretary or one of the Cancer Nurse Specialists on the numbers listed below.

### **Cancer Nurse Specialist**

Cheltenham General Hospital

Tel: 0300 422 2379

### **Gloucestershire Hospitals Switchboard**

Tel: 0300 422 2222

Ask for the operator when prompted. When the operator responds ask them to bleep the Cancer Nurse Specialist on 2649.

We are pleased that we can offer state of the art technology for diagnosis. However, radiology equipment needs constant updating and there is a charitable fund for this. If you would like to donate, please send a cheque to the address below.

Please send your donation to:

Business Manager

Department of Radiology (Imaging 1)

Gloucestershire Royal Hospital

London Road

Gloucester

GL1 3NN

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## Shared Decision Making

If you are asked to make a choice, you may have lots of questions that you want to ask. You may also want to talk over your options with your family or friends. It can help to write a list of the questions you want answered and take it to your appointment.

### Ask 3 Questions

**To begin with, try to make sure you get the answers to three key questions if you asked to make a choice about your healthcare.**

1. What are my options?
2. What are the pros and cons of each option for me?
3. How do I get support to help me make a decision that is right for me?



These resources have been adapted with kind permission from the MAGIC Programme, supported by the Health Foundation.

**\*Ask 3 Questions** is based on Shepherd HL, et al. Three questions that patients can ask to improve the quality of information physicians give about treatment options: A cross-over trial.

Patient Education and Counselling, 2011;84: 379-85



<https://aqua.nhs.uk/resources/shared-decision-making-case-studies/>



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