

**Patient
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CT (Computed Tomography) guided bone biopsy

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 isn't 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.



Figure 1: CT scanner

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Department

Radiology

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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 may be by telephone or you may be sent an appointment to attend a clinic in the hospital. Please have a list of all your 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.

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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. We are happy to answer any questions you may have or address any concerns. This is encouraged and we like to know what is important to you and may influence your decisions. If you decide to go ahead you will be asked to sign a consent form. This states that you agree to the procedure and understand what it involves.

If you decide you do not want this procedure 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 impact on 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 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 team to let them know if you are uncomfortable.

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Stronger pain relief will be available to be given by nurses just before the biopsy but depending on the location of the biopsy these are 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 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 contact 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 over all.

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.

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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 un-diagnosed 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.

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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 our 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 so we can try to arrange this.

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. Please ring 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 on the next page 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 and ask for the operator when prompted. When the operator responds ask them to bleep the Cancer Nurse Specialist on 2649.

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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 make a donation, please send a cheque to the address below. Cheques are payable to GHNHSFT.

Please send your donation to:

Business Manager
Dept of Radiology (Imaging 1)
Gloucestershire Royal Hospital
London Road
Gloucester
GL1 1NN

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