birmingham bowel clinic

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CT Chest examination

The Radiology Department

The Radiology Department, sometimes called the x-ray, is the facility in the hospital which carries out the radiological examinations of patients, using a range of equipment, including x ray, CT scanning, ultrasound and magnetic resonance imaging (MRI).

The radiologists are doctors specially trained to interpret the results and carry out some of the more complex examinations. They are supported by radiographers who are highly trained to carry out many of the x-ray and other imaging procedures.

What is CT Scanning of the Chest?

Computed tomography (CT) of the chest uses special equipment to obtain multiple cross-sectional images of the organs and tissues of the chest. CT produces images that are far more detailed than a conventional chest x-ray. CT is especially useful because it can simultaneously show many different types of tissue, including the lungs, heart, bones, soft tissues, muscle and blood vessels. A computer, processes the images to create cross-sectional pictures or "slices" of the chest. CT scanning involves relatively low radiation exposure and is not invasive. No preparation is required prior to the exam.

What are some common uses of the procedure?

CT of the chest is commonly used to take a closer look at findings detected on conventional chest x-rays. The CT examination may provide more specific information regarding the nature and extent of the findings or, in some cases, determine that the chest is normal.

CT may be used to detect and evaluate the extent of tumours that arise in the lung and mediastinum, or tumours that have spread there from other parts of the body. CT is routinely used to assess whether tumours are responding to treatment.

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When someone has abnormal CT findings but the cause is uncertain, a percutaneous needle biopsy may be needed to directly examine the tissue. CT can be used to help guide the biopsy needle to the area in question.

CT Chest can demonstrate other lung disorders, such as old or new pneumonia, tuberculosis, emphysema, bronchiectasis, and diffuse interstitial lung disease. When the clinical findings and regular chest x-ray are inconclusive, CT may clarify the situation. Inflammation or other diseases of the pleura, the membrane covering the lungs, can be seen in CT images. High-resolution CT (HRCT) may be used for further evaluation. This uses thinner slices with possible expiration and prone views.

A CT angiogram (CTA) may be performed to evaluate the blood vessels (arteries and veins) in the chest. This is commonly used to look at the pulmonary arteries to diagnose a pulmonary embolism (PE).

How should I prepare for the CT scan?

You should dress comfortably but avoid any clothing in the chest area that has a zip or jewellery as metal objects may affect the CT images. Women should always inform their physician or the radiographer if there is any possibility that they are pregnant.

What does the equipment look like?

The CT scanner is a large unit with a hole running directly through its centre, giving the appearance of a doughnut. You will lie on a table that can move up or down and can slide into and out of the centre of the cavity. The computer is not in the examining room, but in an adjoining control room.

How is the CT scan performed?

The radiographer will make certain that you are correctly positioned on the CT table. Pillows may be used to help maintain the correct position during the examination. For the initial scans, the table will move rapidly through the scanner to determine the correct

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starting position. The rest of the scans are made as the table moves more slowly through the cavity in the scanner. The best chest CT scans are obtained when you are able to hold your breath. If this is not possible, you will be asked to breathe quietly and regularly.

You will have a small cannula inserted into an arm vein and *contrast* is injected into the vein before scanning begins. You must tell the radiographer if you have any allergies to medications or iodine (which is a part of many contrast materials) and whether you have a history of asthma, diabetes, a heart disorder or kidney disease. These conditions may indicate a greater risk of an adverse reaction to contrast material.

A CT examination usually takes five minutes to half an hour. When the exam is over, you may be asked to wait until the images are examined to determine if more images are needed.

What will I experience during the procedure?

CT scanning is a pain-free procedure. The intravenous contrast injected into your vein may make you feel a flush of heat or a metallic taste in your mouth, usually lasting no more than a minute or two. You also may notice mild itching. If this persists or hives develop, effective medication is available. Very rarely a patient becomes short of breath or has swelling in the throat or another part of the body, indicating a more serious reaction to contrast material that must be promptly treated. If you experience any of these symptoms, inform the radiographer immediately.

Who interprets the results and how do I get them?

Dr Ian McCafferty, a radiologist, specifically trained to supervise and interpret radiology examinations, will analyze the images and send a signed report to your doctor. Dr Ian McCafferty may discuss preliminary results with you at the conclusion of your examination

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What are the benefits vs. risks?

Benefits

- Unlike conventional x-rays, CT scanning provides very detailed images of a wide range of body organs and tissues
- CT scanning is painless, non-invasive and accurate
- CT examinations are fast and simple
- CT can show lung tumours when they are smaller in size than will be visible with conventional x-rays and are easier to treat
- Because it shows both normal and abnormal tissues, CT scanning is a convenient way of guiding needle biopsies
- CT can help in planning radiotherapy
- A CT diagnosis may eliminate the need for exploratory surgery

Risks:

- Chest CT requires exposure to radiation, but the risk is considered so low that it is far outweighed by the benefit of making an accurate diagnosis
- Women should always inform the radiographer if there is any possibility that they are pregnant
- Breast feeding mothers should wait for 24 hours before resuming breast feeding
- There is a very small but real risk of having a serious allergic reaction to contrast material that contains iodine, but CT staff will be able to deal with it

What are the limitations of CT scanning of the Chest?

- Movement can lessen the quality of a CT study
- CT scanning is generally not recommended for pregnant women
- Magnetic resonance imaging (MRI) may be better than CT for showing very fine soft-tissue detail

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If you have a query?

If you have a query about having the CT, please ring the Radiology Department between 9am and 5pm, Monday to Friday & 9am and 12pm Saturday.