

# Contrast-enhanced spectral mammography (CESM)

## Information for patients

The aim of this information leaflet is to help answer some questions you may have about having contrast-enhanced spectral mammography (CESM). It explains the benefits and risks, as well as what you can expect when you attend the appointment at the hospital. If you have any concerns or questions, please speak to a member of the breast imaging team.

### Confirming your identity

Before you have a treatment or procedure, our staff will ask you your name and date of birth and check your ID band. If you do not have an ID band we will also ask you to confirm your address. If we do not ask these questions, then please ask us to check. Ensuring your safety is our primary concern.

## **What is a CESM?**

A contrast-enhanced spectral mammography test is a type of mammogram (an x-ray of the breast). The aim is to 'highlight' areas of concern within the breast.

The difference between a standard mammogram and a CESM is the use of a special dye (a contrast medium) that is injected into the veins before the mammogram images are taken. The images that are produced using the contrast medium give more detailed information to the breast radiologists. Breast radiologists are expert doctors trained to analyse breast imaging.

## **What happens during a CESM?**

Your appointment should last no longer than 30 minutes.

When you arrive, you will be asked to complete a questionnaire called a 'Pre- Contrast Enhanced Spectral Mammography (CESM) Examination Checklist'. This allows us to check that you can have the procedure.

The mammographer (a technologist who takes your breast x-ray) will call you into the x-ray room, ask some questions about your general health and explain the procedure to you. They will be happy to answer any questions you may have.

When you are happy to go ahead, the mammographer will ask you to remove your clothing from the waist up and put a hospital gown on.

Before starting the procedure, a small plastic tube (intravenous cannula) will be inserted into a vein, this is usually into the back of the hand or in the crease of your elbow. When the needle goes in you may feel a brief scratch, but once it is in place you should not feel any more pain. A band (tourniquet) may be placed around the top of your arm to squeeze it while the needle is being inserted.

You will be given an injection of a contrast medium through the cannula (needle). You may feel warm while the contrast medium flows around the body – this is completely normal and nothing to be concerned about.

After a short period of time the mammographer will get you to remove the hospital gown and stand in front of the x-ray machine, where you will be positioned for your mammogram.

Each breast in turn will be placed into the x-ray machine and firmly compressed by a clear plate. You will feel pressure on your breast. The compression will release automatically as soon as the x-ray is completed.

The compression helps to reduce the amount of radiation used and prevent blurring to the images. Each breast may have two or more images taken in different angles. The mammogram can take a few minutes and each breast is compressed for a few seconds.

Some people find the mammogram uncomfortable, however the compression only lasts a short while. Once all the x-rays are taken, you will be asked to sit in the waiting room. The cannula (needle) will remain in place until the image quality is assessed and the radiologists are happy with the images. The needle will be removed before you go home.

## **Why am I having a CESM?**

Your recent breast imaging has identified an area of concern that your breast clinician wishes to investigate.

## **What are the risks?**

A mammogram is an x-ray examination of the breasts. X-rays are a type of radiation. The amount of radiation received from a standard mammogram is equivalent to the amount we receive from natural background radiation over the course of a few months. A CESM radiation dose is slightly higher to that of a standard mammogram and is equivalent to approximately four months of natural background radiation.

At these low radiation doses, there is a very small increase in the risk of a cancer occurring many years or decades after the x-ray examination. These risk levels are very low, around 1 in 20,000. If there is an area of concern in your breasts, then the risk of not having the examination can be much greater than the associated radiation risks of the procedure.

The injection you receive is generally very safe and is performed in radiology departments daily. With every injection there is a slight risk of a reaction. The contrast used contains iodine which some people are allergic to. These reactions can be a rash or, for a few people, a mild asthma attack. In rare cases, the reactions can be more serious and may need to be treated by medicine.

We check your allergies before we start the examination. The radiologist, nurse and radiographer are all trained to recognise and treat these reactions and, if needed, other doctors are close at hand.

During the injection there may be a risk of the contrast medium leaking into the surrounding tissue at the site of the needle (cannula). This is called extravasation. We take care to position the needle in the correct place and we look for signs of extravasation during the injection. This complication is rare.

## **Checking kidney function**

To reduce the chances of the contrast medium affecting your kidneys (less than 1 in 100 people) we will need to check your kidneys are functioning properly by doing a blood test. This will be arranged by the breast care department before your appointment for CESM.

## **Are there any alternatives?**

You should not have a CESM if you:

- have an allergy to iodine
- have breast implants
- are unable to tolerate mammogram due to physical restriction
- are unable to give informed consent
- are at moderate to high risk of contrast induced renal failure

CESM is not generally harmful to pregnant or breastfeeding patients. However, patients within this category will be discussed on a case-by-case basis with risks and benefits considered within a multi-disciplinary meeting and agreed by a radiologist. We do ask that you inform us if you are pregnant or breastfeeding.

Alternative imaging is considered on an individual basis and discussed with your wider care team at a multi-disciplinary meeting.

## **How can I prepare for a CESM?**

There is no special preparation before your appointment. You can eat and drink as you would normally.

We do advise the following:

- wear clothes that are easily removable as you will be asked to undress from the waist up and wear a hospital gown
- do not wear deodorant, powder or lotion on your breasts or underarms as these can affect the x-ray image
- try to bring a friend or relative with you to accompany you home – they can't be in the room during the examination, but they can provide support on the day.

We can't offer childcare facilities. If you need to bring your children, please bring along an adult that can supervise.

If you need an interpreter, please call us on 020 3299 3380. We can offer a translation service.

## **Will I feel any pain?**

Some women find compression of the breasts during the mammogram slightly uncomfortable and some feel pain for a short time. Research has shown that many women find a mammogram less painful than having a blood test and that the compression compares to having blood pressure taken.

## **What happens after a CESM?**

After you have had your CESM, your images will be reviewed. All CESM imaging is reported on by two breast radiologists. The results are then sent to the doctor who referred you.

## **What do I need to do after I go home?**

You can eat and drink as normal and resume your usual activities.

## **What should I do if I have a problem?**

After a CESM you should not have any concerning after-effects. However, we have included contact numbers at the bottom of this sheet if you feel you need advice.

## **Will I have a follow up appointment?**

You will receive the results of your CESM at your next clinic appointment. If you have not heard from the Breast Clinic two weeks after your procedure, please contact them.

## **Data collection**

CESM has been used in other hospitals, however it is new to our Breast Imaging Department. We would therefore like to collect information from your test to be used for educational and training purposes, and to assist local decision-making. Your information will be kept in a secure

database. Any pictures used for training or presentation will have all your details removed so that you cannot be identified.

This will be discussed with you before your examination. You will be given the opportunity to opt out of your information being used for this purpose.

## Contact us

We hope that the information in this leaflet will answer any questions you may have, but please feel free to contact us if you have any worries, questions or concerns.

For your breast imaging CESM appointment call 020 3299 3380.

For your results, email the breast care nurses at [kch-tr.BreastCareNurses@nhs.net](mailto:kch-tr.BreastCareNurses@nhs.net)

If you are a breast cancer patient and want to speak to a nurse, please call the breast care nurses on 020 3299 3085 or email [kch-tr.BreastCareNurses@nhs.net](mailto:kch-tr.BreastCareNurses@nhs.net)

## Sharing your information

We have teamed up with Guy's and St Thomas' Hospitals in a partnership known as King's Health Partners Academic Health Sciences Centre. We are working together to give our patients the best possible care, so you might find we invite you for appointments at Guy's or St Thomas'. To make sure everyone you meet always has the most up-to-date information about your health, we may share information about you between the hospitals. If you do not wish to have your images shared, please let us know.

## Care provided by students

We provide clinical training where our students get practical experience by imaging patients. Please tell your doctor or nurse if you do not want students to be involved in your care. Your imaging will not be affected by your decision.

## PALS

The Patient Advice and Liaison Service (PALS) is a service that offers support, information and assistance to patients, relatives and visitors. They can also provide help and advice if you have a concern or complaint that staff have not been able to resolve for you. They can also pass on praise or thanks to our teams. The PALS office is located on the ground floor of the Hambleton Wing, near the main entrance on Bessemer Road - staff will be happy to direct you.

PALS at King's College Hospital, Denmark Hill, London SE5 9RS

Tel: 020 3299 3601

Email: [kch-tr.palsdh@nhs.net](mailto:kch-tr.palsdh@nhs.net)

**If you would like the information in this leaflet in a different language or format, please contact our Communications and Interpreting telephone line on 020 3299 4826 or email [kch-tr.accessibility@nhs.net](mailto:kch-tr.accessibility@nhs.net)**