

Scanning for Suspected Pulmonary Embolism and Deep Vein Thrombosis (PE/DVT) in Pregnancy and the Postnatal period

What is a PE/DVT?

A pulmonary embolus or embolism (PE) is a blockage in the blood supply to the lungs, often caused by a blood clot. A deep vein thrombosis (DVT) is a blood clot that forms in one of the deep veins of the leg. A DVT may move from your leg into the lungs to form a PE.

DVT and PE may both be referred to as venous thromboembolism (VTE).

What symptoms might I have with VTE?

DVT causes swelling, pain and reddening of the skin in one leg, most commonly below the knee in the calf.

PE can cause:

- sudden unexplained difficulty in breathing
- tightness in the chest or chest pain
- coughing up blood
- an increased heart rate or palpitation
- fainting or light headedness

How common is VTE and why is it important to diagnose?

Women have a five times increased risk of developing a VTE both during pregnancy and up to six weeks after delivery. Although rare (1 in 1000), it can be life-threatening if not treated immediately.

If your doctor is concerned that you might have VTE, it is important that you have tests to confirm this. It is crucial to know about a PE or DVT before you go into labour. It may also affect decisions regarding future contraceptive options and future pregnancies.

You may experience some or all of the symptoms listed above however, this does not automatically mean you have a VTE. Other conditions, such as a chest infection, can cause similar symptoms, particularly during pregnancy.

What tests will I need to make the diagnosis?

The doctors looking after you will take advice from a consultant radiologist (a specialist in medical imaging). They will consider your medical history including allergies and kidney function. They will also consider how many weeks you are into your pregnancy.

The tests can include:

- Chest x-ray
- Doppler ultrasound scan of the legs
- Lung perfusion scan (Q scan)
- CT pulmonary angiogram (CTPA).

Your doctor may have started treatment already. This is usually in the form of blood-thinning injections (heparin). This is to prevent a delay in treatment whilst awaiting confirmation of the VTE.

What are the risks to me and my baby?

Ionising radiation can increase the life-time risk of cancer however, the radiation doses used in these tests are kept as low as possible and are well within the limits considered safe for you and your baby.

Ultrasound scans do not involve ionising radiation, but can only show blood clots in the legs (DVT), not in the lungs (PE).

The small risks associated with these tests have to be weighed up against the risks to you and your baby from an undiagnosed pulmonary embolus or prolonged unnecessary treatment with blood thinning injections (anticoagulants). If left undiagnosed and untreated severe PE has a mortality rate of up to 30%. This is dramatically reduced by timely medical treatment and proper management of the condition.

We do not put lead shields on you or your baby during x-ray or CT. With our modern equipment shielding does not significantly reduce the dose you receive and shielding may make the images more difficult to interpret.

What are the risks from these tests?

Doppler Ultra-sound scanning (USS)

USS of your lower limbs may be carried out to investigate suspected DVT. As with antenatal ultrasound this carries no ionising radiation risk. USS is not able to diagnose PE.

Chest X-Ray

If you have chest symptoms the doctor may arrange a chest x-ray. A chest x-ray uses a very small dose of x-rays. The risk to your baby of developing childhood cancer as a result of the x-ray is extremely low (less than 1 in a million). The dose your baby will receive due to the chest X-ray is equivalent to less than 4 days of natural background radiation that your baby will receive in the womb. For comparison purposes it should be remembered that the natural risk of childhood cancer is approximately 1 in 500.

Q (Perfusion) scan

To perform a perfusion scan you will have an injection of a small amount of a radioactive substance. Images are taken on a Gamma Camera. The scan involves lying on your back on a table while detectors rotate around you, which takes 17 minutes.

The risk to your baby of developing childhood cancer as a result of you having a perfusion scan is extremely low (less than 1 in 20 thousand). The dose your baby will receive due to the perfusion scan is equivalent to approximately 6 months of natural background radiation that your baby will receive in the womb.

The radiation dose that you receive will be roughly equivalent to about 8 months of background radiation. This may give you a very slight increase in your lifetime risk of cancer.

If you are already a parent you will be asked to undertake some precautions to minimise the radiation exposure to your other children. You should try to avoid any unnecessary prolonged close contact with other children until the day after your scan. The Nuclear Medicine and Medical Physics team can discuss the details of this with you.

CTPA

A CTPA involves an injection of a contrast agent to highlight the blood vessels. The Radiographer will ask you some questions to see if you have any allergies and will check to see if your kidneys are functioning properly. You will be imaged lying on the CT scanning table. A CTPA lasts only a few minutes but you will be asked to hold your breath for a short time. The radiation dose that you receive will be roughly equivalent to 1 year of background radiation. This may give you a very slight increase in your lifetime risk of cancer. The radiation dose to your baby from a CTPA and a Q-Scan are very similar.



Gamma
Camera



CT Scanner

Summary

It is very important for your health and that of your baby to make a diagnosis of PE and/or DVT as soon as possible. It is not advisable to wait until you have delivered your baby. These tests are the most accurate way to confirm a diagnosis. The results will be made available to your doctor as soon as possible in order to start/continue the correct treatment for you. If you have underlying conditions the medical team looking after you may request more than one type of scan.

If you would like to discuss any of the information before your scan, please consult your midwife or doctor. Experts from the Medical Physics team will also be able to provide information about radiation and risk as will staff from the CT or Nuclear Medicine departments where you will have your scan.

Is it safe if I am breastfeeding?

CTPA

Breast-feeding mothers can continue feeding as normal if having a CTPA.

Q scan

Breast feeding mothers can have a Q scan, but will be required to express and discard the breast milk for 13 hours after the injection. If possible, you can express and bank milk right up to the time of injection. This banked milk can then be used for feeding during the 13 hours following the injection.



The format of this patient information leaflet is based on a patient information leaflet from Buckinghamshire Healthcare NHS Trust, modified and updated to reflect the specific clinical processes and current clinical facilities of the Royal Devon & Exeter NHS Foundation Trust.

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