Obstetric medicine

Testing for blood clots in or after pregnancy

Information for patients, relatives and carers

Introduction

We have given you this leaflet because you are **pregnant, or have recently been pregnant,** and your doctor thinks you might have a **blood clot** in your leg or your lungs.

It will explain what types of blood clot there are, why we need to look for them, how we look for them, and how a blood clot is treated.

Terms you might hear being used

A **thrombus or thrombosis** is the name of a clot that forms in a blood vessel. Blood vessels carry blood around your body.

An **embolus or embolism** is part of a thrombus that breaks off and travels through your blood stream to another part of your body.

Pregnancy and blood clots

Blood clots are up to five times more common in pregnancy. However, they are still uncommon, happening in only one or two pregnant women in every 1000.

A clot can happen at any time in your pregnancy, including in the first three months and up to 12 weeks after delivery.

What is deep vein thrombosis?

Deep vein thrombosis (DVT) is when your blood forms a clot in one or more of the big veins in your legs, blocking the blood flow.

Symptoms of deep vein thrombosis can include:

- pain, swelling, and tenderness in one of your legs, especially when walking or standing
- a heavy ache in the affected area
- warm or red skin in the affected area

However, many people have no symptoms at all.

How do you diagnose DVT?

Doppler ultrasound scan

This is a good way of looking for clots in the blood vessels in your legs. It uses an ultrasound machine, exactly like the one used to look at your baby during your pregnancy scans.

Other scans

Sometimes a blood clot can form higher up, in the veins in your tummy. This is more common in pregnancy. If the doctors are concerned you have a blood clot in these veins, you will need other scans such as an MRI (magnetic resonance imaging). This is safe to carry out in pregnancy and is rarely needed. We'll tell you if you need an MRI or another scan.

What are the risks of not identifying DVT?

DVT can cause short-term circulation problems in your leg, resulting in redness, swelling and impaired blood flow. It may also cause long-term swelling.

The clot can also get bigger and then part of it can break off and travel to your lungs. This is called a pulmonary embolism, and it can be life-threatening. We use blood-thinning medication to try and prevent the clot from getting bigger and leading to a pulmonary embolism.

What is a pulmonary embolism?

A pulmonary embolism (PE) develops when a blood clot in the veins breaks away and travels to the lungs. The clot can block the blood supply to part of the lungs, so your lungs can't get oxygen into the blood in that area. Symptoms of a pulmonary embolism can include:

- sudden unexplained difficulty breathing
- tightness in your chest or chest pain
- coughing up blood
- feeling very unwell or collapsing

If you have a suspected pulmonary embolism, you need urgent medical attention. Ring 999 (emergencies), 111 (non-emergencies) or the maternity helpline on 0203 312 6135.

How do you diagnose a PE?

A pulmonary embolism can be life-threatening, so it is important to have a scan to rule out or confirm this diagnosis. Your doctor might start you on blood-thinning medication before the scan, so that the PE does not get worse while you wait.

If you have a suspected PE and symptoms in your legs (such as pain or swelling), we will usually do a Doppler ultrasound scan of your legs first. If we find a DVT, we don't usually do another scan to find a PE. This is because the treatment for DVT and a PE is the same, so treating a DVT will also treat a PE.

If the ultrasound scan does not show a DVT, there are two types of scans used to diagnose a PE; a ventilation/perfusion (V/Q) scan and computerised tomography pulmonary angiography (CTPA). They both involve a very low dose of radiation. The scans cannot be carried out without this low dose of radiation and there is no alternative test for PE.

We only do scans that use radiation (even at a very low dose) when we need to. We will only recommend that you have a scan like this if the benefit to you (and your unborn child) of having it outweighs the risks of not having it.

Chest x-ray

Before either a V/Q scan or CTPA, you will have a chest x-ray. The x-ray uses a tiny dose of radiation to create an image of your chest and lungs. This is an excellent way to rule out other conditions, such as pneumonia, which can cause very similar symptoms.

If we find signs of another condition the chest x-ray, you may not need the V/Q scan or CTPA, so it is an important test to do first.

The tiny dose of radiation used in a chest x-ray is not considered harmful for you or your baby. The radiation dose is equivalent to two days of background radiation in the UK (radiation that is always in the environment, mostly from natural sources).

V/Q scan

What happens during a V/Q scan?

During this scan we will put a narrow tube called a cannula, or an even smaller device called a butterfly needle, into a vein in your arm. The scan has two parts:

1. **First part**: An injection of a low dose of a radioactive tracer into the vein in your arm. In pregnancy we use a quarter to half of the normal dose of radiation, which works just as well for diagnosing a PE.
2. **Second part**: Breathing in a low dose of a tasteless and odourless radioactive substance through a small plastic mask (but we do not always need to do this part).

The radiation from each of these substances is picked up by a special camera, which then creates images of the blood supply to your lungs.

What are the risks to me and my baby from having this scan?

Radiation exposure to you

Ionising radiation used in a V/Q scan can sometimes cause cell damage which, after many years or decades, could turn cancerous. There is a very low risk of this damage from the amount of radiation that we use during a V/Q scan.

Radiation exposure to your baby

If you are pregnant your baby will be exposed to an even lower level of radiation than you will. The estimated radiation dose to your baby is equivalent to 40 days of naturally occurring background radiation.

This represents a tiny increase in childhood cancer risk of 1 in 40 000. This is considered very low risk. This is significantly lower when compared to the normal population, where childhood cancers are not uncommon, and can affect up to 1 in 500 children.

Historically, there were concerns about brain development or birth defects in unborn babies, following exposure to high doses of radiation. However, the doses of radiation used in hospital-based scans are many times lower than the level which could cause these problems.

If your baby has already been born you should avoid long periods of close contact with your baby (like cuddling for longer than 30 minutes) during the first 12 hours after your V/Q scan, including when you are feeding your baby.

Can I have this test if I am breastfeeding?

Yes. You can feed your baby as normal before the scan. However, due to the low levels of radioactive dye that can remain in your body for a few hours after the scan, we recommend that you **do not breastfeed your baby for the 12 hours** following the scan. You should express any breastmilk you produce during this time and discard it.

Suggested plan:

1. If you can, express at least one feed before your scan and store appropriately.
2. Breastfeed your baby just before the injection.
3. Three to four hours after the injection of radioactive tracer, express milk as completely as possible (from both breasts).
4. Do not feed this milk to your baby.
5. Feed your baby with previously expressed milk, donated breastmilk or formula.
6. Continue to express and discard your breastmilk for 12 hours after the scan.
7. After 12 hours, you can restart breastfeeding as normal.

If you have not expressed your breastmilk before, please ask and a member of the maternity team will be happy to show you how to do this.

Do I need to take any other precautions?

No special preparation is required before the test. You can eat, drink, and take medication as normal.

As the radioactive tracer will still be in your body for a few hours after the scan, it is possible you will be giving off a small amount of radiation during this time. It may also be present in your bodily fluids, such as your wee (urine). Because of this, it is recommended that you are not cared for by pregnant staff members for 12 hours after the test.

You will be encouraged to use the toilet (rather than a bedpan or bottle), and to flush the toilet twice, in the first 12 hours after the scan.

Family members, including children, can visit you as normal.

When is a V/Q scan not appropriate?

We cannot do a V/Q scan in an emergency, for example in the middle of the night or at the weekend. If you need a scan to make a diagnosis in an emergency, we will advise you to have a CTPA.

Computerised Tomography Pulmonary Angiography (CTPA)

What happens during a CTPA?

CTPA stands for computerised tomography pulmonary angiography. This is a specialised scan of your lungs that uses x-rays to create images.

You will have an injection of dye into your vein through a narrow tube, called a cannula. The dye makes the blood vessels of your lungs easy to see on the scan images, so that clots can be identified.

What are the risks to me and my baby from having this scan?

Radiation exposure to your baby

The dye used in a CTPA is different to a V/Q scan and is not radioactive. The radiation comes from the x-rays used to create the images. The radiation dose to you (and your unborn baby) is a very low dose.

If you are pregnant a CTPA exposes your baby to a similar dose of radiation to a V/Q scan (please see discussion of radiation-related risks in the V/Q scan section above).

If your baby has already been born they will not be exposed to any radiation, as you will have no radioactive substances in your body after the scan.

Radiation exposure to you

A CTPA will give a higher radiation dose to your breasts than a V/Q scan. Historically, there were concerns about breast cancer, however modern scanners use much less radiation.

Studies suggest that this is an increased cancer risk of approximately 1 in 5 000. This is significantly lower than the breast cancer rates when compared to the normal population, which are approximately 1 in 10 women. This means radiation exposure is not a reason to avoid a CTPA, especially if you need one.

Can I have this test if I am breastfeeding?

Yes. You can continue breastfeeding as normal.

Do I need to take any other precautions?

You don’t need to take any other precautions before CTPA.

Frequently asked questions

Why do I need to have either a V/Q or CTPA scan?

It is very important that we find out whether you have a pulmonary embolism (PE). This is potentially life-threatening if it is not identified, and can cause longer-term consequences including heart failure from excessive strain on your heart. There are no good alternatives to using these scans, as there are no blood tests or examinations that doctors can do that can confirm the diagnosis.

It's also important to find out if you have DVT or a PE because you might need daily injections during future pregnancies to stop it from happening again. You might also need to avoid using the combined oral contraceptive pill and hormone replacement therapy, as they can increase the chance of another blood clot.

Why can't I just have the treatment for this without having a scan?

The treatment for a blood clot involves having blood-thinning medication called low-molecular-weight heparin (LMWH). However, all blood thinning medications cause an increased risk of bleeding.

This is not a treatment that we can give you for a period of time 'just in case', so we have to confirm a diagnosis of a PE first. It is a balance of risks, and the risks associated with the scans are lower than the risks of continuing treatment without a confirmed diagnosis.

There are also other medical conditions that can cause very similar symptoms to those of a PE. If you don't have a PE, we need to look for other causes, so that we can give you the right treatment.

If I can have a V/Q scan while I'm pregnant, why are pregnant staff members not allowed to look after me after the scan?

The radiation dose to you from a scan is very small, so the risk to a pregnant staff member from caring for you is even smaller (and is related to how likely they are to come into contact with your bodily fluids).

However, that member of staff may be exposed to many women who have had these scans, so the total dose to them during their pregnancy is greater, as the doses add up.

Which scan will I have?

Both the V/Q and CTPA scan use low doses of radiation. The opinion from healthcare professionals is that if a V/Q scan is appropriate, and no other diagnosis is being considered, then this is generally preferred to a CTPA. A CTPA is appropriate in an emergency, or if we are considering other conditions as a cause of your symptoms.

How do I make a comment about my visit?

We aim to provide the best possible service and staff will be happy to answer any of the questions you may have. If you have any **suggestions** or **comments** about your visit, please either speak to a member of staff or contact the patient advice and liaison service (**PALS**) on **020 3312 7777** (10.00 – 16.00, Monday to Friday). You can also email PALS at imperial.pals@nhs.net The PALS team will listen to your concerns, suggestions or queries and is often able to help solve problems on your behalf.

Alternatively, you may wish to complain by contacting our Complaints Department:

Complaints department, fourth floor, Salton House, St Mary's Hospital, Praed Street
London W2 1NY

Email: ICHC-tr.Complaints@nhs.net

Telephone: **020 3312 1337 / 1349**

Alternative formats

This leaflet can be provided on request in large print or easy read, as a sound recording, in Braille or in alternative languages. Please email the communications team: imperial.communications@nhs.net

Wi-fi

Wi-fi is available at our Trust. For more information visit our website: www.imperial.nhs.uk

Maternity
Published: September 2025
Review date: September 2028
Reference no: 5300