

Medicine for Managers

Dr Paul Lambden BSc MB BS BDS FDSRCS MRCS LRCP DRCOG MHSM

Deep Vein Thrombosis

As the name suggests, a deep vein thrombosis (DVT) is a thrombosis (blood clot) in a deep vein, normally in the leg but sometimes in the pelvis or abdomen. It is NOT the same as superficial thrombophlebitis, which is inflammation and clotting in a vein near the surface (usually a varicose vein), usually in the leg but which is not normally serious because it does not go on to have the potentially severe consequences of a DVT.

A DVT occurs in circumstances where the development of a blood clot is an increased risk. There are a number of predisposing factors.

- Some blood disorders which enable clotting to occur more easily.
- Prolonged immobility, such as might occur on a long aircraft journey, as a result of being confined to bed or as a result of paralysis.
- Following surgery or accident when increased risk of clotting may occur.
- Pregnancy, where the pressure on the veins in the pelvis may cause slowing or stasis of the blood in the legs resulting in a clot.
- The 'pill' and hormone replacement therapy does pose an increased risk.
- Smoking affects clotting.
- Cancer may increase the risk.
- Heart failure increases the risk because of sluggish flow in the veins.
- Age over 60 increases the risk, although it can occur at any age.
- A family history of DVT or pulmonary embolism may increase the risk in a close family member.

For many of us, the most significant risk is prolonged sitting when, for example driving a long distance or flying.

The consequence of such an activity is that the calf muscles do not contract and therefore the pumping action which they generate in the veins of the lower leg is lost, resulting in stagnation of blood.

A DVT is potentially very serious because some or all of the clot in the vein can break loose, travel through the blood stream and lodge in the lung which can lead to blockage of blood flow. This is called a ***pulmonary embolus***.

Sometimes a deep vein thrombosis causes no symptoms but usually the individual has one or more of the following:

- Swelling in the affected leg
- Pain in the leg
- Reddening or discolouration of the area
- Feeling of warmth in the leg.

The diagnosis of a deep vein thrombosis is based on the medical history, the symptoms, the findings on examination and a blood test called a ***D-dimer***.

Medicine for Managers articles are not intended to be a source of medical advice. Their purpose is to familiarise the non-medical reader about current key medical disorders. Any medical or medicinal products mentioned by name are examples only and should not be regarded as an endorsement of their use.

The clinical findings of a swollen leg, reddening and pain is very suggestive of, but not diagnostic of a DVT.



The D-dimer test is of more value in ruling out a DVT than proving its existence.

The test measures ***fibrin*** in the blood which develops in the vessels when a blood clot breaks down.

Its absence excludes a DVT but its presence is not diagnostic because fibrin is also raised in cancer or when there is inflammation associated with infection. A DVT can also be diagnosed using an ultrasound scan of the leg veins.

Deep vein thromboses are normally treated with anticoagulant drugs. The aims of treatment are:

- To stop the DVT from progressing
- To reduce the risk of complications of DVT
- To break it down so that the patency of the vein is restored
- To prevent a lump of clot breaking off with the risk of pulmonary embolus
- To reduce the risk of a further DVT

Traditionally the drugs used were ***heparin*** and ***warfarin***. More recently a variety of newer anticoagulants have become available.

The choice of anticoagulant will depend on a variety of factors including general health, the cause of the DVT and, where necessary, availability of services.

The choice may be complicated if the patient is liable to bleed.

The newer anticoagulants include such drugs as ***rivaroxaban*** and ***dabigatran***.

Their advantages over the traditional drugs are that they do not require the use of heparin and the blood levels of the drug do not need to be monitored.

If, for some reason, one of the newer drugs is not suitable, heparin and warfarin are used.

Heparain is given as injections for a few days whilst the warfarin is taken as tablets. Warfarin takes a few days to start to work.

Once effective, the heparin is stopped. Blood tests are then regularly used to check the degree of anti-coagulation.

The test is called an INR (International Normalised Ratio). If the test is not maintained within limits, the dose of warfarin is increased or decreased to adjust the anti-coagulant effect. The INR is normally maintained between 2 and 3 (clotting time prolonged by between twice and three times).

Occasionally, drugs are not suitable for the management of DVT risk. In such circumstances an Inferior Vena Cava Filter may be considered as an alternative treatment.



The filter is a small metal device placed inside the vein, which returns blood from the lower limbs to the heart, to capture any clots which may embolise.

Once treated, the individual can resume normal activity. However, it may be expedient to continue to wear compression stockings (which are tight and help the blood to flow towards the heart up the veins).

Compression stockings come in a range of sizes and are replaced two or three times a year. The

Medicine for Managers articles are not intended to be a source of medical advice. Their purpose is to familiarise the non-medical reader about current key medical disorders. Any medical or medicinal products mentioned by name are examples only and should not be regarded as an endorsement of their use.

leg must be measured each time new stockings are supplied.

So-called “DVT socks” may also be useful for anyone who has a long journey which involves being sedentary for a long period.

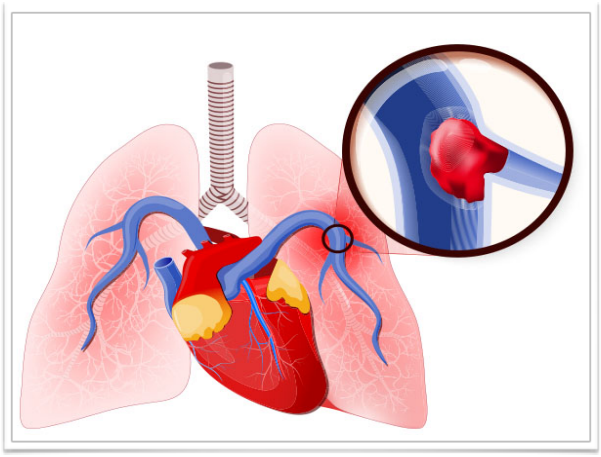


Such socks can be acquired from pharmacies.

To prevent a DVT, it is important to remain active, to walk about as much as possible, do not sit for more than an hour in the car or on a train and do not cross your legs.

If you are in an environment where you cannot easily walk around (as for example on an aircraft), exercise the lower legs by repeatedly going on tip-toe or rock the feet to and fro using a ball or rocker device.

Of course, losing weight and stopping smoking are very important in reducing the risk of DVT.



The key danger with a DVT is a ***pulmonary embolus***.

The warning of the development of a pulmonary embolism, which occurs when a lung blood vessel becomes blocked by a clot (***thrombus***) may be the sudden development of one or more of the following symptoms:

- Sudden shortness of breath.
- Chest pain or discomfort which worsens during a deep breath and during coughing.
- The development of lightheadedness or fainting.
- The features of shock with sweating and a weak thready pulse.
- Coughing up blood (***haemoptysis***) pronounced heem-op-ti-sis

We shall look more closely at Pulmonary Embolism next week.

paullambden@compuserve.com

Medicine for Managers articles are not intended to be a source of medical advice. Their purpose is to familiarise the non-medical reader about current key medical disorders. Any medical or medicinal products mentioned by name are examples only and should not be regarded as an endorsement of their use.