

Deep vein thrombosis: what if it's not a DVT?



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⇒ **DEEP VEIN THROMBOSIS (DVT)** is a regular problem presenting to doctors in general practice, as well as in hospitals. The National Institute for Clinical Excellence (NICE) has published details on the steps medical practitioners in hospital should take to prevent patients developing this complication of treatment.

Guidelines have also been published on the diagnosis and treatment of deep vein thrombosis, aimed at assisting clinicians in using the correct investigations in particular situations – so avoiding overwhelming radiology departments with large numbers of patients with suspected DVT who turn out to have no blood clots in the deep veins.

Much of the management of suspected DVT is by nurse-led clinics, which use a well-defined pathway of management established by the NICE guidelines. However, I have come across a number of instances where DVT was incorrectly diagnosed, or the diagnosis missed, due to the incorrect application of the guidelines.

Case one

A 76-year-old man presented to his GP with a three-month history of progressive painful swelling of the thigh. The calf and ankle were not swollen.

He was referred to hospital and managed via a nurse-led clinic. A DVT was suspected and ultrasound imaging of the venous system arranged, which showed venous thrombosis in the femoral vein. Anticoagulant treatment was commenced but the swelling and pain in the thigh worsened.

He was reviewed in the haematology clinic after six weeks and a further course of anticoagulant treatment prescribed. Review after a further two months showed that the pain and swelling had worsened.

Eventually, a malignant tumour of the thigh was found on magnetic resonance imaging, but was too large for excision by that time. A delay in diagnosis of six months had accrued. The patient later died of his tumour.

The problem in this case was that the deceased was treated according to a DVT clinical pathway when he didn't have a DVT. The symptoms of progressive pain swelling are not typical of a DVT, which is of rapid onset and gradual resolution with appropriate treatment.

Ultrasound imaging, which was done at the outset, showed the DVT but also that swelling lay within the muscle compartment of the thigh. Usually in a DVT the swelling is of the subcutaneous tissues and affects the calf and ankle at first, rather than the thigh. The clinicians involved were not aware that malignant soft tissue tumours may masquerade as DVT and that the clues lie in the history and pattern of leg swelling.

Case two

A 32-year-old patient was referred to me with painful varicose veins and suspected thrombosis in some varices. However, clinical examination revealed the presence of a hard lump at the knee about 2cm in diameter and attached to the bone.

Ultrasound imaging showed a cyst arising from the knee joint. The tissues at the knee which may give rise to tumours include bone and cartilage, although they are uncommon. Malignant tumours arising from those tissues are usually very malignant and carry a poor prognosis.

I recommended urgent referral of the patient to an orthopaedic surgeon, who excised the cystic lump. Fortunately, it proved to be a benign tumour of cartilage, which was completely cured by this treatment. I later completed treatment of the patient by ablating her varicose veins using a modern, minimally-invasive treatment. In this case, varicose veins and a benign tumour coexisted in the same limb.

Case three

A 41-year-old patient presented to the A&E department with pain in the right calf. There was no calf swelling, but a blood test, called a d-dimer, was done. This test provides a measure of the rate of formation of blood clot in the body. In suspected acute deep vein thrombosis, the blood test provides a means of identifying patients who require further investigation.

D-dimer levels can be elevated in a number of conditions and in any situation where a blood clot is forming. NICE recommends use of this blood test as part of the diagnostic pathway for patients with suspected DVT. In this case, the d-dimer level was marginally elevated. A diagnosis of acute DVT was suspected and therapeutic anticoagulant treatment was commenced.

Arrangements were made for confirmatory ultrasound imaging. NICE advises that this test should be done within 24 hours of the start of the treatment. On this occasion, eight days elapsed before the ultrasound scan was done. The ultrasound imaging showed no DVT, but the popliteal artery at the knee was blocked.

The problem was one of acute limb ischaemia, which cannot be treated adequately by anticoagulant drugs alone. Emergency surgery was done to restore blood flow to the leg, but that failed and a below-knee amputation was required.

The delay in diagnosis was a substantial factor leading to the need for an amputation. The clinicians had failed to check the blood flow to the leg by feeling the ankle pulses and had missed the diagnosis at the initial consultation. Had the ultrasound imaging been arranged in a timely manner the mistake may have been corrected.

NICE recommendations were not complied with in the clinical pathway that the doctors were using.

Clinical pathways

Clinical pathways and a wide range of blood tests, as well as imaging investigations, greatly assist in reaching the correct diagnosis and facilitating the safe management of patients. However, they do not replace old-fashioned clinical skills.

In the first case described, the patient did not have classical clinical features of deep vein thrombosis and required a different set of investigations to establish the cause of progressive limb swelling. A delay of six months occurred before the correct tests were done.

In the third case, the doctors forgot to check on the circulation to the foot from the arterial side. Of course, they suspected that the venous side of the circulation was the problem, but the arterial side should also be checked where sudden onset of leg pain arises, since blocked arteries are also a common cause of this symptom.

An adequate knowledge of clinical medicine and application of that knowledge cannot be replaced by unthinking application of clinical pathways and modern blood tests and radiology. □