Gateshead Health NHS
NHS Foundation Trust

REF

Deep Vein Thrombosis Management Pathway

Thrombophlebitis Management Pathway

Approved by:	VTE Committee
Date of approval:	
Effective from:	

Next Review Date:	Author:

Table of Contents

1.0 Scope of pathway/ Development process

This pathway was developed under Dr Ruth Petch, Consultant in Acute Medicine and Clinical Lead for Ambulatory Care in consultation with Dr Annette Nicolle, Consultant Haematologist.

Current guidance on management of venous thromboembolic disease was reviewed to develop a standardised management pathway for patients diagnosed with DVT at the Queen Elizabeth Hospital, Gateshead.

1.1 Inclusion criteria

- All adult patients with suspected DVT

1.2 Exclusion criteria

- Patients < 18 years old
- Patients with contraindication for anticoagulation
    - active bleeding
    - requiring emergency surgery/ intervention
    - recent/ current brain haemorrhage

Please discuss these patients with responsible Consultant and consider Haematology advice.

2.0 Age Adjusted D-dimers

Normal values for d-dimer are <0.5ug/ml.

Use age adjusted D-dimer for patient's > age 50. Use the following calculation:

Age x 0.1 = d-dimer cut off value for that age

eg. For a patient aged 82 years old, the d-dimer cut off value would be 82 x 0.1 = 0.82ug/ml.
D-dimer levels below 0.82 would be negative for this patient.

3.0 DVT Diagnosis and Investigation

3.1 Diagnosis and Initial Management

- If the patient displays signs and symptoms of a DVT - ensure you complete a full medical history and do a physical examination to exclude other causes.
- If a DVT is suspected use the 2-LEVEL DVT WELLS SCORE

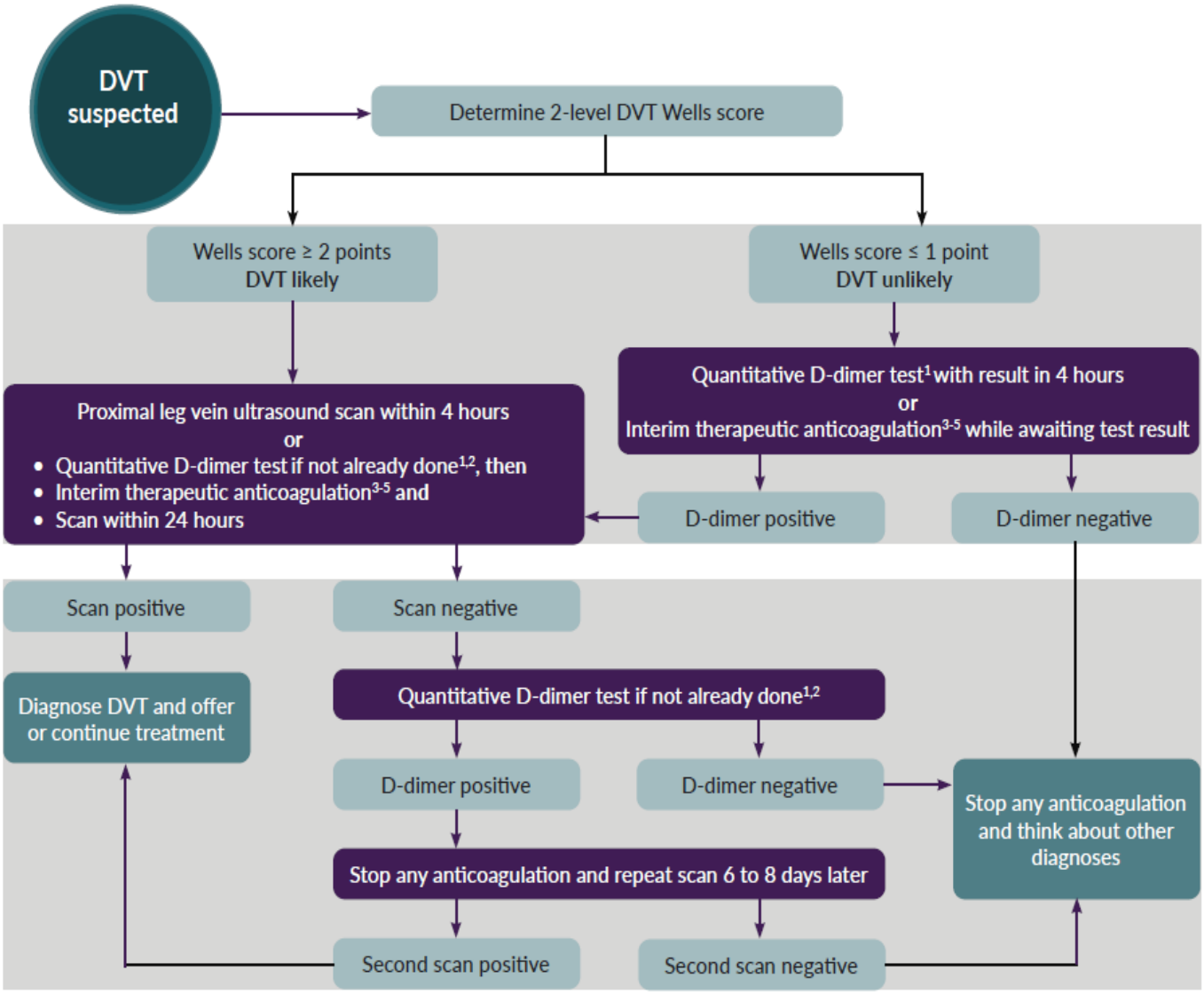
3.2 Two Level DVT Wells Score

Clinical feature	Points
Active cancer (treatment ongoing, within 6 months, or palliative)	1
Paralysis, paresis or recent plaster immobilisation of the lower extremities	1
Recently bedridden for 3 days or more, or major surgery within 12 weeks requiring general or regional anaesthesia	1
Localised tenderness along the distribution of the deep venous system	1
Entire leg swollen	1
Calf swelling at least 3 cm larger than asymptomatic side	1
Pitting oedema confined to the symptomatic leg	1
Collateral superficial veins (non-varicose)	1
Previously documented DVT	1
An alternative diagnosis is a least as likely as DVT	−2

Clinical probability simplified score	
DVT LIKELY	2 points or more
DVT UNLIKELY	Less than 2 points

Table 1: 2 Level DVT Wells Score

3.3 DVT Investigation and Interim Management



[1]Laboratory or point-of-care test. Consider age-adjusted threshold for people over 50
[2]Note that only one D-dimer test is needed during diagnosis
[3]Measure baseline blood count, renal and hepatic function, PT and APTT but start anticoagulation before results available and review within 24 hours
[4]If possible, choose an anticoagulant that can be continued if DVT confirmed
[5]Direct-acting anticoagulants and some LMWHs are off label for use in suspected DVT. Follow GMC guidance on prescribing unlicensed medicines

Chart 1: Suspected DVT diagnosis and initial management (NICE)

3.3.1 DVT Investigation and Interim Management in A&E

Follow the flow chart as above.

- Offer interim anticoagulation and request an USS Doppler if necessary.
- Between 8am and 7pm - refer the patient to ACC/ SDEC for further management.
- Out-of-hours - if the patient is haemodynamically stable, discharge from A&E and refer for ACC/ SDEC to follow up the patient the next day.

- Please request the USS under the ACC/ SDEC consultant during daytime hours and the A&E consultant when out-of-hours.

3.3.2 DVT Investigation and Interim Management as an Inpatient

- Follow the flow chart as above.
- Ensure that if there is a negative initial USS scan, a repeat USS scan in 1 week is arranged for any patient with suspected DVT, Wells score ≥2 and positive d-dimer.
- Please request the scan and inform ACC/ SDEC who will follow up the patient if they are discharged.

3.3.3 Interim Anticoagulation

- Interim anticoagulation should be given if scan result not available within 4 hours. This can be given as:
    - Apixaban, 10 mg BD
    - Rivaroxaban, 15mg BD
    - Therapeutic dose tinzaparin (175units/kg) s/c OD
- DOACs are the preferred choice of anticoagulation.
- If the patient is on chemotherapy, use treatment dose tinzaparin. DOACs cannot be used unless discussed with oncologist.
- Please take into account patient's renal function, patient's BMI, allergies and potential interactions with patient's regular medication when choosing anticoagulation therapy.

4.0 Confirmed proximal DVT Management

1. Confirmed proximal DVT Medical Management

- Ensure you are able to decide if the VTE is provoked or unprovoked and needs further investigation (please consult a specialist for specialised testing).
- It is no longer recommended to routinely investigate for occult cancer in an unprovoked VTE beyond taking a history, clinical examination and review of initial results. If clinical suspicion of malignancy then request appropriate further investigations.
- Once the DVT is confirmed on scan offer anticoagulation – NICE recommends:
    - Apixaban, 10 mg BD for 7 day, then 5 mg BD.
    - Rivaroxaban, 15mg BD for 21 days, then 20 mg OD
    - Therapeutic dose tinzaparin (175units/kg) s/c OD
    - Warfarin, target INR 2-3 – patients will need to be treated with therapeutic dose tinzaparin for at least 5 days/ until INR securely in range.
- The minimum duration of treatment is 3 months.
- DOACs are the choice of anticoagulant unless the patient is on chemotherapy. Due to the risk of interaction, chemotherapy patients need to be on LMWH unless agreed with an oncologist.
- Please take into account patient's renal function, patient's BMI, allergies and potential interactions with patient's regular medication when choosing anticoagulation therapy.
- Ensure all patients with an unprovoked, recurrent or complex DVT are referred to the VTE clinic by emailing ghnt.vte-reviewclinic@nhs.net.

4.2 Confirmed proximal DVT Surgical treatment

Consider ***urgent vascular referral*** for patients with symptomatic ilio-femoral DVT who have:

- Symptoms for less than 14 days ***and***
- Good functional status ***and***
- Life expectancy of 1 year or more ***and***
- a low risk of bleeding.

Contact the Vascular Surgical Registrar on call via Freeman Hospital switchboard.

4.3 Pharmacological treatment/ anticoagulation in special situations

4.3.1 Cancer associated DVT:

- Consider DOAC in all cancer patients unless they are on any active cancer treatments.
    - If the patient is on chemotherapy or cancer treatment, they need to be on a LMWH due to potential interactions. An alternative should only be considered after discussion with an oncologist.
- Review duration of treatment at 3-6 months by Oncologist or GP (patients on best supportive care)
    - Extending treatment beyond 6 months is not licensed but common practice if ongoing risk of VTE deemed higher than risk of bleeding (ongoing cancer treatment, metastatic disease).

4.3.2 Pregnancy related DVT (please refer to O&G trust guidelines)

- Start therapeutic dose tinzaparin (175units/kg) s/c once daily for at least 3 months and 6 weeks post-partum (use booking in weight).
- DOACs are contraindicated in pregnancy and in breastfeeding patients. Warfarin is contraindicated in pregnancy.
- All patients with pregnancy related DVT need follow up by haematology and obstetrics. Please contact the on-call O&G SHO who can escalate the follow up required.

4.3.3 DVT on anticoagulation

- Always discuss with senior/ responsible Consultant
- Management options include:
    - Increase/ switch to warfarin with INR target 3-4.5
    - Switch to therapeutic dose LMWH
- Patients with further VTE on therapeutic dose tinzaparin: discuss with senior doctor/ Haematology on-call and consider twice daily dosing with factor Xa monitoring.

4.4 Other DVT management

4.3.5 Compression stockings

Compression stockings have **NOT** shown any benefit in the prevention of post thrombotic syndrome, however they can be used in symptom management.

4.3.6 Verbal and written advice

Regardless of the category of DVT – written and verbal advice must be provided to the patient with regards to the diagnosis of VTE and management with anticoagulation. Information leaflets are available in ACC/ SDEC.

5.0 Follow up:

All patients with an unprovoked DVT or with persistent risk factors require review in 3 months to determine duration of anticoagulation.

Patient with pregnancy related DVT require follow up by haematology and obstetrics. Please inform on call O&G SHO of patients with confirmed DVT and refer to haematology (email: ghnt.electronic.referrals@nhs.net)

Please refer all other patients who require follow up via email: ghnt.vte-reviewclinic@nhs.net. Patients will be contacted via phone at week 10-12 by VTE nurse practitioner and further follow up will be agreed with patient as appropriate.

6.0 Distal DVT (below-the knee DVT/ calf DVT)

Distal DVTs are at risk of extension into proximal veins and migration to lungs.

- Assessment for lower limb DVT as above and discuss with senior or responsible consultant.
- If USS scan shows evidence of distal DVT, assess severity of symptoms and risk of clot extension *(see section 7.2).*
- If high risk for clot extension or severe symptoms and low risk of bleeding complications initiate anticoagulation with DOAC or LMWH for 3 months.
- If no risk factors for clot extension and non-severe symptoms or high risk of bleeding complications, arrange repeat USS for surveillance at week 1 and week 2 from initial scan.
- Involve the patient in shared decision-making regarding management.

7.0 Superficial vein thrombosis (thrombophlebitis)

7.1 Uncomplicated superficial vein thrombosis

- Generally considered to be benign and self-limiting condition. Symptoms generally subside in 1-2 weeks, although hardness of the vein may persist for longer (months).
- Treat with simple analgesia: NSAID(topical or oral)/ paracetamol
- Self-care advice: warm, moist towel applied to affected limb, keep leg elevated when sitting.

7.2 High risk superficial vein thrombosis

Patients with superficial vein thrombosis of the great saphenous vein (GSV) or short saphenous vein (SSV) have an increased risk of DVT and PE.

Therefore, all patients with clinical signs of involvement of the axial superficial veins (GSV and SSV) require ultrasound assessment to rule out DVT.

Patients with the following risk factors are at a high risk of clot extension:

- Thrombus within 5cm of sapheno-femoral or sapheno-popliteal junction
- Thrombus larger than 5 cm within GSV or SSV
- Superficial vein thrombosis of the long saphenous vein within 3 cm of the saphenofemoral junction is considered to be equivalent to a DVT.
- Person with reduced mobility.
- Past history of PE and DVT
- Person has a history of cancer
- Person has reduced mobility

7.2.1 Superficial vein thrombosis Management

- Offer 6 weeks of therapeutic anticoagulation with tinzaparin or DOAC. Take into account patient's co-morbidities and preferences.
- If the patient has ongoing symptoms at week 4, advise them to contact ACC/ SDEC to arrange a further assessment.
- If no further symptoms, anticoagulation can be stopped after 6 weeks and no review required.

Patients with ***superficial venous thrombosis following radiofrequency or laser ablation*** do not routinely require anticoagulation as long as thrombus does not extend into the deep vein system.

8.0 Upper Limb DVT

8.1 Upper Limb DVT investigation

- D-dimer and wells score are not validated for upper limb VTE and therefore cannot be used to predict likelihood of VTE.

- If clinical suspicion, then manage as VTE by arranging upper limb DVT USS.
- Patients with confirmed upper limb DVT and no clear provoking factors should be discussed with the Vascular team at the Freeman Hospital.
- If these patients are not accepted by the Freeman Vascular team, management should be guided by clinical exam and history. They should have a CT Thorax (to rule out malignant obstruction at axillary/ subclavian vein level) after discussion with a senior.

8.2 Upper Limb DVT Management

- DOACs are effective against upper limb DVT but are not licensed.
- Treatment and further management should be discussed with a senior.

9.0 References

Note these local guidelines are evidence-based with added input from relevant specialists at Queen Elizabeth Hospital, Gateshead.

- Venous thromboembolic diseases: diagnosis, management and thrombophilia testing. NICE guideline [NG158] Published: 26 March 2020
- Kirkilesis G, Kakkos SK, Bicknell C, Salim S, Kakavia K. Treatment of distal deep vein thrombosis. Cochrane Database of Systematic Reviews 2020, Issue 4. Art. No.: CD013422. DOI: 10.1002/14651858.CD013422.pub2
- Heil J, Miesbach W, Vogl T, Bechstein WO, Reinisch A. Deep Vein Thrombosis of the Upper Extremity. *Dtsch Arztebl Int*. 2017;114(14):244-249. doi:10.3238/arztebl.2017.0244