

# Pathology and Risk Factors for DVT (VTE)

*Jonathan Beard*

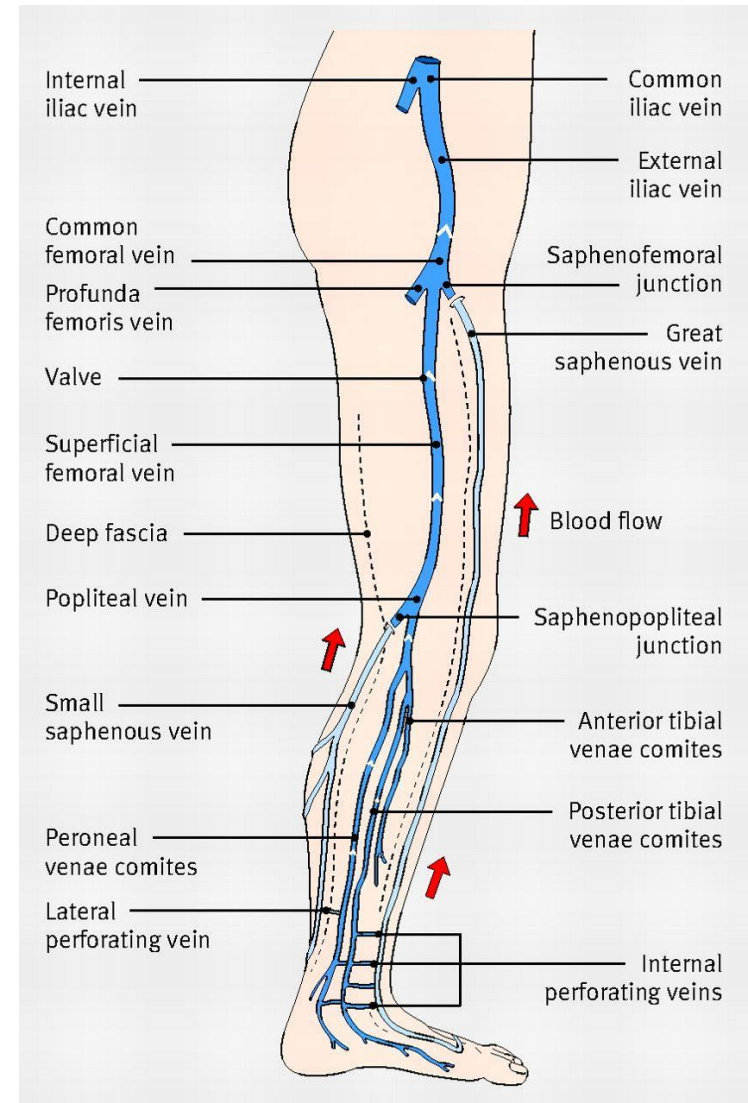
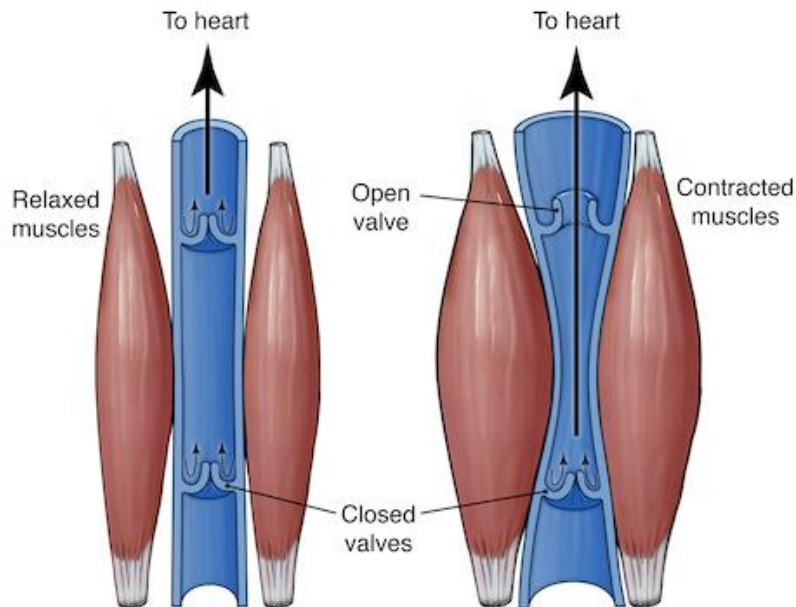
*Consultant Vascular Surgeon*

*Sheffield*

[vascularlegal@gmail.com](mailto:vascularlegal@gmail.com)

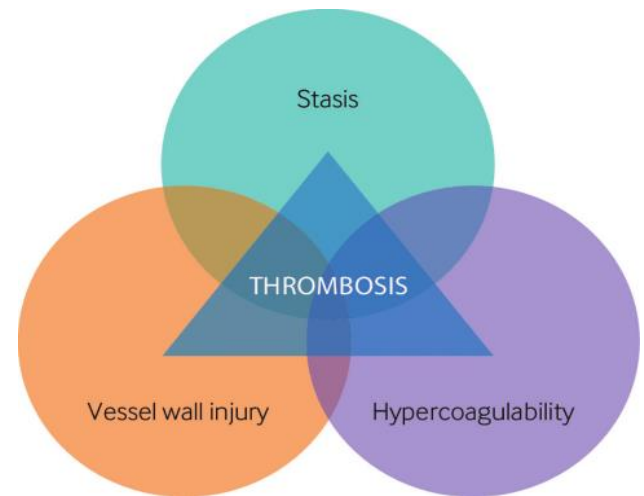
# Venous Anatomy & Physiology

- Deep veins
- Superficial veins
- Calf muscle pump



# Incidence and Pathophysiology

- Incidence of 1.6 per 1000 per year
- Very uncommon under age of 18
- Increases exponentially over the age of 70
- Virchow's Triad (1821-1902):
- Provoked or unprovoked
- Usually begins in the calf
- Extends proximally
- Pulmonary embolism (VTE)
- 80% have one or more risk factors



# Risk Factors for DVT (VTE)

Risk factor	Hypercoagulability	Stasis	Venous injury
Age	X	X	
Immobilisation		X	
Surgery	X	X	
Trauma	X	X	X
Malignancy	X		
Primary hypercoagulable states	X		
History of DVT	X		
Family history	X		
Oral contraceptives	X		
Oestrogen replacement	X		
Pregnancy and puerperium	X	X	
Antiphospholipid and anticardiolipin antibody	X		
Central venous catheters			X
Inflammatory bowel disease	X		
Obesity		X	
Myocardial infarction/ congestive heart failure		X	
Varicose veins		X	

# Clinical Decision Rules

- Clinical signs of DVT often non-specific
- Soft tissue injuries and Baker's cysts common
- Clinical decision tools aid patient management
- Wells score:



Score	Clinical factor
1 point	Active cancer <6 months or palliation
1 point	Paralysis, paresis or recent plaster immobilisation of the lower extremities
1 point	Recently bedridden for more than 3 days or major surgery, within 4 weeks
1 point	Entire leg swollen
1 point	Calf swelling by more than 3cm when compared with the asymptomatic leg
1 point	Pitting oedema
1 point	Collateral superficial veins (non-varicose)
1 point	Previously documented DVT
-2 points	Alternative diagnosis more likely or greater than that of deep vein thrombosis
Total score	
<2	Low risk of DVT
≥2	High risk of DVT

Venous thromboembolic diseases

# Venous thromboembolic diseases: the management of venous thromboembolic diseases and the role of thrombophilia testing

*Clinical Guideline*

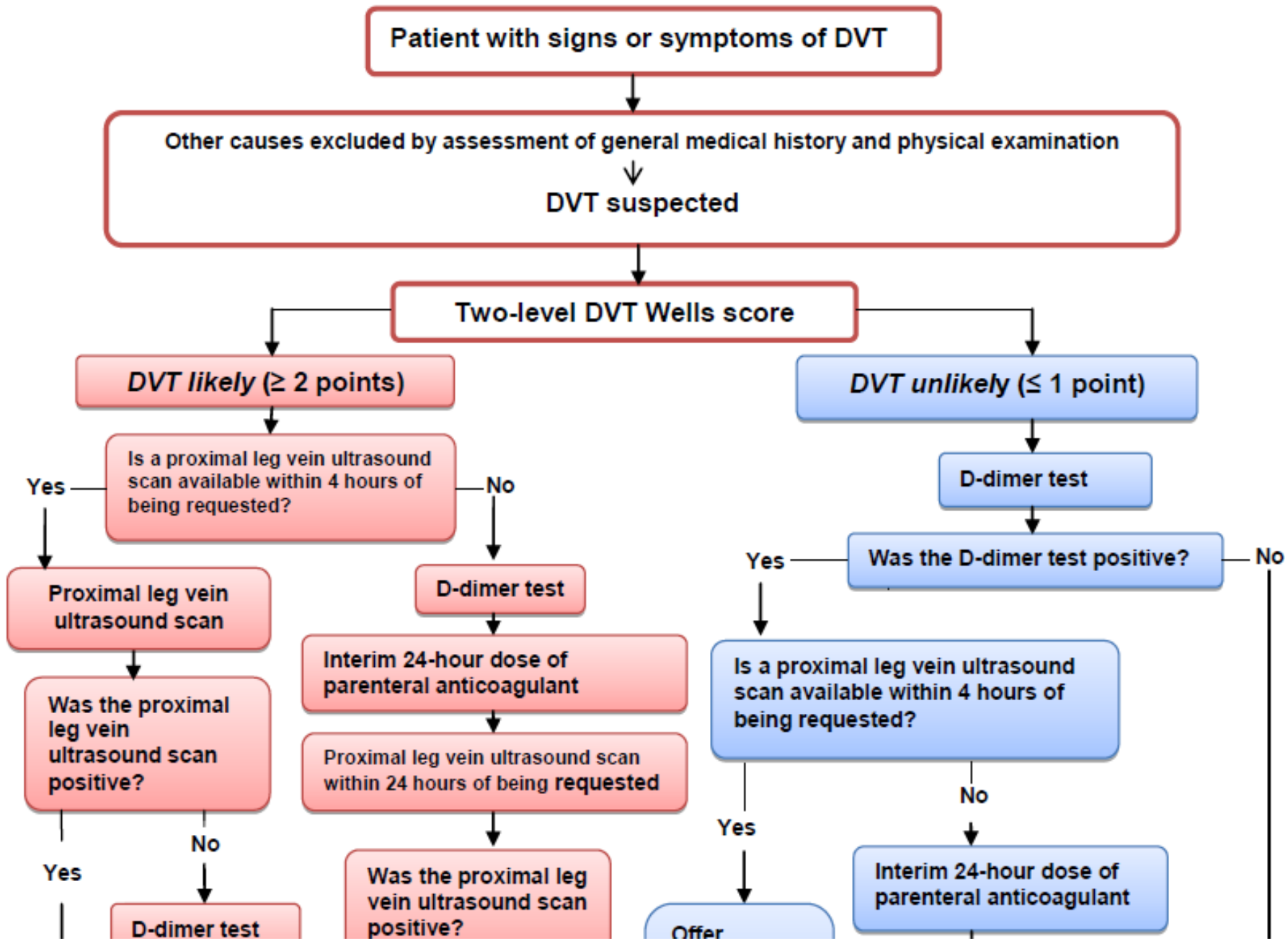
*Methods, evidence and recommendations*

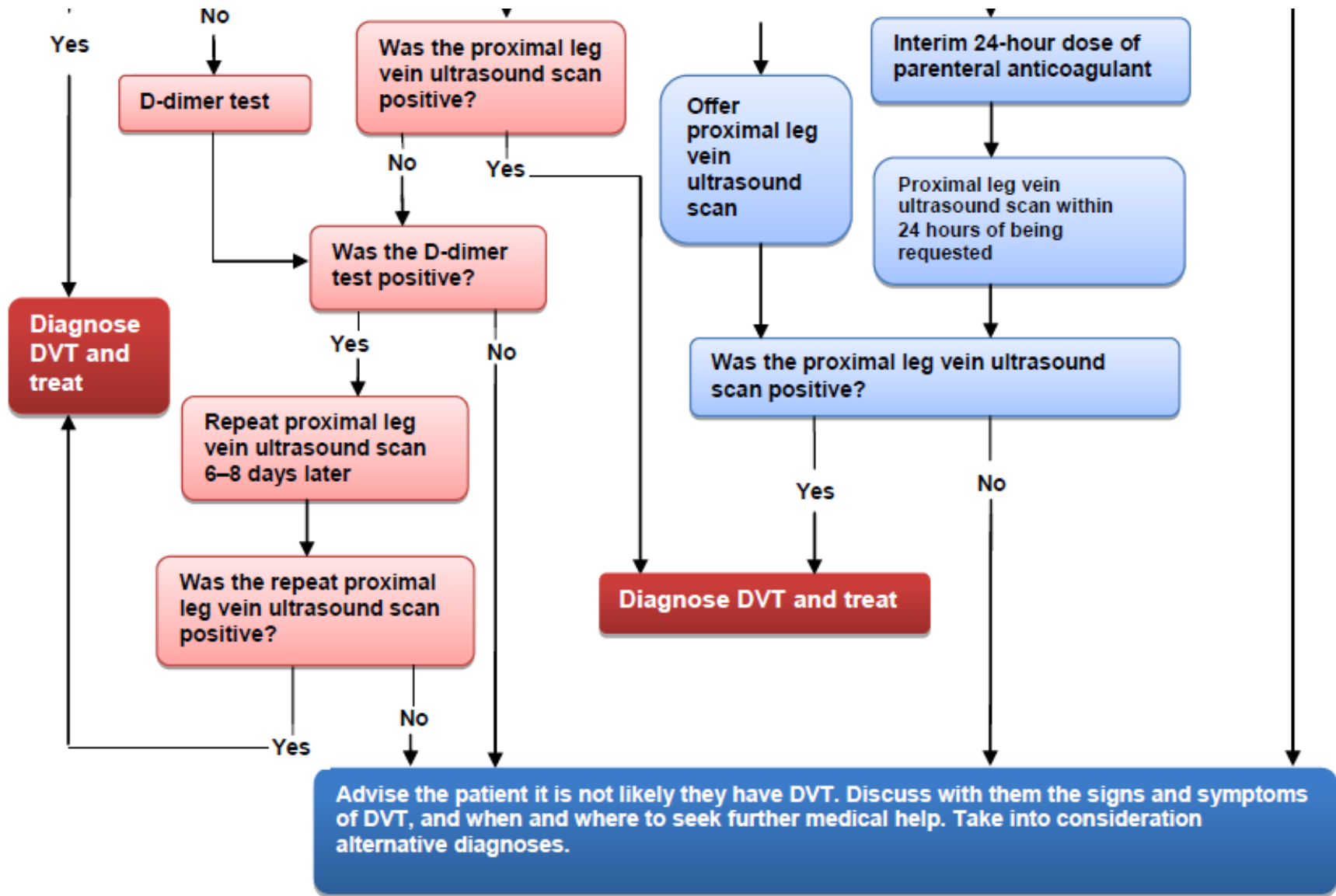
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# Algorithm 1 Diagnosis of DVT





Advise the patient it is not likely they have DVT. Discuss with them the signs and symptoms of DVT, and when and where to seek further medical help. Take into consideration alternative diagnoses.



# Treatment of DVT- NICE 2012

- LMWH or fondaparinux
- Warfarin - target INR 2.5 for minimum 3 months
  - Continue LMWH for minimum 5 days or until INR >2 for at least 24 hours
- NOACs (e.g. Rivaroxaban) now an alternative
- Continue with LMWH if oral anticoagulation contra-indicated
- Class 2 compression stockings
  - Reduces risk Post Thrombotic Syndrome (PTS)

# Thrombophilia

- Increased tendency of blood to clot
- Congenital
  - Type II (common – 5% - mild)
    - Factor V Leiden commonest type (5%)
    - Prothrombin 20210 gene mutation
  - Type I (rare – more severe)
    - Protein C, protein S and antithrombin deficiency
- Acquired
  - Antiphospholipid antibodies (APS)
  - Malignancy

# Thrombophilia Testing

- Consider thrombophilia screen in patients who have had unprovoked DVT or PE if stopping anticoagulation treatment
- Need to stop anticoagulation to do the screen!
- Do not routinely offer thrombophilia testing to patients who have had a provoked DVT or PE
- Do not routinely offer thrombophilia testing to first-degree relatives of people with a history of DVT or PE and/or thrombophilia