

Deep Vein Thrombosis - Prophylaxis and Treatment in Surgical Patients.



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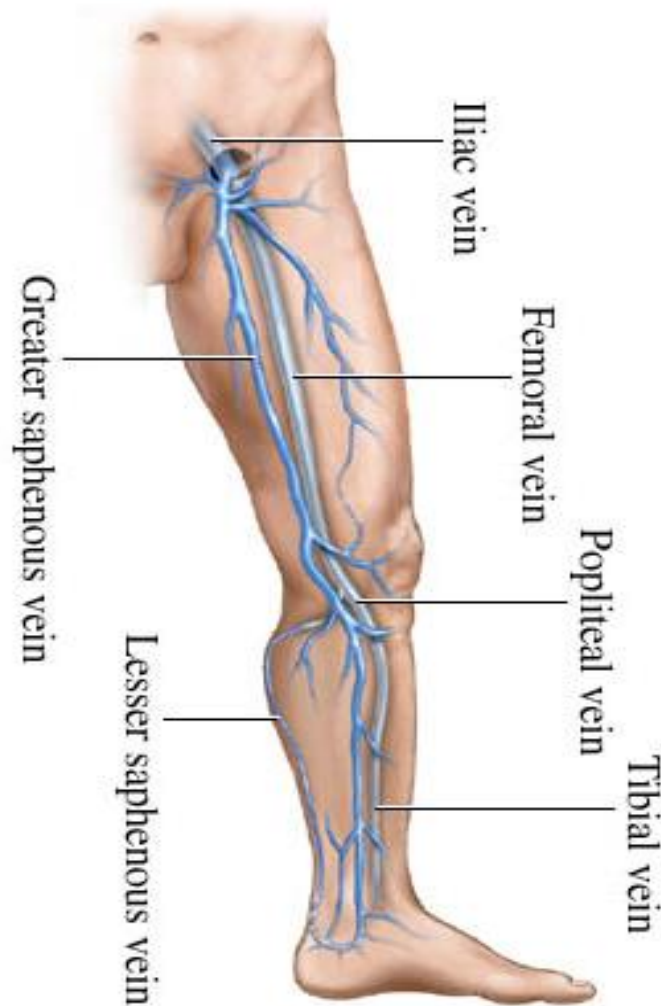
April 09



Learning Objectives

- Discuss the reasons for preventing and treating DVTs
- Describe risk factors for DVT
- Discuss methods of DVT prevention
- Discuss the treatments for DVT

Anatomy of the venous system



- 65% of below knee DVTs are asymptomatic
- Below knee DVTs rarely embolize to the lung



Why do we care about DVTs?



Rationale for DVT Prevention

- DVT usually clinically silent, difficult to predict complications
- Hospitalized patients have risk factors for DVT/PE
- Symptomatic DVT and PE or Fatal PE
- Increased future risk of recurrent VTE
- Prophylaxis prevents DVT and PE
- The prevention of DVT also prevents PE



Risk factors for DVT

- What are risk factors for DVT in hospitalized patients?
- What is Virchow's Triad?



Virchow's Triad

- Stasis
- Vessel injury
- Hypercoagulability



Risk Factors for DVT

■ Stasis

- Surgery, trauma, immobility, paresis
- Increasing age
- Pregnancy and postpartum
- Heart or respiratory failure
- Obesity

■ Vessel Injury

- Previous DVT
- Smoking
- Varicose veins
- Central venous catheterization

■ Hypercoagulability

- Increasing age
- Malignancy
- Cancer therapy
- Estrogen therapy
 - (OCP or HRT)
- Acute medical illness
- Inflammatory bowel disease
- Nephrotic syndrome
- Myeloproliferative disorders
- Paroxysmal nocturnal hemoglobinuria
- Inherited or acquired thrombophilia



Risk of DVT in Patients

Patient Group	DVT Prevalence, %
■ Medical patients	10–20
■ General surgery	15–40
■ Major gynecologic surgery	15–40
■ Major urologic surgery	15–40
■ Neurosurgery	15–40
■ Stroke	20–50
■ Hip or knee arthroplasty, hip fracture surgery	40–60
■ Major trauma	40–80
■ Spinal cord injury	60–80
■ Critical care patients	10–80

- Chest. 2004;126:338S-400S. PMID: 15383478.



How can you prevent DVT?



Methods of DVT Prophylaxis

- Mobilisation
- Graduated compression stockings
- Intermittent pneumatic compression
- Unfractionated heparin
- Low-molecular weight heparins
 - Enoxaparin, dalteparin
- Vitamin K antagonists
 - Warfarin, acenocoumarol, phenindione & dicoumarol
- Stop pill 4 weeks before elective surgery



DVT: Signs

- Calf warmth/ tenderness/ swelling
- Mild fever
- Pitting oedema
- Homan's sign +VE - NB can dislodge the thrombus



DVT: Wells Score

- Active cancer 1 point
- Paralysis, paresis, recent plaster Rx 1 point
- Major surgery, bedridden >3d in last 4 weeks 1 point
- Local tenderness along distribution of deep veins 1 point
- Entire leg swollen 1 point
- Calf swelling >3cm compared to the other leg 1 point
- Pitting oedema 1 point
- Collateral superficial veins 1 point
- Alternative diagnosis as or more likely as DVT -2 points

3 or more points: High Probability

1-2 points: Intermediate Probability

0 or less points: Low Probability



PE: Signs

Clinical features depend on number, size and distribution of emboli:

- Acute breathlessness
- Pleuritic chest pain
- Haemoptysis
- Dizziness/ Syncope
- Pyrexia
- Cyanosis
- Tachy - pnoea/-cardia
- Low BP/ Raised JVP



Tests: DVT/PE

■ DVT

- D-Dimers (-ve useful)
- Thrombophilia Screen
- Duplex USS

■ PE

- CXR
- ECG
- ABG
- V/Q Scan/CTPA

NB: Start treatment immediately, do not wait for confirmation.



Air Travel and DVT

- The risk developing a DVT from long distance flight is estimated at 0.1-0.4/1000 for the general population
- There is increased risk of PE associated with long distance air travel
- Measure to minimize risk of DVT include leg exercise, increased water intake, and refraining from alcohol or caffeine during the flight



Treatment of DVT

- The goal of treatment is to prevent propagation of the clot and PE, and prevent recurrence and post phlebitic syndrome .
- Anticoagulation improves survival
- Unless contraindicated, the initial management should consist of parenteral anticoagulation (iv UFH, sc LMWH)
- These drugs will allow the fibrinolytic system to function unopposed, and prevent the clot for propagating.



Duration of Treatment

- For the first episode of DVT with reversible risk factors: 3-6months.
- Isolated calf DVT: 3 months.
- For the first episode with idiopathic VTE : 6-12 months (unknown).
- For pts with active cancer and DVT: LMWH at least 3-6 months and longer if cancer has not resolved.
- Recurrent VTE: 2 or more episodes treat indefinitely.
- Irreversible risk factor: at least 6-12 months and consider indefinite anticoagulation.

Thank You!

