

Vein thromboembolism

PE

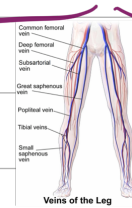
- Obstruction of pulmonary a. or its branches by thrombus mainly from deep vein in leg or pelvis

DVT "common and feared"

- Formation of 1 or more blood clots in deep veins "lower extremities"
- Secondary to stagnation of bld hypercoagulable states

Proximal

Femoral vein
Profunda femoris v.
Popliteal vein
↓
worse, big embolus



Distal

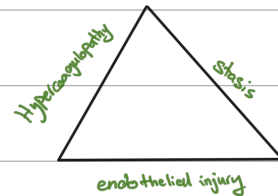
veins beyond calf vein trifurcation "below knee joint"
↓
self limiting, PE "rare"

* Risk Factors

"Virchow triad"

1 Stasis

- 1 Bed ridden pt
- 2 Recent surgery
- 3 Sedentary life style
- 4 Traveling
- 5 Pregnancy



2 Endothelial injury

activate clotting factors by any inflammatory or traumatic vessels injury

1 Needle sticks

2 Canula insertion

→ traumatic vessels injury

cause collagen exposure

Note/ Thrombus

venous → Red thrombus → MCC: Stasis

Arterial → white thrombus → MCC: Atherosclerosis

[3] Hypercoagulopathy states

Acquired

[1] Rheumatology

① SLE

② Behcet

③ Systemic sclerosis

④ Antiphospholipid Syndrome

autoimmune disease ↑ risk of thrombosis due to presence

of procoagulatory Ab characterized by Thrombocytopenia

budd chiari syndrome ← recurrent Venous, arterial thrombosis

Multiple repeated pregnancy loss ← recurrent fetal loss

≥ 2 failed clinical pregnancies

3 consecutive pregnancy loss

to confirm diagnosis check Antiphospholipid

antibodies [1] Lupus anticoagulant

[2] Anticardiolipin antibodies

[3] Anti B₂ glycoprotein antibodies

[2] Hematological diseases

① Polycythemia Vera

blood cancer cause venous, arterial thrombosis

[2] Hyperviscosity Syndrome

① Myeloproliferative disease

② essential thrombocythosis → may reach million

③ PCV

④ leukemias



③ Sickle cell disease

④ Paroxysmal nocturnal hemoglobinuria

acquired genetic defect of haematopoietic stem cells characterized by

① pancytopenia

② thrombosis

③ Hemolytic anemia



[3] GI diseases

① IBD

Inherited

① Factor V leiden "activated protein C resistance" **MCC**

↳ lack of response to activated p.c

↳ mutation in one of the clotting factors in the bld

② Protein C/S deficiency → Vlla, Va, Vc

③ Antithrombin 3 deficiency

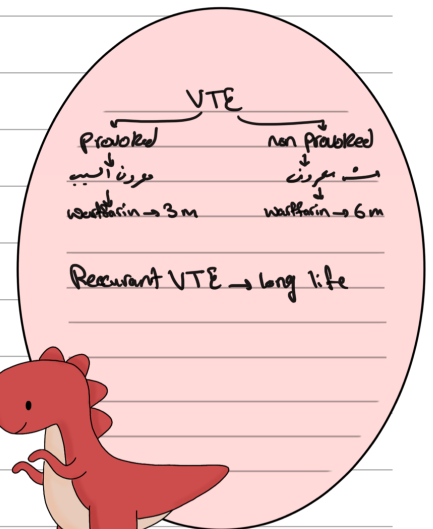
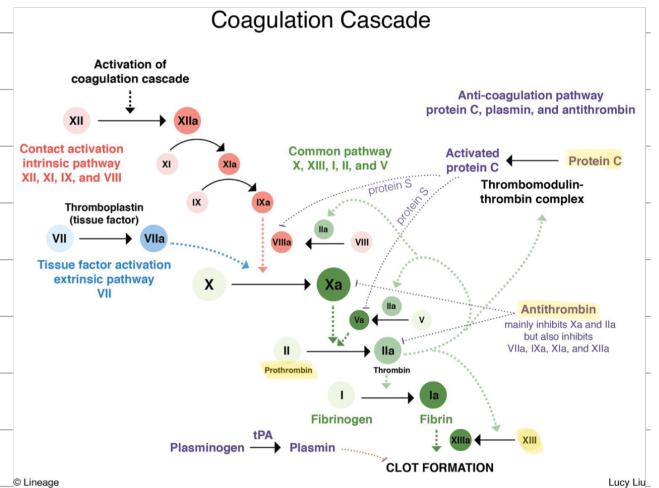
④ Factor 13 deficiency

⑤ Hyperhomocysteinemia → has MTHFR mutation

⑥ Methyl tetrahydrofolate reductase deficiency

⑦ Prothrombin mutation **2nd MCC**

Factor 13, fibrinogen, fibrin, thrombin, prothrombin



IV Renal diseases

1 Nephrotic syndrome

↓ protein C/s, Antithrombin 3 due to proteinuria

5 Malignancy in all types

MC type are pancreas
esophagus
lung

6 Drugs

- 1 Oral contraceptive pills
- 2 estrogen pills
- 3 Heparin
- 4 antipsychotic

7 Pregnancy mainly in last trimester

- 1 Stasis compression on pelvic V. causing stasis in LL
- 2 ↓ protein S
- 3 ↑ factor VII, VIII, IX, fibrinogen
- 4 stressful event

8 May-Thurner syndrome

Compression on lt. iliac vein cause DVT



(إِنَّمَا يَخْشَى اللَّهَ مِنْ عِبَادِهِ الْعُلَمَاءُ إِنَّ اللَّهَ عَزِيزٌ غَفُورٌ)

* Diagnosis

1 History

gender, pregnancy, Abortion, pain "SOCRETS", Swelling, ability of movement, hotness, redness, ulcers, headch
abdominal pain, diarrhea, Vomiting, some attacks, travelling, same attack in family, Surgery, SLE, Behcet
anemia, OCP, heparin, Constitutional symptoms "malignancy", ask for PE shortness of breath, palpation

2 Examination

general: vital sign

local: inspection edema, superficial dilated vein, scratch marks, redness, swelling, shiny skin, ulcers
palpation Temperature, tenderness, Homan's sign calf pain on dorsal flexion of foot
swelling "10 cm from knee", compare with another leg → 73 cm significant

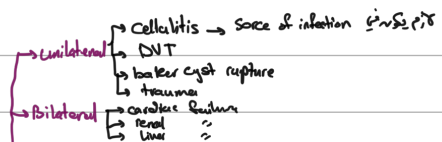
3 Investigations

1) CBC → WBC → leukocytosis

→ RBC → anemia

→ Hb → ↑ in polycythemia or PCV

→ platelets → thrombocytosis
→ thrombocytopenia → TTP, SLE, Antiphospholipid syndrome, cancer, liver cirrhosis, HELLP, HIT



2] Liver function test → Budd chiari syndrome

3] Kidney function test → Nephrotic syndrome

4] PTT, IUR

6] Wells score

low risk < 2
moderate risk 1-2
high risk > 2



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6] D-dimer Sensitive not specific

7] Doppler ultrasound

8] CT angiograph gold standard now

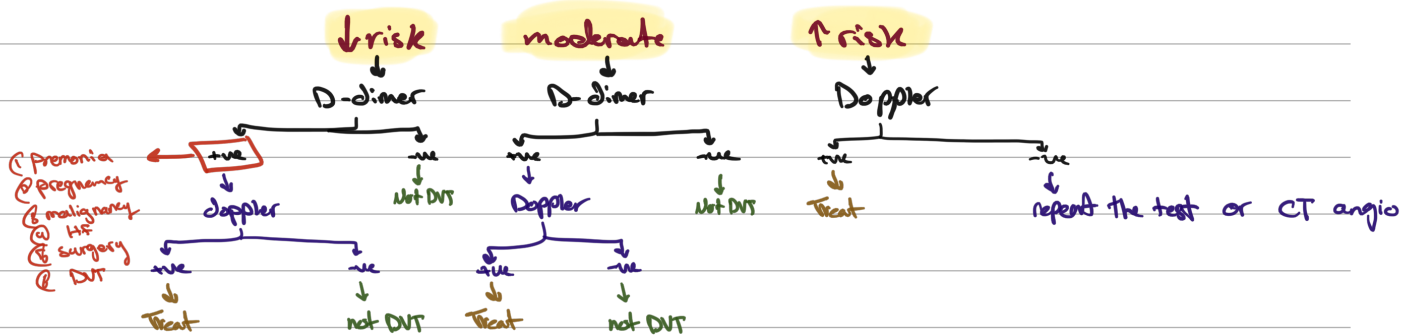
9] Venogram

10] Chest x-ray for PE

11] ECG for PE

12] Genetic studies for behcet, SLE

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 at least as likely as DVT	-2



* Complications

1] PE

2] Post phlebotic syndrome → Cause Varicose veins, venous ulcers, Atrophic changes

3] Stroke in cases of VSD or ASD

5] Budd chiari syndrome

loss of hair
fishing skin

* Treatment

1] Warfarine

Vit K antagonist
green food contraindication
IUR 2-3
bridge low m.w. heparin 1-2 days
Contraindication in 1st, 3rd trimester
teratogenic risk of hemorrhagic complications

2] DOAC

direct factor Xa antagonist
Contraindication in pregnancy, breast feeding
metallic valve, CKD
Anti-phospholipid