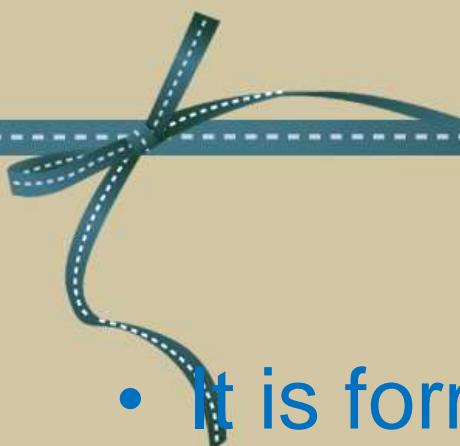




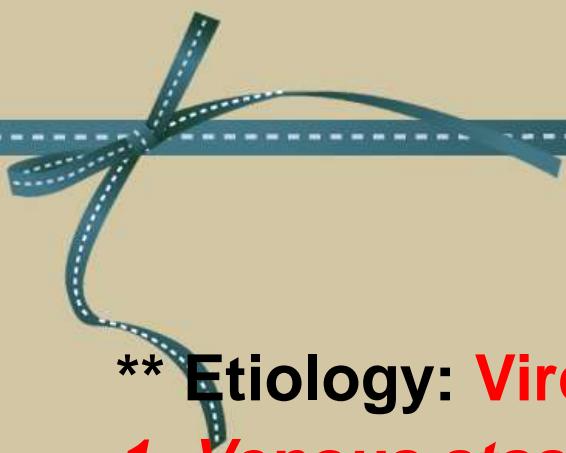
- Disorders of veins:

Dr . Maha Subih



venous thrombosis

- It is formation of a clot in association with inflammation of vein, classified as superficial thrombophlebitis & DVT.
- it's a disorder involving a **thrombus** in a deep vein, common in **iliac & femoral veins**, can result in embolism to **lungs**.



DVT

** **Etiology: Virchow's triad which are:**

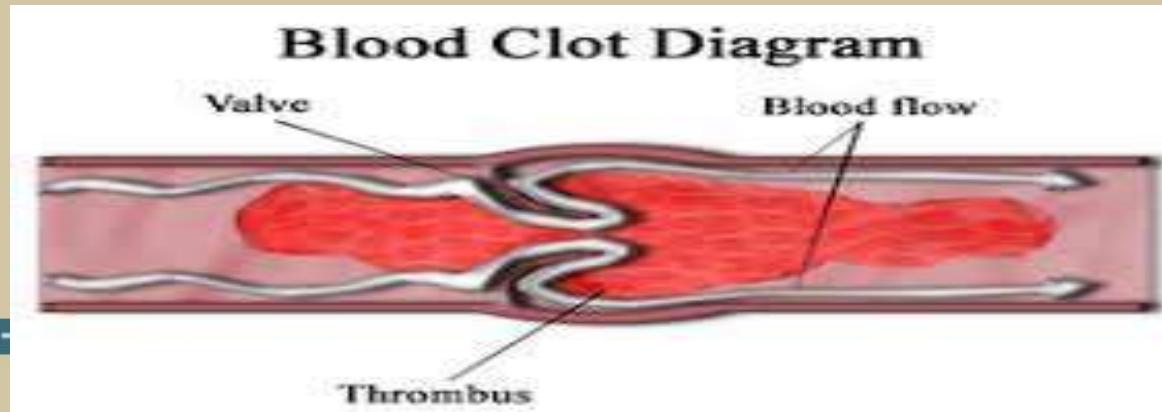
1- Venous stasis: when valves are dysfunctional or extremities muscles are in active, more in obese, HF, A. fibrillation, prolonged surgical procedures, immobile pts (#)

2- Endothelial damage: caused by trauma, vein puncture & ↓ fibrinolytic properties so thrombus develops ↑ with IV therapy as antibiotics, chemotherapy, TPN, KCLetc, also more than 72 hr cannula

3- Hypercoagulability of blood: sepsis, hematologic disorders (polycythemia-anemia-cancer) drugs as corticosteroids, also pregnant & postpartum women, oral contraceptives, smoking.

** Pathophysiology:

- localized platelet aggregation & fibrin entraps RBC, WBC to form thrombus at **valve** of veins as a thrombus enlarges ↑ no of blood cells so **larger clot with "tail"** that occlude vein, become embolus that flows to heart & lodges in pulmonary circulation.





** C/M:

- may or may not have **unilateral** leg edema, **extremity pain**, **warm skin**, **erythema**, **fever**
- If the **calf** is involved tenderness, a positive Homans sign (pain on forced dorsiflexion) is a classic but very unreliable, false positive.
- If **SVC** is involved symptoms of **upper extremities**, **neck**, **back& face**.
- If **IVC** is involved **lower extremities** **edematous & cyanotic**.

Complications:

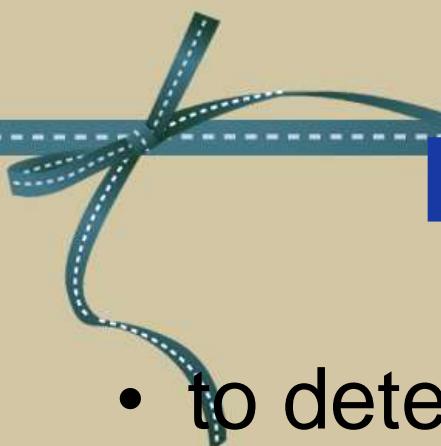
- 1- ***Pulmonary embolism***
- 2- ***chronic venous insufficiency CVI :***
results from **valvular destruction**, allowing retrograde flow of venous blood, persistent **edema**, increased **pigmentation**, **varicosities**, **ulceration** & **cyanosis** of limb when its placed in a dependent position, often don't develop until several years following DVT.



3- *Phlegmasia cerulean dolens*

- (swollen, blue, painful leg), develop in a pt with severe lower extremity DVT. Gangrene occurs due to arterial occlusion secondary to venous obstruction & amputation required (femoral popliteal bypass).





Diagnostic studies:

- to determine the **site or location** & extent of a DVT as lab studies (APTT _ CBC _ D. Dimer) - **venous Doppler- venogram**

** Collaborative Care

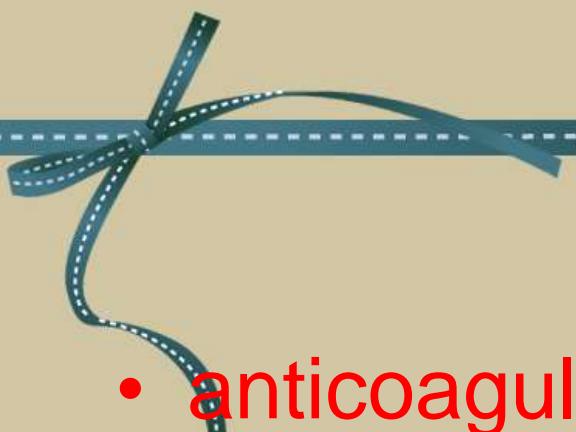
- **1) prevention & prophylaxis;**
- **a- early ambulation**, on bed rest need to change position, dorsiflexion & rotate ankle Q2-4 hr, out of bed ambulate 3 times/ day
- **B- Elastic compression stockings or antiembolism stocking.**



C- Intermittent compression devices

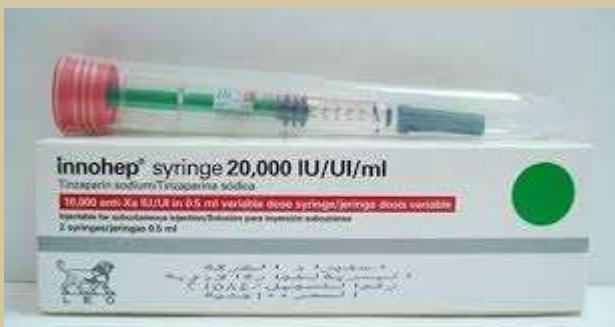
- for who at risk, apply intermittent external pressure to lower extremities, so pushes blood from superficial veins into deep veins , not effective if device didn't applied correctly or if the pt doesn't wear it continuously .
- D-preventive anticoagulant



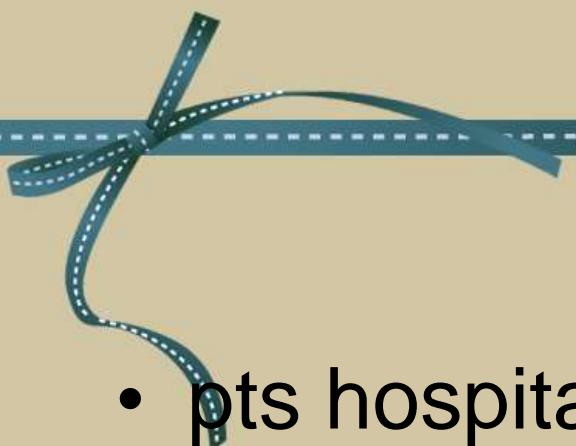


Drug therapy:

- anticoagulant to prevent clot, doesn't dissolve the clot. lysis of clot begins spontaneously through body's intrinsic fibrinolytic system.
- a. **vit K antagonist** as warfarin
- b. **indirect thrombin inhibitor** as heparin & LMWH. **LMWH** (clexane) have longer half life than heparin, less risk for bleeding complications, doesn't require monitoring & dose adjustment, administered S.C.



- **warfarin** inhibit synthesis vit k in liver, needs 48-72 hr to influence PT (INR), therefore an overlap of heparin & warfarin is required for 3-5 days
- monitored by **APTT** or **ACT** for **heparin**.
- ***For DVT prophylaxis*** low dose heparin, LMWH s.c or warfarin
- LMWH & warfarin effective in hip & knee surgery, major trauma.



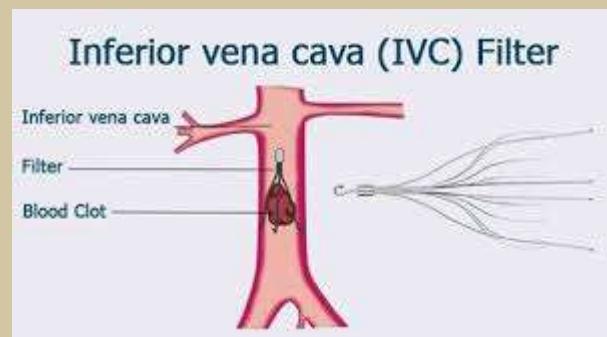
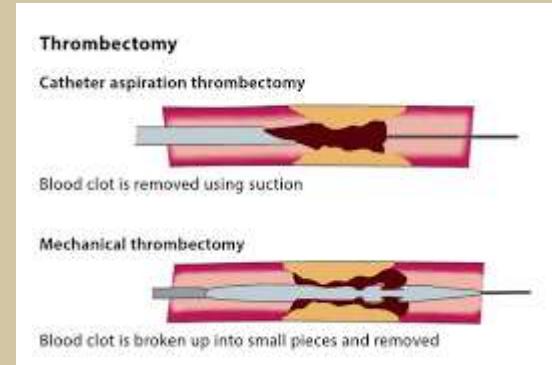
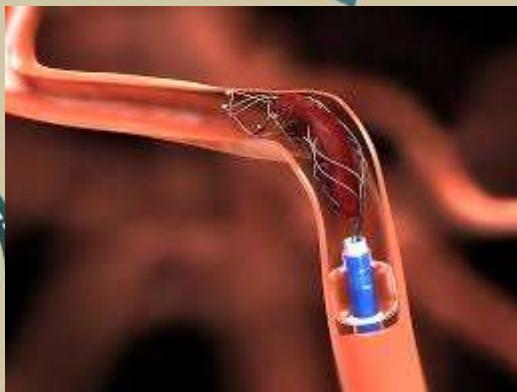
DVT treatment

- pts hospitalized, IV bolus heparin given then continues infusion for 5-7 days, before D\c warfarin started.
- May administer thrombolytic therapy.
- antiplatelet as aspirin, phenytoin & NSAID contraindicated ??? .
- Diet with low vit K, avoid excessive vit E& alcohol.



Surgical therapy:

- include **thrombectomy** to prevent PE& IVC interruption devices as **filters**, inserted percutaneously through Rt femoral or internal jugular vein.
- **Complications** air embolism, or may clog **filter** & completely occlude vena cava, its gradual so collateral circulation developed which may be alternate route for PE.





** Nursing Management:

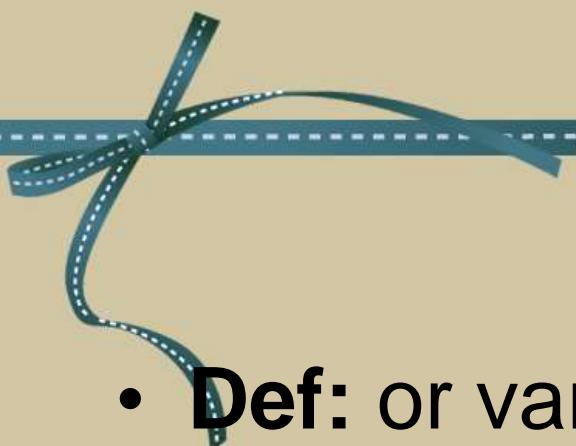
- Prevention of emboli & reduction of inflammation.
- Observe for bleeding, hematuria, surgical incision, stool for occult blood.
- Assess mental changes in elderly (cerebral bleeding)
- Avoid IM injection
- Review any medications may interfere with anticoagulant or herbal products
- Monitor PTT, INR, Hgb, platelets(HIT)
- Antidote for heparin (protamine sulphate) & warfarin (VIT K- FFP) should be available.



** Ambulatory care:

- evaluate pt's psychological response, verbalize concerns
- Elimination of modifiable risk factors for DVT as smoking-oral contraceptives-obesity
- Importance of compression stockings
- Monitoring lab values
- Medications instruction

- Avoid prolonged standing or sitting in a motionless, leg dependent position, frequent knee flexion, ankle rotation & active walking.
- Diet for overweight & proper hydration
- A balanced program of rest & exercise
- Teach him about the **S& S of PE** (sudden dyspnea -tachycardia- tachypnea- pleuritic chest pain).



Varicose Veins

- **Def:** varicosities are **dilated tortuous subcutaneous veins** most frequently found in **saphenous system**. Small & innocuous or large & bulging.
- 1- Primary idiopathic, common in **female** & familial history, caused by congenital **weakness of veins**.

- 2- Secondary results from previous DVT with subsequent valvular incompetence, occur in esophagus (esophageal varices), in anorectal area(hemorrhoids) & abnormal arteriovenous connections(AV mal formation)



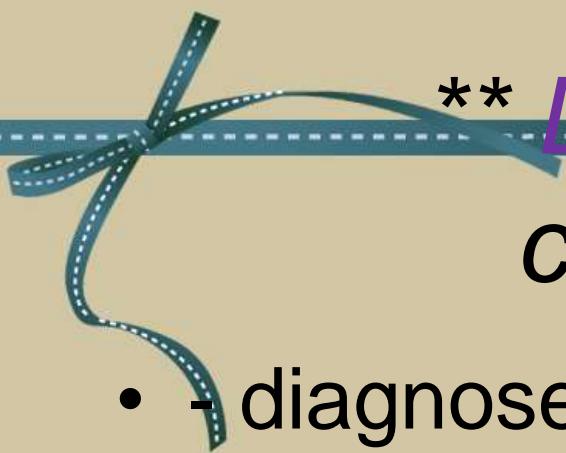
** *Etiology & pathophysiology:*

- etiology is unknown, veins dilated & tortuous with increased venous pressure, may result from a congenital weakness of the vein structure, obesity, pregnancy, venous obstruction resulting from thrombosis or extrinsic pressure by tumors or occupations that require prolonged standing, valves incompetent, allowing venous blood flow to be reversed, calf muscle pump fails , venous distension results, edema develops.



** C/M & complications:

- **discomfort**, worsened by superficial thrombophlebitis, concern about **cosmetic disfigurement**, **ache or pain after prolonged standing**, relieved by walking or by elevating limb. **Cramp like sensation, swelling. Nocturnal leg cramps in calf.**
Thrombophlebitis occurs spontaneously or after trauma, surgical procedures or pregnancy, rupture of the varicose veins & ulceration.



** *Diagnostic studies & collaborative Care:*

- - diagnosed by appearance **duplex ultrasound**.
- 1- Treatment not indicated if varicose .V are only a cosmetic problem. If competency develops care involves rest with affected limb **elevated, compression stockings, and exercise as walking.**

- 2- **Sclerotherapy** is IV injection of sclerosing agent induces inflammation & results in eventual thrombosis of vein, the leg is wrapped with an **elastic bandage for 24 -72 hrs** to maintain pressure over the veins, or **use laser therapy**.

- 3- Surgical intervention involves ligation of vein(greater saphenous) & dissection & removal of its incompetent tributaries.

Indicated when chronic venous insufficiency can not be controlled with conservative therapy. Recurrent thrombophlebitis is another indication for surgery.



** *Nursing Management:*

- 1- prevention by: avoid sitting or standing for long periods of time,
- maintain ideal body weight,
- take precautions against injury to the extremity,
- avoid wearing constrictive clothing,
- participate in a daily walking program.

- 2- After ligation surgery encourage deep breathing helps promote venous return to the Rt side of heart,
- extremities checked regularly for color, movement, sensation, temperature, presence of edema & pedal pulses.
- Bruising & discoloration are considered normal;
- legs are elevated at a 15 degree angle to prevent edema.
- Compression stockings are applied & removed every 8 hrs for short period & reapplied.

- Put on stocking while still lying down just **before rising in morning**, periodic positioning of legs above the heart.
- Overweight pt need weight reduction, occupation requires prolonged periods of standing or sitting needs to change position frequently.