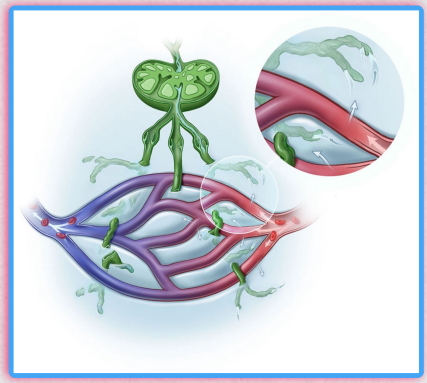


Venous and Lymphatic disorders

Dr: Asem Qandah

Thursday, 9th of November

Students participating in the presentation, listed in alphabetical order:

1- Hadeel Al-sakarneh

2- Heba Bani Khaled

3- Leen Freihat

4- Malak Ghareb

5- Maya Hamzeh

6- Shumookh Abu-Khurma

7- Raneem Shoqirat

8- Reema Al-jghimi

Varicose vein

Definition :

abnormally dilated, elongated, tortuous superficial veins of the lower limb

Incidence:

Frequent condition , More in females, increases with age.

Varicose veins may occur in other sites but have special names :

1) Esophageal & gastric varices in the lower part of esophagus & upper part of stomach .
2) Haemorrhoids (piles) in the lower part of rectum & anal canal .
3) Varicocele : in the papiniform plexus .
4) Caput medusa : around the umbilicus .

1 - Primary V.Vs. (85%)

the cause is unknown but there are theories :

1. Congenital hereditary weakness of wall of veins [familial]
2. Valvular incompetence in the veins of the lower limbs .

Aggravating factors are occupations with prolonged standing ,females
marked obesity, intake of hormones eg. contraceptive pills

2 - Secondary V.Vs. (15%)

-Previous deep vein thrombosis Cause valve destruction
-Raised venous pressure due to compression (e.g. by a pelvic tumour, including a pregnant uterus)
-congenital venous malformation [Klippel– Trenaunay syndrome]
-arteriovenous fistula (congenital or acquired following trauma)

Clinical picture

Primary varicose veins ➡️

dull Aching pain , tiredness , minimal edema & skin changes , usually bilateral, the veins usually tubular or sacular , slight foot& ankle swelling.

Secondary varicose veins ➡️

Marked edema& skin changes , usually unilateral,bursting pain , the veins usually spider ,marked diffuse swelling of the Lower limbs.

Stages of varicose veins :

➢ Stage 1 : spider veins (1-1.5 mm , red , purple or pink)

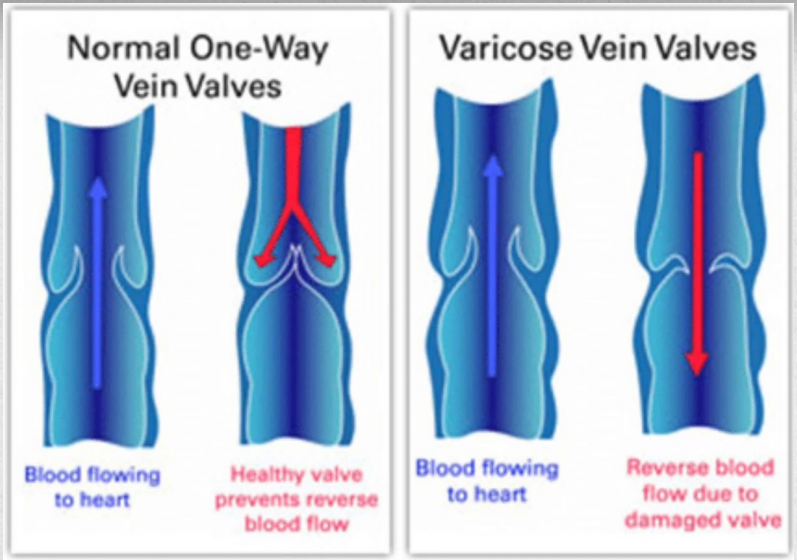
➢ Stage 2 : reticular veins (2 mm , green blue or purple)

➢ Stage 3 : varicose veins(more than 2.5 mm , elevated above the level of skin , dark blue or purple)

➢ Stage 4 : edema

➢ Stage 5 :pigmentation or eczema & liposclerosis

➢ Stage 6 : active venous ulcer


Normal One-Way Vein Valves
Blood flowing to heart
Healthy valve prevents reverse blood flow
Varicose Vein Valves
Blood flowing to heart
Reverse blood flow due to damaged valve

Complications:

1. Oedema of L.L. due to accumulation of exteracellular fluid in S.C tissues.

2. Haemorrhage: may be spontaneous or after trauma & ulceration.

➢ Treatment is elevation & local compression bandage.

3. Pigmentation due to haemosidrin in the s.c. tissue irritation, itching & eczema.

4. Superficial thrombophlebitis

5. Venous (varicose) ulcer; In the skin of the medial aspect of lower part of the leg (ulcer bearing area). The ulcer takes a long time to heal so it's lead to:

➢ Infection , periostitis , chronicity

➢ Malignant transformation and squamous cell carcinoma (Marjolin's ulcer

Physical examination:

By inspection

ulcer on medial side , swelling in ankle , spider veins, micro dermatosclerosis (pigmentation and thickening of the skin of the medial side of the leg).

Special test

1. Localization of incompetent valves

A. Trendelenburg's Test
B. Schwart's test
C.Multiple tourniquet test

2. To differentiate between occluded and patent deep viens

A. Perthe's test
B. Modified Perthe's test
For accurate result we can use duppler or duplex u/s

Treatment of varicose

A. Life style modification

Aim : Relief of pain and prevent Varicose veins from getting worse
1. Avoid prolonged standing or sitting
2.walking, exercises , losing weight & leg elevation are encouraged. 3.compression stockings

B. Injection sclerotherapy

Sclerosing agents: sodium tetradecyl sulfate, hypertonic saline, polidocanol

Method:
➢During standing, the sites of injections are marked on the skin
➢ Ask the patient to lie flat , elevate the limb and through a fine needle inject Sclerosing agent , into the veins .

➢Then a local elastic bandage is applied for 4 weeks to keep the vein collapsed.
➢Immediately, the patient is instructed to walk for a long distance.
➢Multiple sites can be injected at the same visit.

Effect: The injected material injury of the endothelium of the vein and the pressure bandage obliteration of the veins by fibrosis not by thrombosis

C. Surgery

1.ligation and strpping
2.endovenous thermal ablation
3.phlebectomy

Sclerotherapy:

DEEP VENOUS THROMBOSIS

Incidence:
The true incidence of DVT is unknown as most cases pass unnoticed.

-Aetiology : Virchow's triad

1. Endothelial damage:
-Injury of deep veins e.g. pelvic or abdominal operations
-Inflammation of veins e.g. Pelvic sepsis

2. Stasis of blood flow:

-Compression of veins by abdominal or pelvic tumour or pregnant uterus
- Prolonged recumbancy in bed , long trip or plaster cast
-Congestive heart failure

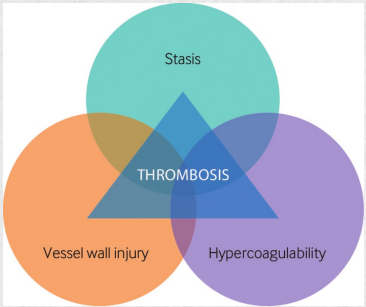
3.Hypercoagulability: due to increase blood viscosity or changes in blood composition e.g:

-Polycythemia , leukemia or hyperfibrinogenaemia .
-Deficiency of antithrombin III , protein S & C , macroglobulins or antitrypsin.
-Factor V Leiden : is a genetic mutation of one of the clotting factors in the blood.

High risk group:

remember major surgery, female , ICU & past history

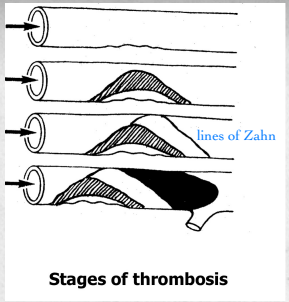
1.Stasis.
2. Major surgery as abdominal, pelvic, gynaecological or hip op.
3. Dehydration
4. Pregnancy
5. Elderly patient , myocardial infarction, H.F., smoking.



Pathology:

1. Site:

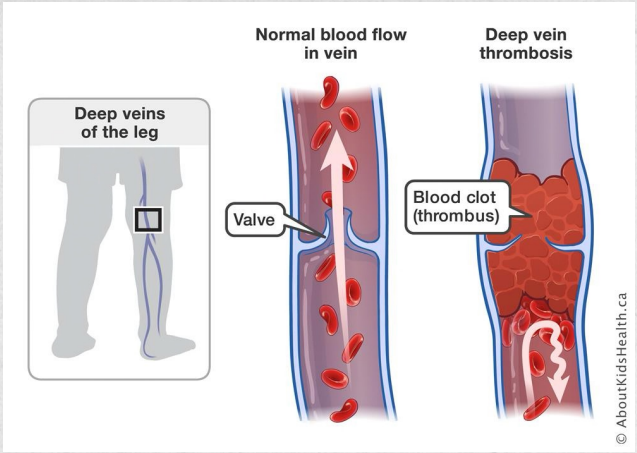
-D.V.T usually begins on the valve cusps (areas of relative stasis).
-D.V.T usually occurs in the venous sinuses in the calf muscles or ilio-femoral veins & rarely IVC , subclavian , axillary or portal veins .



Stages of thrombosis

2. Pathogenesis:

a. Pale thrombus: the initial thrombus is composed of platelets which stick to the vascular wall & to each other.
b. Mixed thrombus: fibrin & RBCs becoming deposited between layers of platelet (laminated appearance known as the lines of Zahn).
c. Propagating thrombus: non-adherent, jelly-like, red clot spreads into the vein as far as the next major tributary.


Deep veins of the leg
Normal blood flow in vein
Deep vein thrombosis
Valve
Blood clot (thrombus)
© AboutKidsHealth.ca

Effects & complications:

1.General: Pulmonary embolism due to detachment of early non-adherent thrombus.

2. Local:

A)On the affected veins :

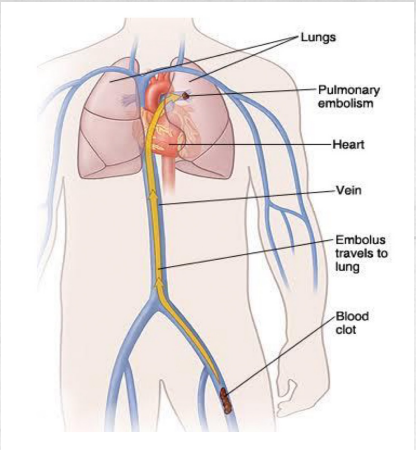
1- Recanalization: within 3-6 months by fibrinolysis and phagositosis leads to gradual partial opening of the lumen but the valves are destroyed with valve dysfunction leads to chronic venous insufficiency & post- phlebitic limb.

2- Organization→ fibrosis → permanent occlusion of the lumen .

3- Calcification of the thrombus → phlebolith → permanent occlusion of the lumen .

B) Effect on the part of the limb distal to the thrombus :

1- Early : oedema .
2- Late : secondary varicose veins & post-phlebitic limb .



Clinical picture:

1. History of the predisposing factors e.g. post-operative

2. Asymptomatic group: common
-There are no local manifestations and the patient may present later with either pulmonary embolism or post-phlebitic limb.
-It is suspected by the presence of unexplained post-operative fever or tachycardia.

3. The classical picture: triad of
1. Pain
2. Tenderness on compressing the muscles.
Homan's sign, sudden dorsiflexion of the foot → pain and spasm in the calf due to stretch of thrombosed veins.
It should be avoided as it is unreliable test & it may be complicated by pulmonary embolism.

3. Swelling (oedema) is the most reliable sign.
- It is evidenced by measuring the difference in the circumference of the limb on both sides.

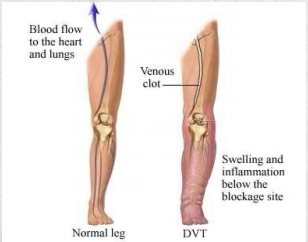
The level of oedema is diagnostic for the level of venous occlusion :

➢ In calf veins thrombosis : oedema affects the foot and ankle .

➢ In femoro-popliteal thrombosis : oedema reaches up to the level of lower 1/3 of the thigh .

➢ In ilio-femoral thrombosis : There is massive oedema affecting the whole lower limb.

➢ In IVC thrombosis : oedema affects both lower limbs



Picture of complications:

1.Venous gangrene : It is moist massive gangrene of the whole affected limb.

2. Pulmonary embolism.

3. Post-phlebitic syndrome : Chronic leg pain, oedema, skin complications & secondary varicose veins.

4-Phlegmasia alba dolens, Phlegmasia cerulae dolens

Post-phlebitic syndrome

Phlegmasia alba dolens

Phlegmasia cerulae dolens

Investigations:

As the clinical picture is not reliable, investigations should be done before starting treatment

1. Doppler ultrasound:

-In femoral or popliteal Vs. thrombosis, the normall venous hum does not change into a roar.

-It is accurate in 80% of cases but insensitive in calf veins thrombosis.

2. Duplex ultrasound: (The most important)

-It determines partial occlusion, turbulance,
flow direction & incompetent valves and communicators.

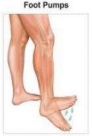
- It is accurate in 90-100 % of cases

Treatment:

A- Prophylactic:

I - Measures to reduce venous stasis:

1. Avoid compression of calf veins during operation by Elevating the heel.
2. Graduated compression Elastic stockings: exerting pressure from below upwards .
3. Intermittent External pneumatic compression of legs by special device.
4. Correct any dehydration or shock.
5. Leg Elevation for 20 degrees.
6. Breathing and limb Exercises , massage & mobilization as soon as possible.
7. The calves and feet should be Examined daily for local signs of DVT.



II- Prophylactic Anticoagulants:

- Indications :In high risk patients.
-Contraindications : It should be avoided where an operation is likely to leave raw areas or where a post-operative hge is suspected

-Methods :

a)Low dose heparin: 5000 units S.C., 2 hours before operation and continued twice-daily until the patient is fully mobilized.

b)Low molecular weight heparin is more popular because it is given once daily and has lower risk of bleeding .

B - Curative:

I- Conservative: (the main line of treatment)

- Aim: Prevention of new thrombi , thrombus propagation & embolization.

- Method:

1) Anticoagulants: Heparin should be started as soon as possible.

2) Patient care :

Complete rest in bed with the limb is elevated for 20 degrees , for at least 7-10 days which is the time needed for the thrombus to become adherent.

-After this period of rest, gradual mobilization with elastic stocking .
-Avoid prolonged standing or sitting.

3) Thrombolytic (fibrinolytic) therapy :

-Indications : Severe early diagnose cases of DVT .

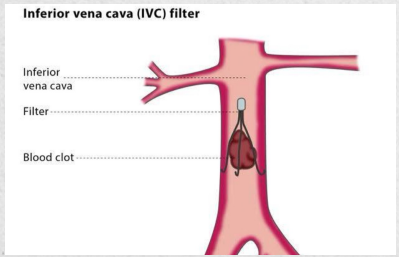
-Contraindications : History of bleeding tendency , old age , hypertension or peptic ulcer .

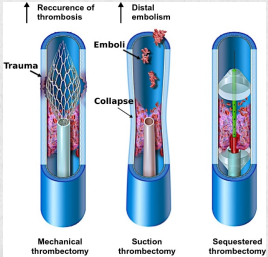
II- Surgical:

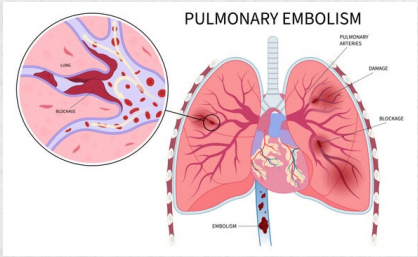
a) Introduction of intraluminal device (filter) into I.V.C. to trap large emboli .

b) Venous thrombectomy: In case of affection of a big vein.

c) Pulmonary embolectomy: (Trendlenburg's operation) in massive pulmonary embolism.







Lymphedema

Definition: Tissue swelling caused by accumulation of protein-rich fluid that's usually drained through lymphatic system , and caused by chronic lymphatic obstruction

Etiology:

A. Primary lymphedema [congenital, rare]

1.Aplasia or hypoplasia [commonest]
2.Congenital dilatation and tortuosity (varicose lymphatics)
3.Milroy's disease (with family history)

B. Secondary lymphedema [acquired due to obstruction, common]

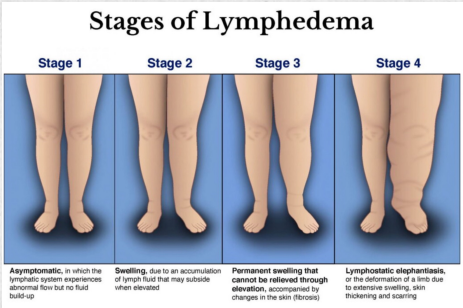
1. Traumatic:block dissection of inguinal & axillary LN in radical vulvectomy or mastectomy or excess skin loss
2. Inflammatory: e.g. TB lymphangitis
3. Parasitic: Filariasis
4. Neoplastic: lymphoma or mets

Pathology

Usually affects lower limb (80%), rarely: scrotum, breast or upper limb Affects skin & s.c. tissues→ poor lymphatic supply

STAGES

1. soft pitting edema (accumulation of protein rich fluid)
2. lymphorrhea (rupture of dilated lymphatics)
3. fibrosis and non-pitting edema
4. elephantiasis



Clinical presentation

Mainly swilling of the limb according to the site of obstruction
In early cases the oedema is pitting but then swilling becomes hard and non pitting.

In late stages (elephantiasis) the limb becomes huge and the skin becomes thick due to fibrosis.

Lymphatic obstruction - proximal dilation and stasis - recurrent attacks of streptococcal lymphangitis.

streptococcal lymphangitis is characterised by exacerbations with progressive swelling of the limb, fever, rigour and partial remission when taking antibiotics.

complications

1. recurrent cellulitis & lymphangitis
2. formation of blebs or bullae [due to distended lymphatics]
3. Lymphangiosarcoma [RARE]
4. huge disabling limb

Investigations

-Lymphoscintigraphy →injecting a radio- labelled protein SC and monitoring its movement through lymphatics

1-Magnetic resonance, imaging with contrast
2-Lymph node biobsey-> to diagnose filariasis and malignancy
3-Ultrasonography-> to exclude lipoedema

In case of filariasis:

1.night blood film (10 pm- 2 am) may show active microfilaria
2.blood picture: eosinophilia

Differential Diagnosis:

Generalized disease

- Cardiac failure
- Nephrotic syndrome
- Liver failure

Venous disease

- Venous thrombosis*
- Deep venous insufficiency
- Arteriovenous fistula,* e.g. Klippel–Trénaunay syndrome[4]

Lymphatic disease

- Primary lymphoedema*
- Secondary lymphoedema,* e.g. filariasis, malignant infiltration, following surgery or irradiation to lymphatics

*Also may cause unilateral upper limb swelling.

It was previously taught that lymphoedema could readily be differentiated from other forms of oedema on the simple physical sign of absence of pitting. However, lymphoedema of acute onset will initially pit on pressure and oedema of any nature, if chronic will become indurated and non pitting.

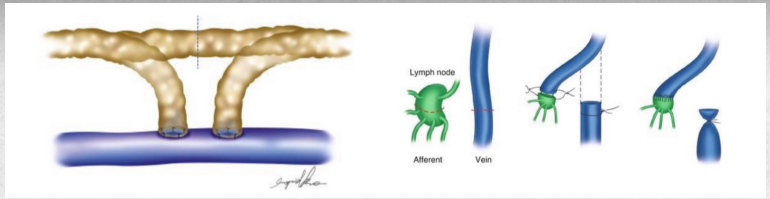
Treatment:

Conservative:

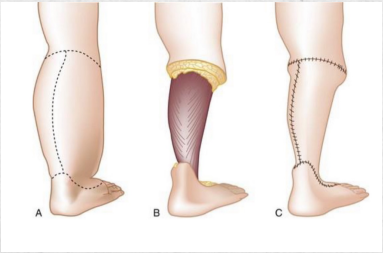
- For early mild cases
- Elevation, exercise, compression stockings (to improve drainage)
- Diethyl carbamazine (in case of filariasis)

Surgery:

A) Physiological operations
-approach is to provide alternative lymphatic drainage bypassing the obstructions
1.Lymphatico-venous anastomosis → the dilated lymphatics are anastomosed to nearby veins
2.Lympho-venous anastomosis → the distal surface of bisected L.N. are anastomosed
3.Autogenous L.N. transplantation → this could stimulate lymphangiogenesis



B) Excisional operations
-removing all the edematous subcutaneous tissue down to the deep fascia with closure of defect by skin graft



"Our presentation was made with utmost care, featuring blue and pink colors, with the purpose of reminding you of your role in raising awareness in your community about the important subjects of breast and prostate cancers."

لا تنسوا أخواننا بالدول الإسلامية من خير الدعاء، فاللهمّ إننا نستودعك أمّتنا فاحفظهم أجمعين