433 Teams

OBSTETRICS & GYNECOLOGY

Thromboembolic Disease in Pregnancy

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Objectives:

- 1) List the predisposing factors for thromboembolism in pregnancy.
- 2) Discuss the clinical presentation and management of deep vein thrombosis.
- 3) Discuss the clinical presentation and management of pulmonary embolism in pregnancy.
- 4) Discuss the clinical presentation and management of superficial thrombophlebitis.

THROMBOEMBOLISM DISEASE

- **Pregnancy is a hypercoagulable state** with up to a five fold increased risk (DVT) and (PE).
- 80%of venous thromboembolic are DVT and 20% are pulmonary emboli.
- **Number 1 cause of maternal mortality** in **developed** countries is thromboembolic disease

Risk factor:

- The greatest risk is during the **first few weeks postpartum with cesarean delivery.**
  (emergency Cesarean has higher risk than elective)
- previous history of a DVT or PE
- acquired or inherited thrombophilias
- Smoking , age , obesity ,trauma
- Malty party , antiphospholipid
- prolonged immobility

stasis

- results from compression of the pelvic veins by the gravid uterus

endocrine-mediated venodilation

↓

endothelial injury

- by decreased mobility. Delivery, especially an operative delivery, can cause endothelial injury to uteroplacental and pelvic vessels

↓

hypercoagulability

: Pregnancy

⬇ protein S

⬆ fibrinogen; factors VI, VII, and X; and von Willebrand factor

Virchow triad :

DEEP VEIN THROMBOSIS

Clinical Features

50% of cases are asymptomatic.

Pain in the calf in association with dorsiflexion of the foot **(positive Homans sign)** is a clinical sign of thrombosis in the calf veins.

Acute swelling and pain in the thigh area, are suggestive of iliofemoral thrombosis.

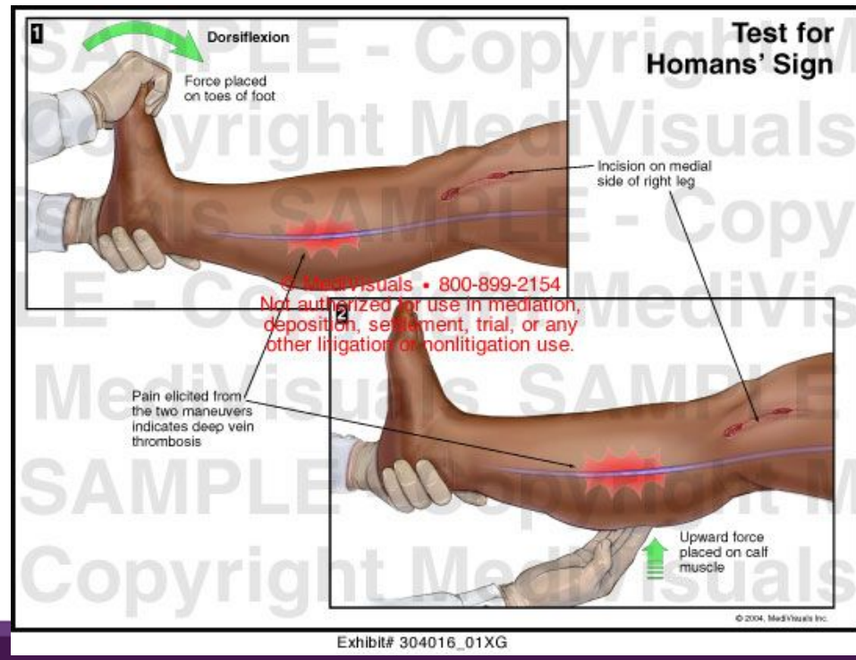
DVT in pregnancy is usually in the left leg occurs in proximal vessels. (iliofemoral deep vein)

While in the general population it's common in the right leg and distal.

In a patient complaining of left lower-extremity pain and swelling, the finding of a 2-cm difference in calf circumference is one of the more reliable clinical signs of a DVT in pregnancy

Investigations

- **Compression US with doppler** **(the primary mode of diagnosis)**
- **Magnetic resonance imaging** (MRI) or (MRV)
- **D-Dimers** are not a reliable screening tool for VTE in pregnancy.



Therapy:

Treatment initiated with intravenous unfractionated heparin or subcutaneous LMWH (enoxaparin)

Intravenous anticoagulation should be maintained for at least 5 to 7 days, after which treatment is converted to subcutaneous heparin that must be continued for the duration of the pregnancy and for up to 6 weeks postpartum, with weekly monitoring of the aPTT.

Note:

- Both forms of heparin do not cross the placenta.
- Unfractionated heparin is associated with a higher risk of maternal thrombocytopenia and osteoporosis.
- low-molecular-weight heparin should be stopped about 24 hours before delivery in the case of cesarean delivery.
- unfractionated heparin that can be stopped 6 hours before delivery.
- Warfarin is a vitamin K antagonist that crosses the placenta ”risks of fetal hemorrhage and teratogenesis” should be used only in the postpartum period.
- Oral anticoagulant is contraindicated for pregnant because of teratogenesty (nasal hypoplasia and inter cranial hemorrhage)
- Breastfeeding is **not** a contraindication warfarin, low-molecular-weight heparin, or unfractionated heparin.

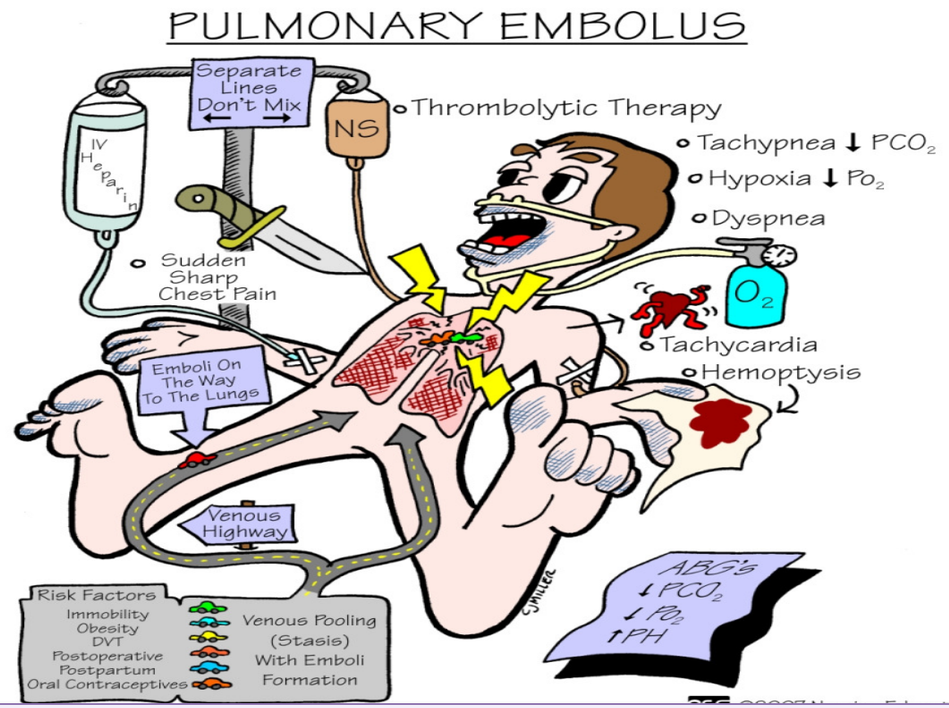
PULMONARY EMBOLISM

The maternal mortality is less than 1% if treated early and greater than 80% if left untreated.

Clinical Features

PE symptoms:

- shortness of breath
- pleuritic chest pain
- air hunger
- palpitations
- hemoptysis
- syncopal episodes



signs of PE

tachypnea, tachycardia, low-grade fever, a pleural friction rub, chest splinting, pulmonary rales, an accentuated pulmonic valve second heart sound, and even right ventricular failure.

In most obstetric patients, the signs and symptoms of a PE are subtle.

Investigations:

Similar to that in the no pregnant individual.

- **ECG** can show sinus tachycardia
- On a **chest film**, atelectasis, pleural effusion, obliteration of arterial shadows, and elevation of the diaphragm may be present.
- **ABG** :oxygen tension below 80 mm Hg.

PE is ultimately a radiologic diagnosis.

Three algorithms may be used:

(1) Bilateral compression US of the lower extremities: If positive for DVT, a PE may be assumed in a symptomatic patient.

(2) A ventilation-perfusion scan: This method poses minimal risk to the fetus, but it cannot be used in patients with an abnormal chest X-ray or with asthma or COPD.

(3) Computed tomographic pulmonary angiography:

The radiation dose to the fetus is considered acceptably low, but there is concern about the radiation exposure to maternal breast tissue.

Treatment:

Same as DVT

Prophylactic Anticoagulant Therapy :

Subcutaneous injections of a prophylactic dose of heparin (5000 to 10,000 U every 12 hours) **or enoxaparin sodium** (40 mg once daily**)**

SUPERFICIAL THROMBOPHLEBITIS

Superficial thrombophlebitis is more common in patients with varicose veins, obesity, limited physical activity, or a previous history of superficial thrombosis.

In most patients, superficial thrombophlebitis is limited to the calf area

symptoms :

swelling and tenderness of the involved extremity**.**

signs:

erythema, **tenderness**, warmth, and a palpable cord over the course of the involved superficial veins.

Superficial thrombophlebitis **usually does not progress to DVT** or lead to PE**,** but lower-limb ultrasound is indicated if there is concern that the thrombosis may extend into the deep veins.

Treatment:

- elevation of the leg, pain medications, and local application of heat.
- **There is usually no need for anticoagulants**
- **anti inflammatory agents**
- Ambulation is encouraged,
- patients should be **instructed to wear support stockings** to help avoid a repeat episode.

Summary:	DVT	PE	SUPERFICIAL THROMBOPHLEBITIS
Clinical Features	unilateral pain and swelling	pleuritic chest pain , shortness of breath	swelling and tenderness
Risk factors	**postpartum** with **cesarean Delivery** previous history of a DVT or PE thrombophilias		varicose veins, obesity, limited physical activity, previous history
Investigations	Compression US with Doppler	radiologic diagnosis	ultrasound is indicated if extend into the deep veins
Treatment:	**intravenous unfractionated heparin or subcutaneous LMWH (enoxaparin)**		anti inflammatory agents

MCQ:

1-DVT in pregnancy is usually occurs in ?

A. Right leg in proximal vessels
B. left leg in proximal vessels
C. right leg and distal vessels
D. Left leg in distal vessels

2-The antidote for a heparin overdose is :

A. Warfarin.
B. Diphenoxalate.
C. Aminocaproic acid
D. Protamine sulfate

Answers: 1-B 2-D

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