



In the name of God





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Ob & Gyn



Thromboembolic Disorders

Risk of thrombosis & embolism

- 1/1000 pregnancy
 - Third trimester : 6 Times
 - Postpartum : 20 Times
 - Maternal death : 10% VTE
-

Pathophysiology

* Virchow

- Stasis
 - Local trauma
 - Hypercoagulability
-

Risk Factor^a**Chapter Referral****Obstetrical**

Cesarean delivery	30
Diabetes	57
Hemorrhage and anemia	41
Hyperemesis	54
Immobility—prolonged bed rest	—
Multifetal gestation	45
Multiparity	
Preeclampsia	40
Puerperal infection	37

General

Age 35 years or older	8
Cancer	63
Connective-tissue disease	59
Dehydration	54
Immobility—long-distance travel	8
Infection and inflammatory disease	37
Myeloproliferative disease	56
Nephrotic syndrome	53
Obesity	48
Oral contraceptive use	38
Orthopedic surgery	46
Paraplegia	60
Prior thromboembolism	52
Sickle-cell disease	56
Smoking	8
Thrombophilia	52

The most important risk factor

- Personal history of thrombosis
 - Thrombophilias
-

Thrombophilias

- 50% thromboembolic events
 - Inherited
 - Acquired
-

Inherited thrombophilias

- Antithrombin Deficiency
 - Protein C Deficiency
 - Protein S Deficiency
 - Factor 5 leiden mutation
 - Prothrombin mutation
 - Hyperhomocysteinemia
 - Other thrombophilia mutations
-

Antithrombin Deficiency

- Type I: Synthesis ↓
 - Type II: functional activity ↓
 - Autosomal dominant
 - The most thrombogenic form
-

Protein C & S Deficiency

- Maternal Thrombosis
 - Neonatal Thrombosis: purpura fulminans
-

Factor 5 leiden

- Activated PrC Resistance
 - The most common heritable thrombophilia
-

Acquired Thrombophilias

- Antiphospholipid Antibodies

- Clinical features:

- * Vascular thrombosis

- * One fetal death \geq 10 weeks

- * 3 abortions $<$ 10 weeks

- * One preterm birth $<$ 34 weeks: PIH

Placental insufficiency

Thrombophilias and pregnancy complications

- * Severe PIH

- * IUGR

- * Abruptio

- * Still birth

- * Abortion

Thrombophilia screening

* Fetal Loss

Deep -Vein thrombosis

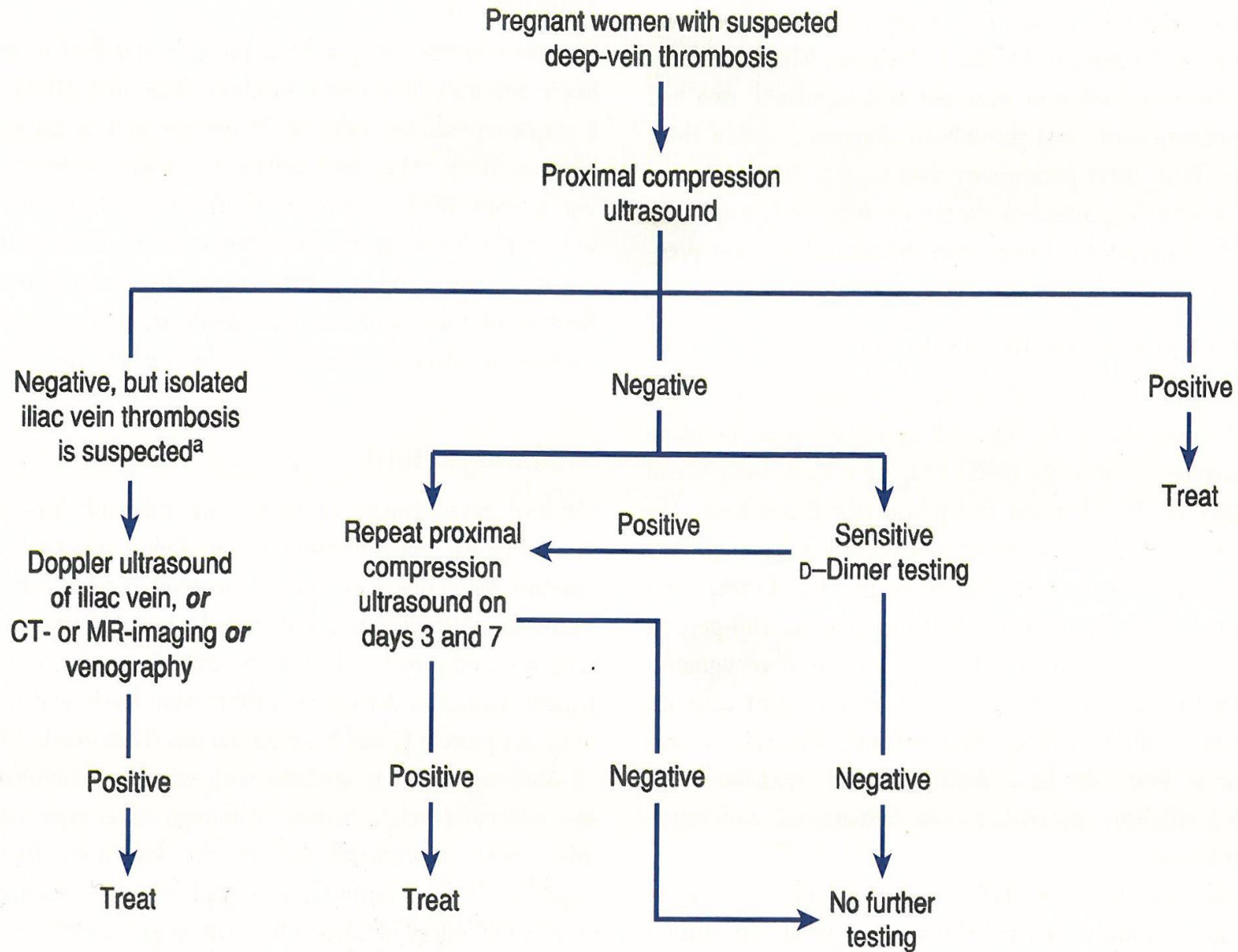
- * Iliofemoral veins: 70%
 - * Iliac vein: 17%
 - * Calf vein: 6%
 - * Left leg: 90%
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Symptoms

- * Abrupt onset
 - * Pain
 - * Edema
 - * Heat
 - * Arterial spasm
 - * Homan sign
 - * Asymptomatic VTE: 30-60%
-

Diagnosis DVT

- * Compression Ultrasonography
 - * MRI
 - * D-Dimer
 - * Venography
-



D-Dimer

- Fibrin degradation products

D-Dimer ↑

- * Gestational age
- * Multifetal gestation
- * C / S
- * PIH
- * Sepsis
- * Abruptio

D-dimer < 0.5 mg/L: Negative Test

Venography

- * Gold standard
 - * Invasive
 - * Fetal radiation (3 mGy)
 - * Complication: Thrombosis
-

In Pregnant Women

* Normal ultra sonography do not always exclude pulmonary embolism

Management

- Heparin: Bolus IV dose: 70-100 u/kg

5000-10.000 u

- Maintenance dose: 15-20 u/kg/h

1000 u/h

a PTT: 1.5-2.5 Times

Duration: 5-7 days

Heparin: 20.000 u/day



Total duration treatment for DVT: 3 m

Total duration treatment for VTE: 6 m

Breast feeding: no problem

Renal failure: modified dose heparin

Avoidance LMWH

Labor & Delivery

Heparin: 6h befor NVD

6h after NVD

Heparin: 6h befor C/S

12-24 h after C/S

Complications of Heparin

- Hemorrhage
 - Thrombocytopenia
 - Osteoporosis
-

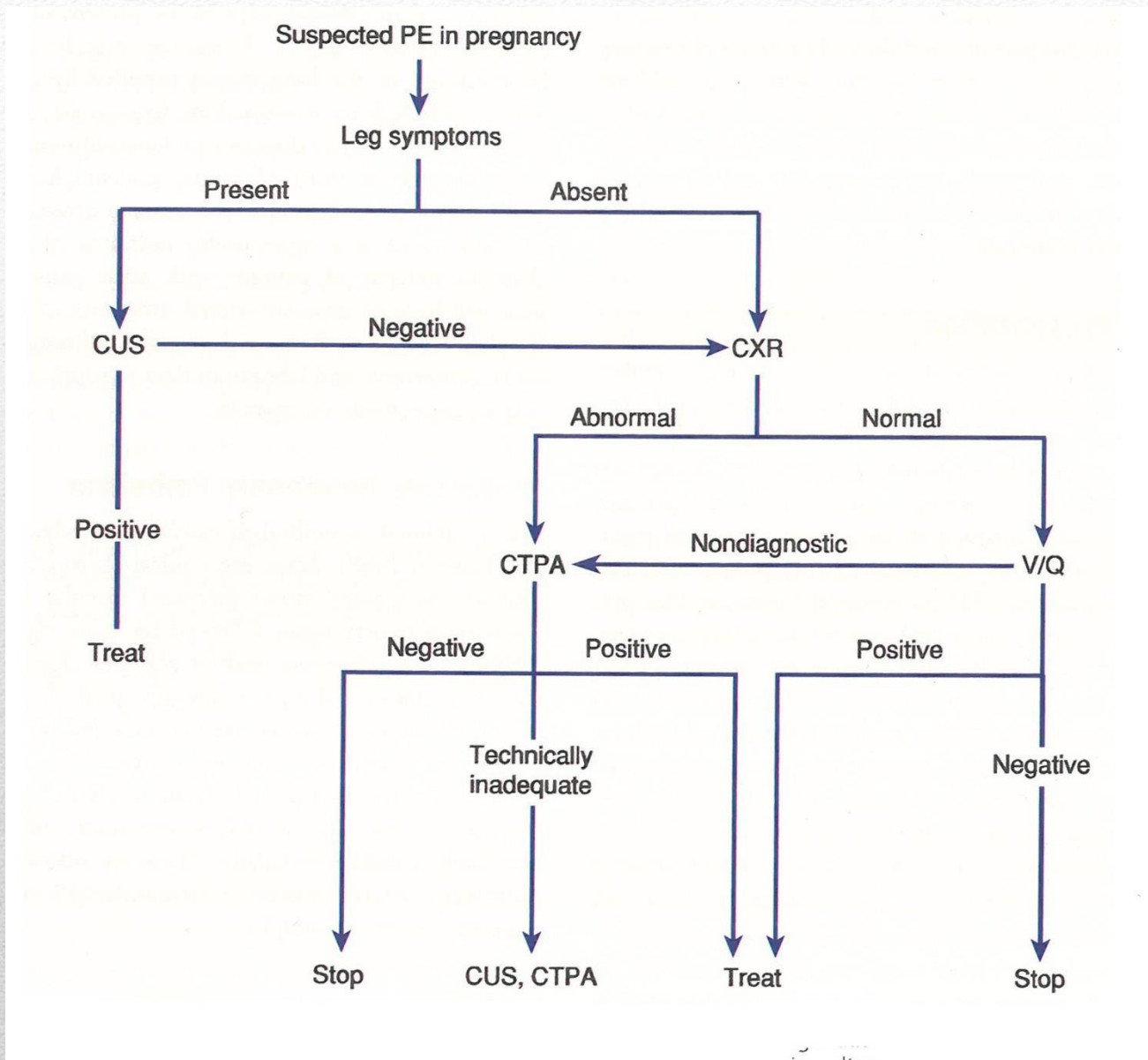
Pulmonary Embolism

- * 1/7000 Pregnancy

- * Maternal mortality: postpartum

Symptoms VTE

- Dyspnea 82%
 - Chest pain 49%
 - Cough 20%
 - Syncope 14%
 - Hemoptysis 7%
 - Hemodynamic instability
-



Anticoagulation Regimen

Prophylactic LMWH*

Definition

Enoxaparin 40 mg SC once daily



Thanks
