

# Quick Review: Deep Venous Thrombosis

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## Abstract

### DEEP VENOUS THROMBOSIS (DVT)

#### VIRCHOW'S TRIAD

- Stasis
- abnormalities of vessel wall
- alterations of the blood coagulation system

Thrombosis occurs when blood coagulation overwhelms the natural anticoagulant mechanisms and the fibrinolytic system; usually occurs at sites of vessel damage, in the region of an anatomical valve

#### RISK FACTORS:

- Recent Surgery
- Trauma
- Immobilization
- Serious Illness- CHF, CVA, Cancer, IBD
- Chronic Venous Insufficiency
- Hypercoagulability or Thrombophilia
- Exogenous Estrogen Use or Oral Contraceptives
- Pregnancy
- Obesity
- History of Thrombosis

#### CLINICAL FEATURES:

- Localized swelling, particularly unilateral
- Redness or discoloration
- Pain or tenderness

- Distal edema
- Homan Sign: discomfort in the calf muscles on forced dorsiflexion of the foot

Clinical Diagnosis is NOT accurate

#### DIFFERENTIAL DIAGNOSIS:

- Baker's Cyst (ruptured)
- Muscle tear or cramp
- Hematoma
- Cellulitis
- Postthrombotic Syndrome
- Superficial Thrombophlebitis

#### DIAGNOSTIC STUDIES:

Suspicion of a D.V.T. from history and physical examination requires confirmation with further testing

1. Venography:
3. The Gold Standard
4. Invasive, expensive, can be painful, may produce superficial thrombophlebitis [can be complicated by a D.V.T. (1-2%)]
1. Impedance Plethysmography:
3. Noninvasive
4. Useful for diagnosing proximal vein thrombosis, but yield is low with most
5. Calf vein thrombi

6. False positive results can occur with chronic heart failure, postoperative leg swelling, or external compression

1. Venous Ultrasonography:

3. Noninvasive method of choice due to high sensitivity and specificity

### TREATMENT:

Once diagnosis confirmed, begin Treatment !

### GOALS OF TREATMENT:

To prevent P.E., postthrombotic syndrome, and thromboembolic pulmonary hypertension

Calf Vein Thrombi:

Therapy controversial, either anticoagulation or close follow-up with serial testing is recommended

### TREATMENT: HEPARIN

Continuous IV, Intermittent IV, Intermittent SQ At Least 4-7 Days of IV Therapy Recommended Begin with bolus dose followed by continuous infusion

1. maintain PTT 1.5-2.5 times the control value
2. important to achieve and maintain therapeutic ptt values

### SIDE EFFECTS

1. Thrombocytopenia
2. Osteoporosis
3. Bleeding

### TREATMENT: LOW-MOLECULAR WEIGHT HEPARIN LMWH

trials underway for use as outpatient therapy of D.V.T.

### ADVANTAGES

1. less bleeding
2. longer half lives

3. no laboratory monitoring necessary

### TREATMENT: COUMADIN

Begin within 24 hours after initiation of heparin

Maintain PT at INR of 2.0 to 3.0

Continue IV heparin until INR in therapeutic range for two consecutive days

Continue Therapy for At Least 3 Months, then Reassess

- In patients with known, acute, transient risk factor, four to six weeks of therapy adequate if risk factor is no longer present
- In patients with certain diseases (malignancy) or recurrence, long term therapy is indicated

### SIDE EFFECTS

1. skin necrosis
2. bleeding

### TREATMENT: THROMBOLYTICS

Reserved for patients with life-threatening pulmonary embolism or with extensive iliofemoral venous thrombosis & low risk of bleeding

Streptokinase

TPA

Urokinase

### TREATMENT: INVASIVE INTERVENTION

#### VENA CAVAL FILTER

Indications include failed oral anticoagulant therapy, or instances where anticoagulation is contraindicated (bleeding, necrosis, etc)

### SURGICAL THROMBECTOMY

Indications include chronic thromboembolic pulmonary hypertension and massive pulmonary embolism in patients with contraindications to thrombolytic therapy

### References

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