

# Peripheral Vascular Diseases

↳ results from atherosclerosis

Classifications:

## Inflow

- distal aorta
  - iliac
- } arteries

## Outflow

- femoral
  - popliteal
  - tibial
- } arteries

Examples of PAD:

Buerger's disease, subclavian steal syndrome, thoracic outlet syndrome, Raynaud's disease, popliteal entrapment.

## Risk Factors:

- Hypertension
- Cigarette smoking
- Familial predisposition
- Hyperlipidemia
- Obesity
- Female sex
- Hyperhomocysteinemia
- Diabetes mellitus
- Sedentary lifestyle
- Age > 65
- ↑ creatinine P.

## Expected Findings:

- Intermittent claudication
- Numbness; burning (feet) when in bed
- Pain relieved in dependent position

## Assessment:

- Bruit over femoral artery
- Thick toenails
- Cold/cynotic extre.
- ↓ cap refill of toes (> 3 sec)
- Pallor w/ elevation
- ↓ or nonpalpable pulses
- Dependent rubor
- Muscu atrophy
- Loss of hair on lower calf, ankle, ? foot
- Ulcer
- Gangrene of toes.
- Dry, scaly, mottled skin

## DiagnosTics:

- Arteriography
- Exercise tolerance testing
- Plethysmography
- segmental systolic blood pressure measurements
- Magnetic resonance angiography
- ABI
- Doppler-derived maximal systolic acceleration

## Nursing care:

- Encourage exercise to build up collateral circulation
  - ↳ ↑ gradually & slowly
  - ↳ walk until pain - rest - begin again

- Promote vasodilation & avoid vasoconstriction



direct heat

avoid cold exposure

avoid stress, caffeine

nicotine



**NO**

crossing legs

restrictive garments

elevate ↑♥ (slows blood to feet)

✓ elevate to reduce swelling



warm environment

insulated socks

## Medications



- antiplatelets: aspirin, clopidogrel, Pentoxifylline.

- Effects take several weeks

## Statins:

simvastatin

atorvastatin - helps w/ intermittent claudication

• watch for (Avoid herbal supplements)

## Therapeutic procedures

- Percutaneous transluminal angioplasty and laser-assisted angioplasty.

  - ↳ observe for bleeding @ puncture site

  - ↳ monitor v/s, peripulses, cap refill

  - ↳ bedrest 2-6 hr

  - ↳ Anticoag during procedure - antiplatelet 1-3 months

- Mechanical rotational abrasive atherectomy

  - ↳ observe for bleeding @ puncture site

  - ↳ monitor v/s, peripulses, cap refill

  - ↳ bedrest 2-6 hr


  - ↳ Anticoag during procedure - antiplatelet 1-3 months

- Arterial revascularization surgery

  - ↳ priority action is to maintain adequate circulation of the artery. Mark pedal pulse and check regularly using doppler.

## Complications:

- Graft occlusion

  - ↳  absent or ↓ pedal pulses, ↑ pain, change in extremity color.

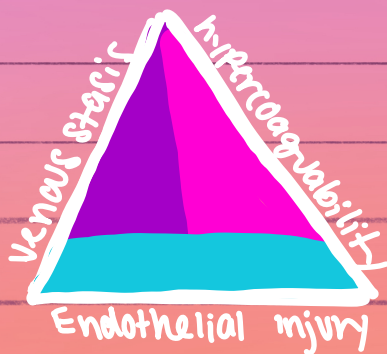
- wound or graft infection

- compartment syndrome

# VTE/DVT

Blood clot due to:

Virchow triad



## Risk factors:

- hip surgery, knee replacement, open prostate surgery.
- immobility
- Active cancer
- heart failure
- ulcerative colitis
- pregnancy
- central venous/dialysis access
- oral contraceptives
- Factor V Leiden defect

## Expected findings:

- limb pain
- can be asymptomatic
- calf or groin pain, tenderness, sudden onset of edema
- warmth, edema, hardness over involved blood vessel
- changes in circumference of right & left calf or thigh overtime, localized edema.

## Laboratory testing

- D-dimer - positive indicates clot formation.

## Diagnostic procedures

- venous duplex ultrasound
- Doppler flow studies
- Impedance plethysmography
- Venogram (if all above are neg)

## Nursing care:

- Ambulation (dorsiflexion & plantar flexion)
- elevate legs occasionally
- Prepare client for vena cava surgery
- Intermittent/continuous warm moist compress
- \* No massage \*
- Anti-embolism stockings

## Medications:

unfractionated heparin: (prevents clot formation)

↳ monitor aPTT, platelets, adverse effects

↳ Antidote: protamine sulfate (have available)

Low molecular weight heparin: (prevent/treat DVT)

↳ watch for 

↳ Bleeding precautions

Warfarin: (inhibits 4 vitamin K dependent clotting factors)

↳ 3-4 days max effect

↳ monitor bleeding, PT, INR

→ Have vitamin K (antidote) available

↳ watch for 

↳ Bleeding precautions

Factor Xa inhibitors: prevention of thromboses

Direct thrombin inhibitor: prevention of thrombosis

↳ do not use w/ renal insufficiency

Thrombolytic therapy for DVT to dissolve clot.

## Therapeutic procedures:

DVT: inferior vena cava filter

↳ inserted via femoral vein, into vena cava. Filters (or traps emboli before getting to lungs.

Complications Pulmonary embolism: watch for:

sudden onset dyspnea, pleuritic chest pain, restlessness, apprehension, impending doom, cough, hemoptysis.