POST-THROMBOTIC SYNDROME

Dr D.E.Roberts
Morriston Hospital
Swansea

Primary v Secondary Insufficiency

- Primary

  no evidence of previous clot

- Secondary

  evidence of previous clot

Incidence of PTS

- 1 in 3 will develop signs or symptoms of PTS within 5 years of acute DVT
- Usually manifests after 2 years of the acute event

Symptoms of PTS

- Minor
  - Stasis Pigmentation
  - Vein ectasia
  - Pain
  - Swellening

Symptoms of PTS

- Major

  Chronic pain

  Intractable oedema

  Leg ulcers

Treatment of DVT

- Primary Goal-
  Prevention of Pulmonary Embolism

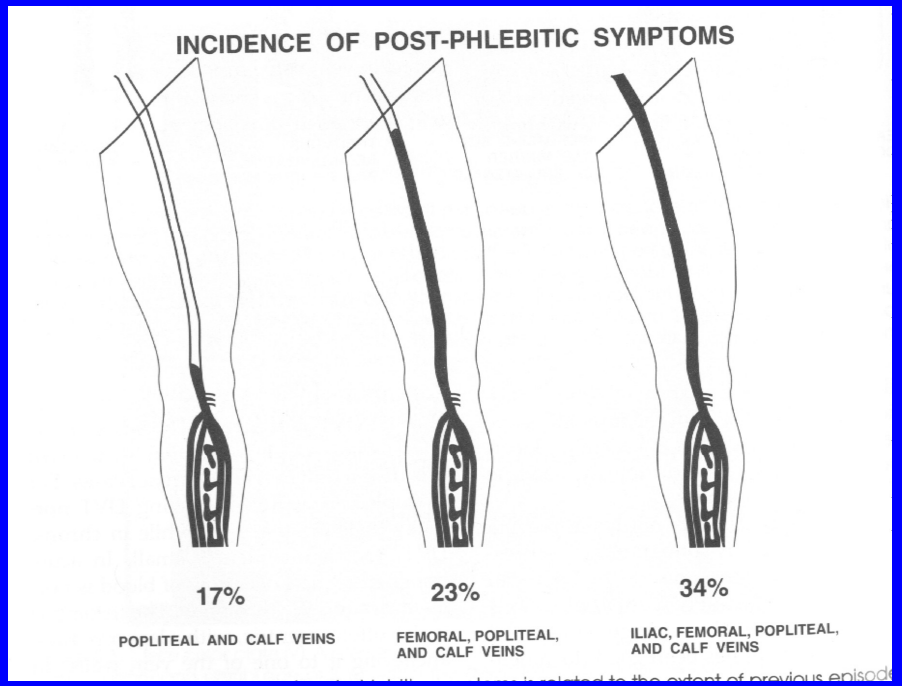
- Secondary Goal
  Prevention of Post Thrombotic Syndrome (PTS)

What happens after DVT ?

- Lysis of clot
  - Majority completely
- Residual damage
  - Valves
  - Obstruction due to residual thrombus

Risks of developing PTS

- DVT risk factors
  surgery,airtravel,immobility,malignancy,pill
- Extent of initial thrombus



Mechanism of Development

- Venous Hypertension
  Outflow obstruction

  Valular incompetence

- Abnormal Microvascular or lymphatic function

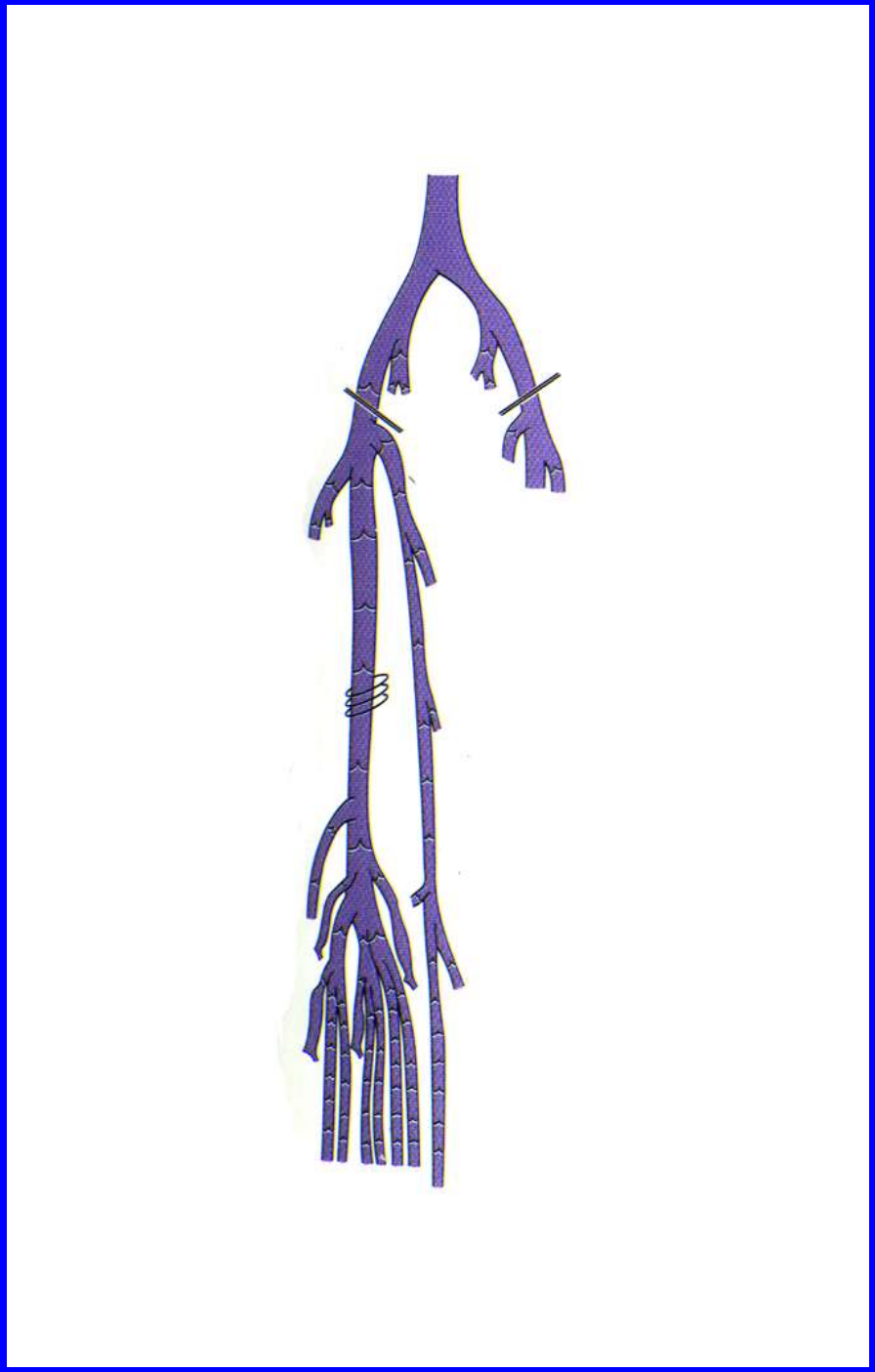
Venous Hypertension

- Primary or secondary to DVT
- Venous pressure raised
- endothelial permeability increased
- large molecules pass into interstitial space
- change in osmotic forces
- oedema
- haemosiderin deposition, pigmentation
- tissue breakdown, ulceration

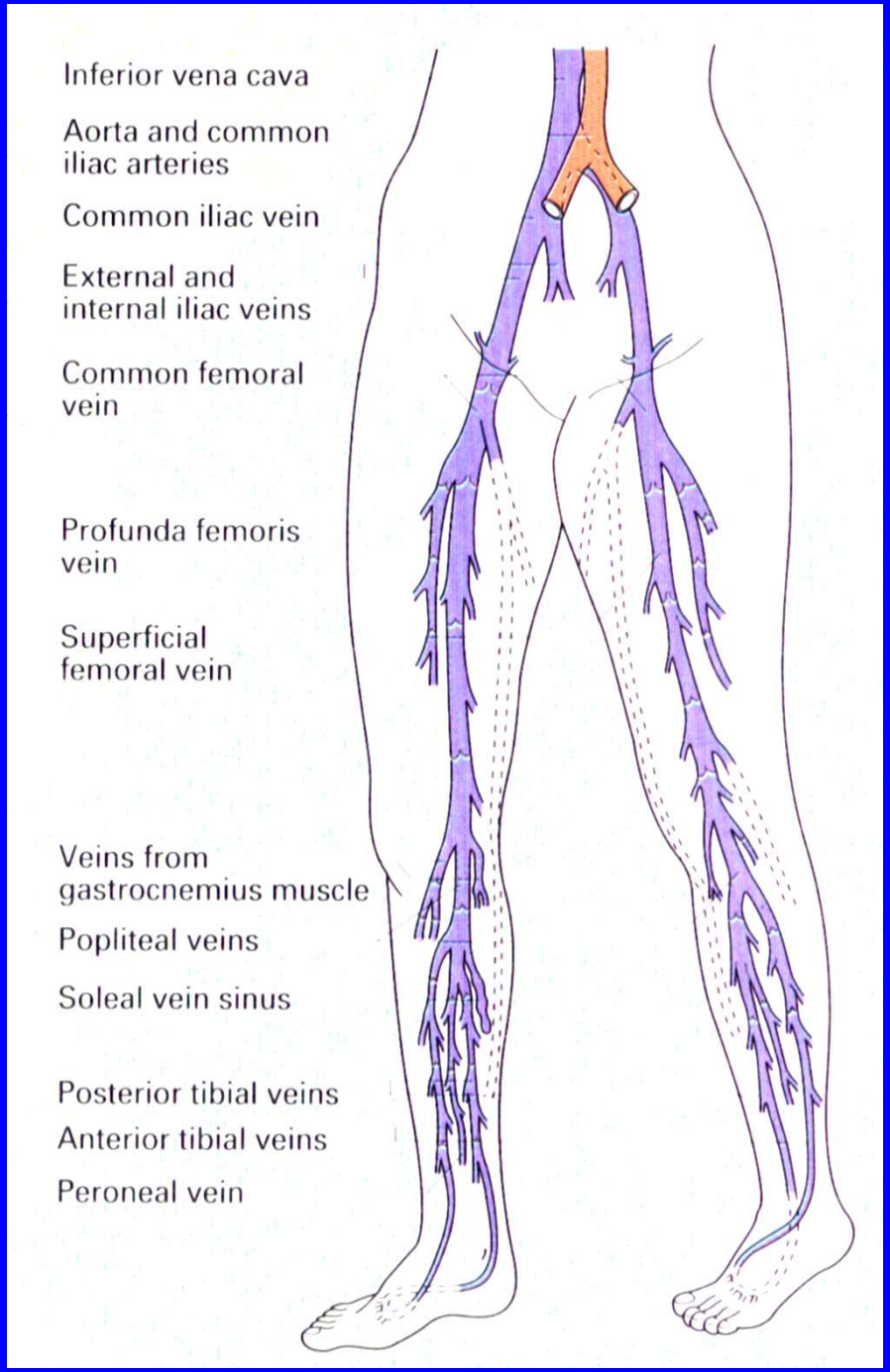
Diagnosis of PTS

- Clinical
  - Previous history of DVT or associated risk factors
  - Symptoms and signs of PTS

- Doppler findings
  - Obstruction
  - Reflux

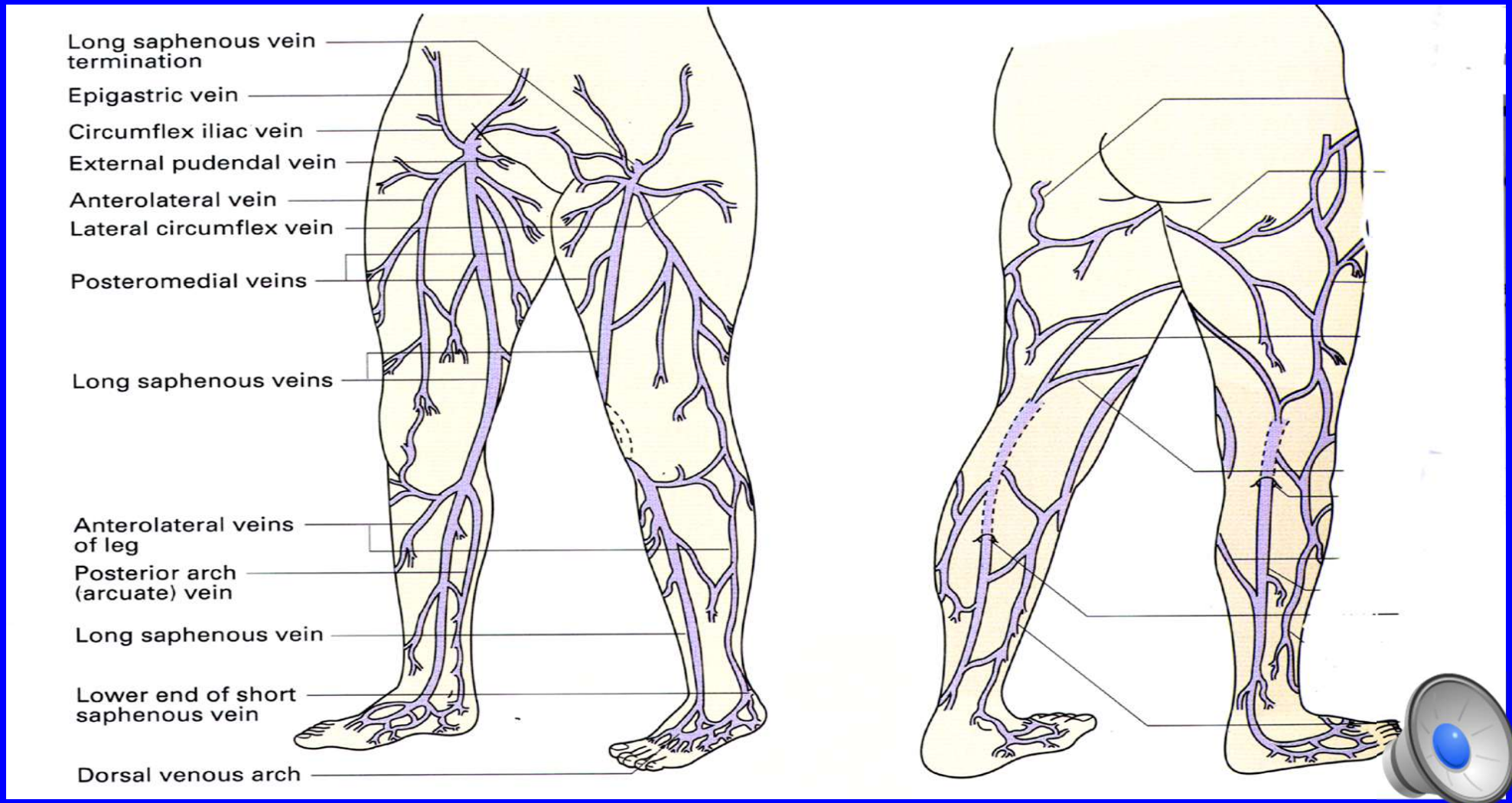


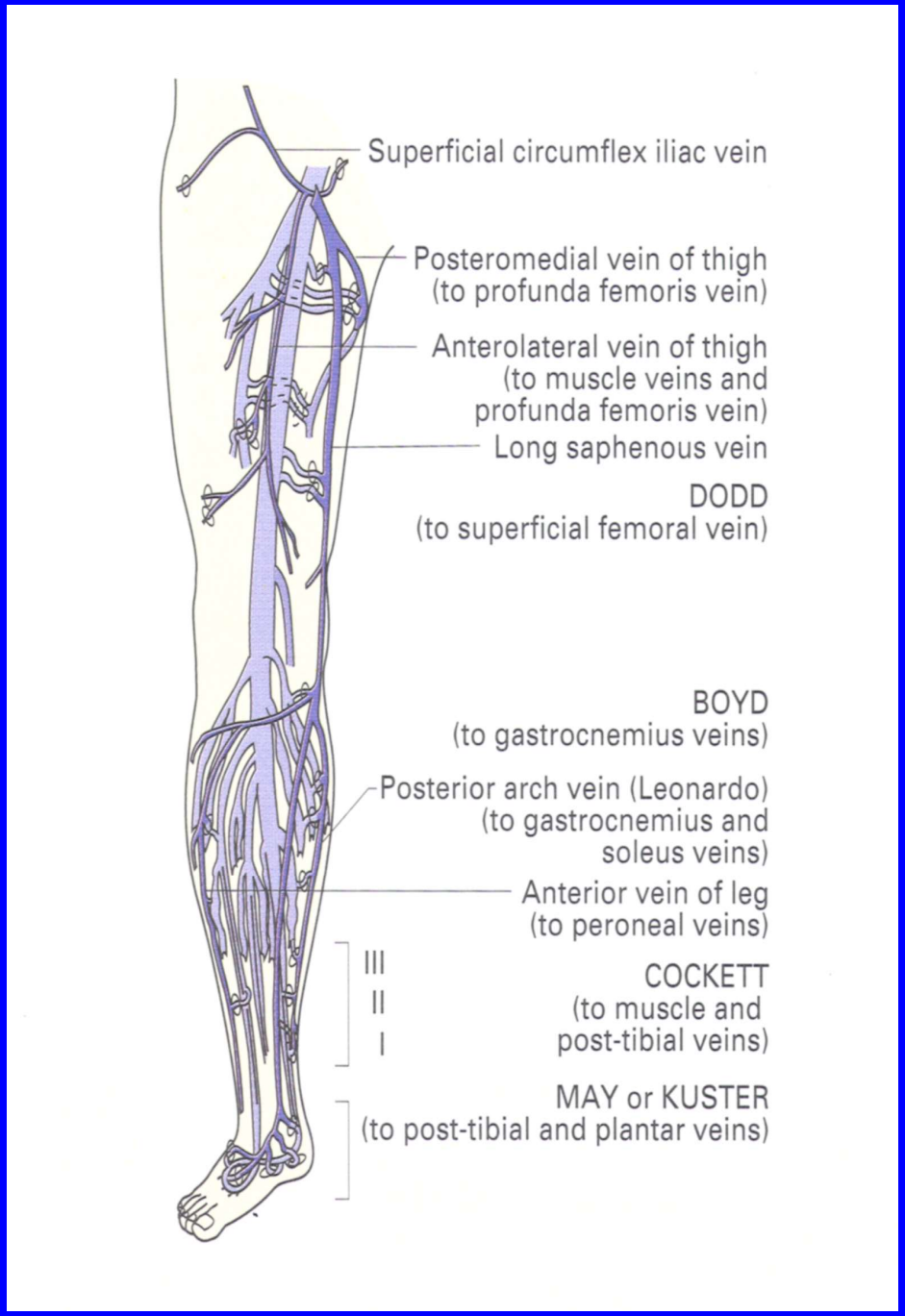
- Valves


Inferior vena cava
Aorta and common iliac arteries
Common iliac vein
External and internal iliac veins
Common femoral vein
Profunda femoris vein
Superficial femoral vein
Veins from gastrocnemius muscle
Popliteal veins
Soleal vein sinus
Posterior tibial veins
Anterior tibial veins
Peroneal vein

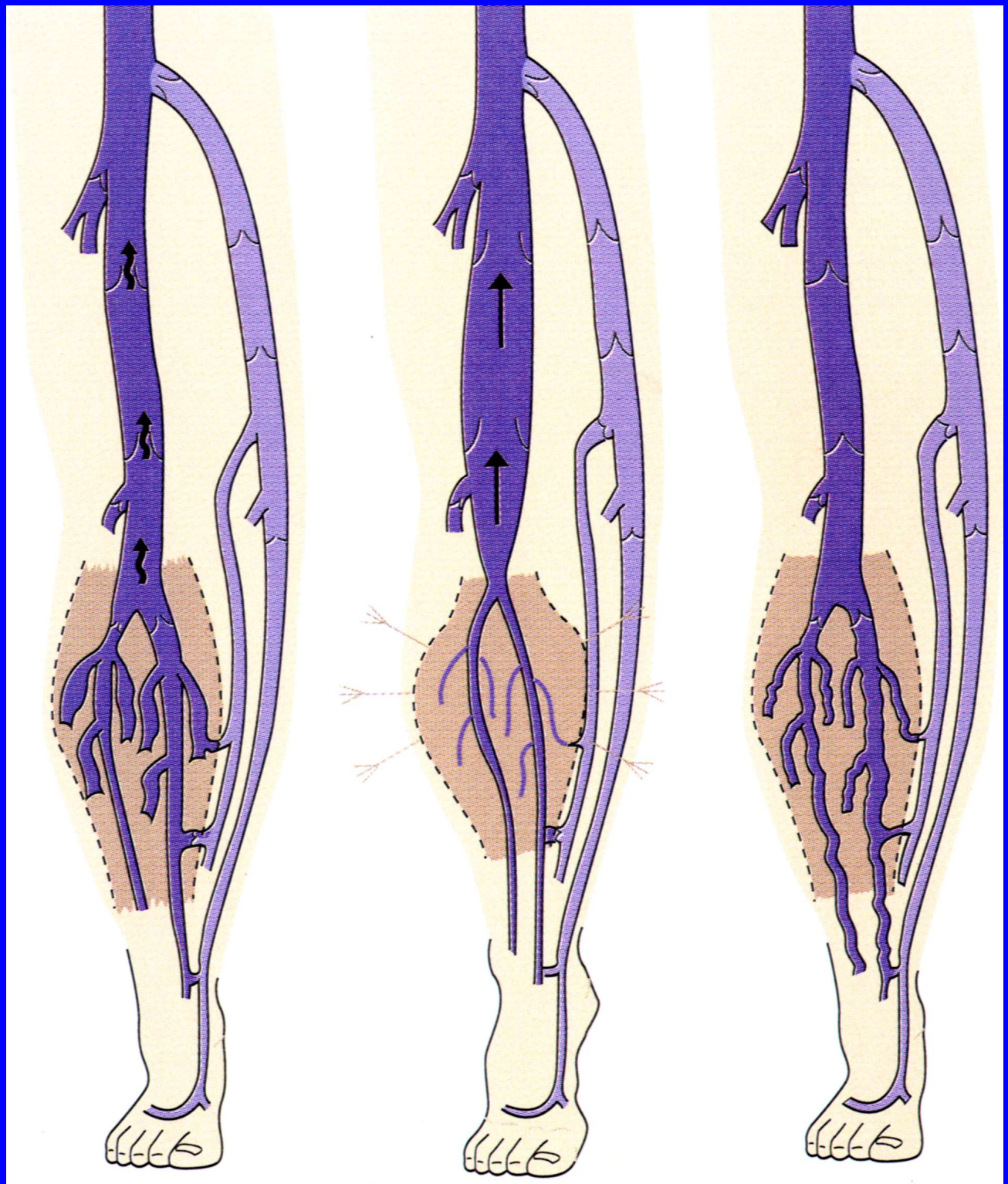
- Deep Veins

Superficial Veins



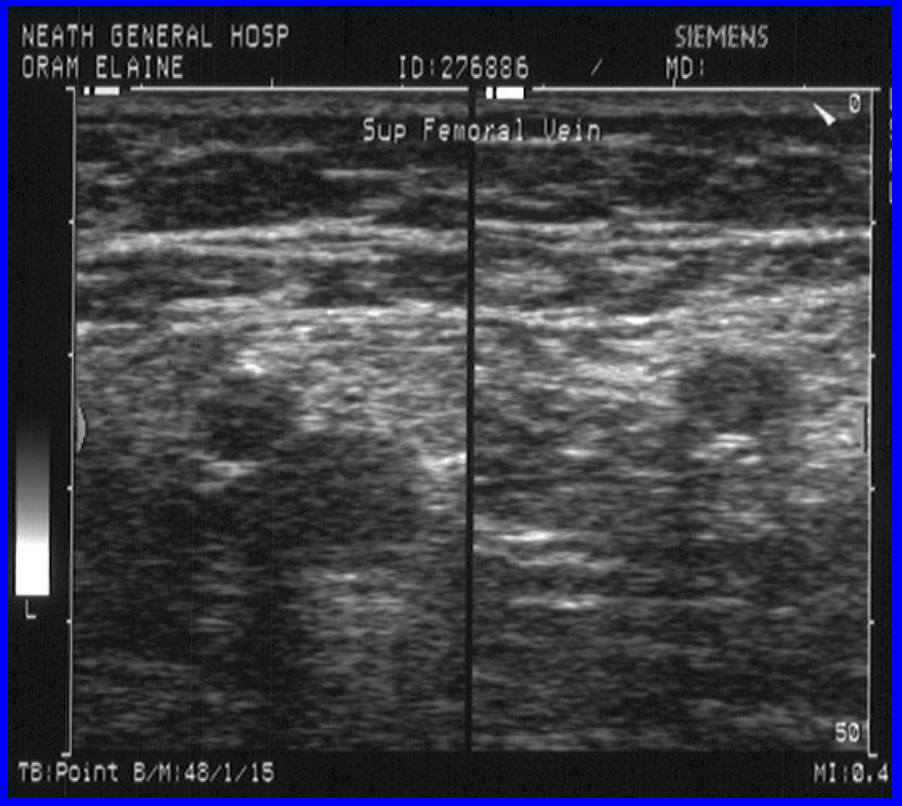


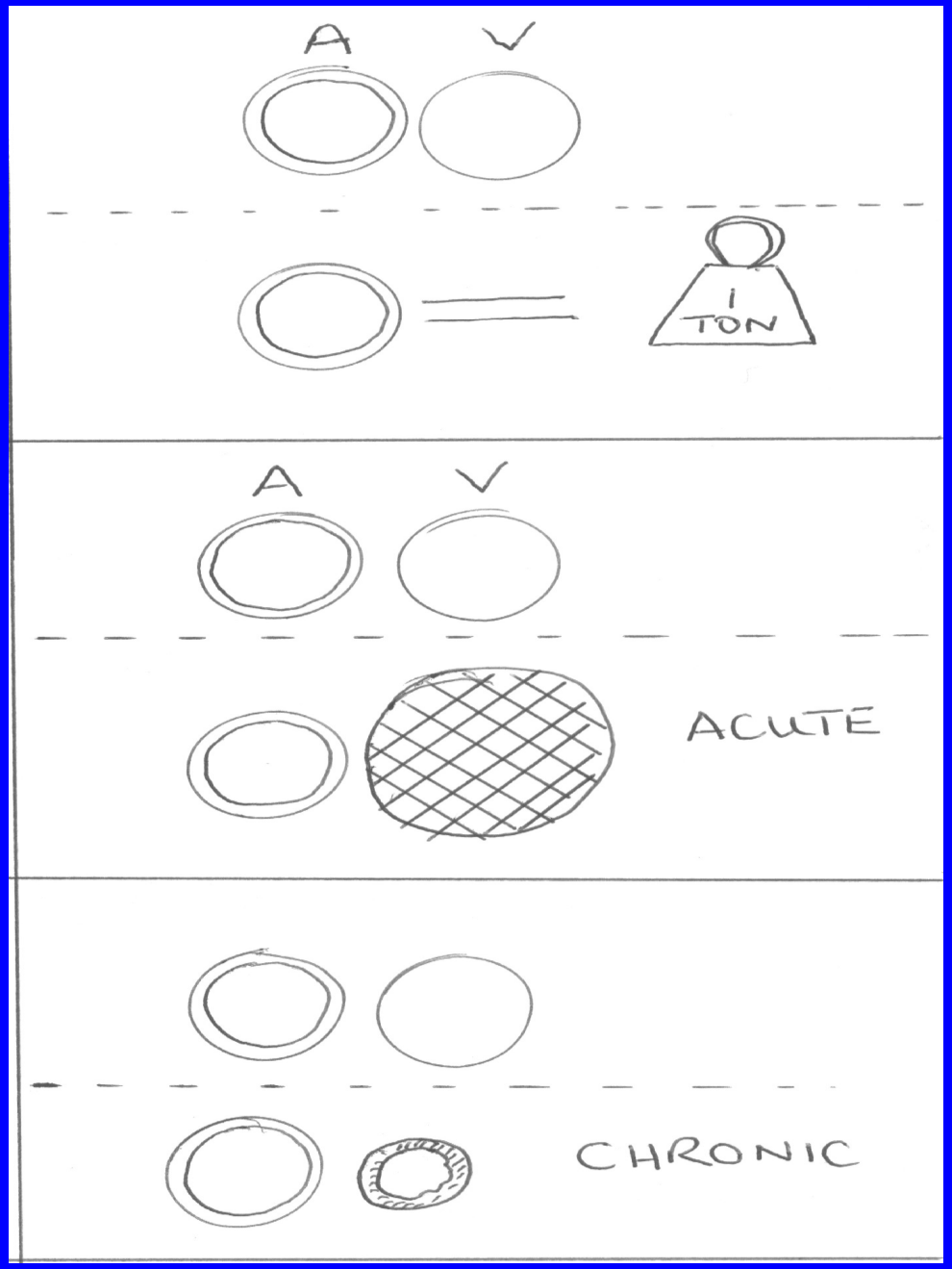
- Perforators



Scanning Technique

- COMPRESSION
  - CFV
  - SFV
  - POP
  - UPPER CALF

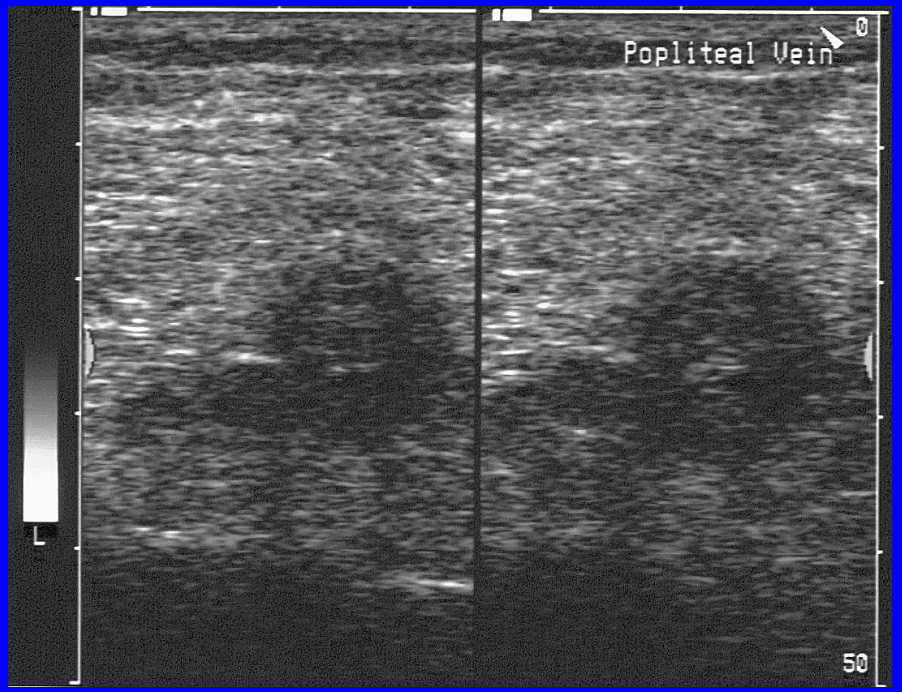




ACUTE V CHRONIC

Acute v Chronic clot

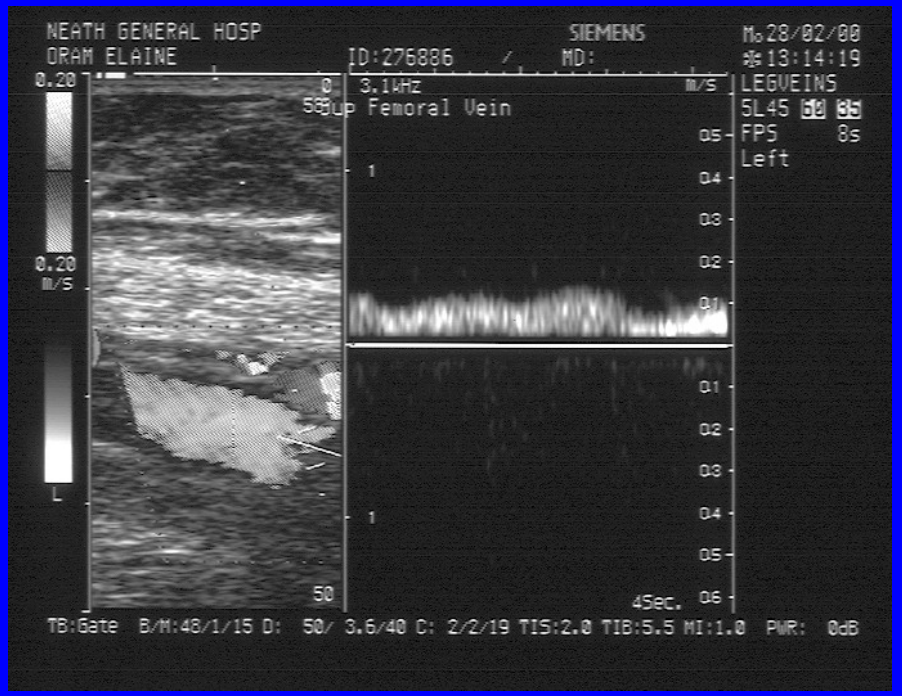
- Acute
  - Large vein
  - Anechoic
  - Non-compressible
- Chronic
  - occluded,small
  - thick,irregular wall
  - lack of phasic flow



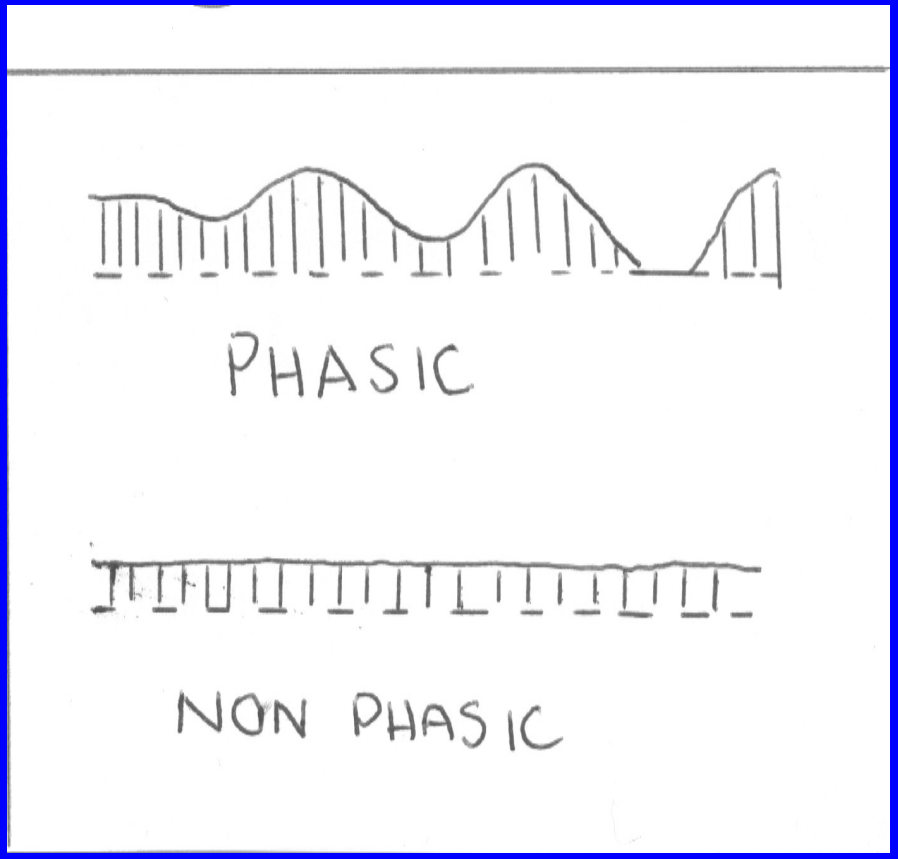
Scanning Technique

- Colour doppler
  - partial occlusion
  - reflux

- Spectral analysis
  - phasic flow --
    - Iliac occlusion
  - Valsalva



Spectral analysis

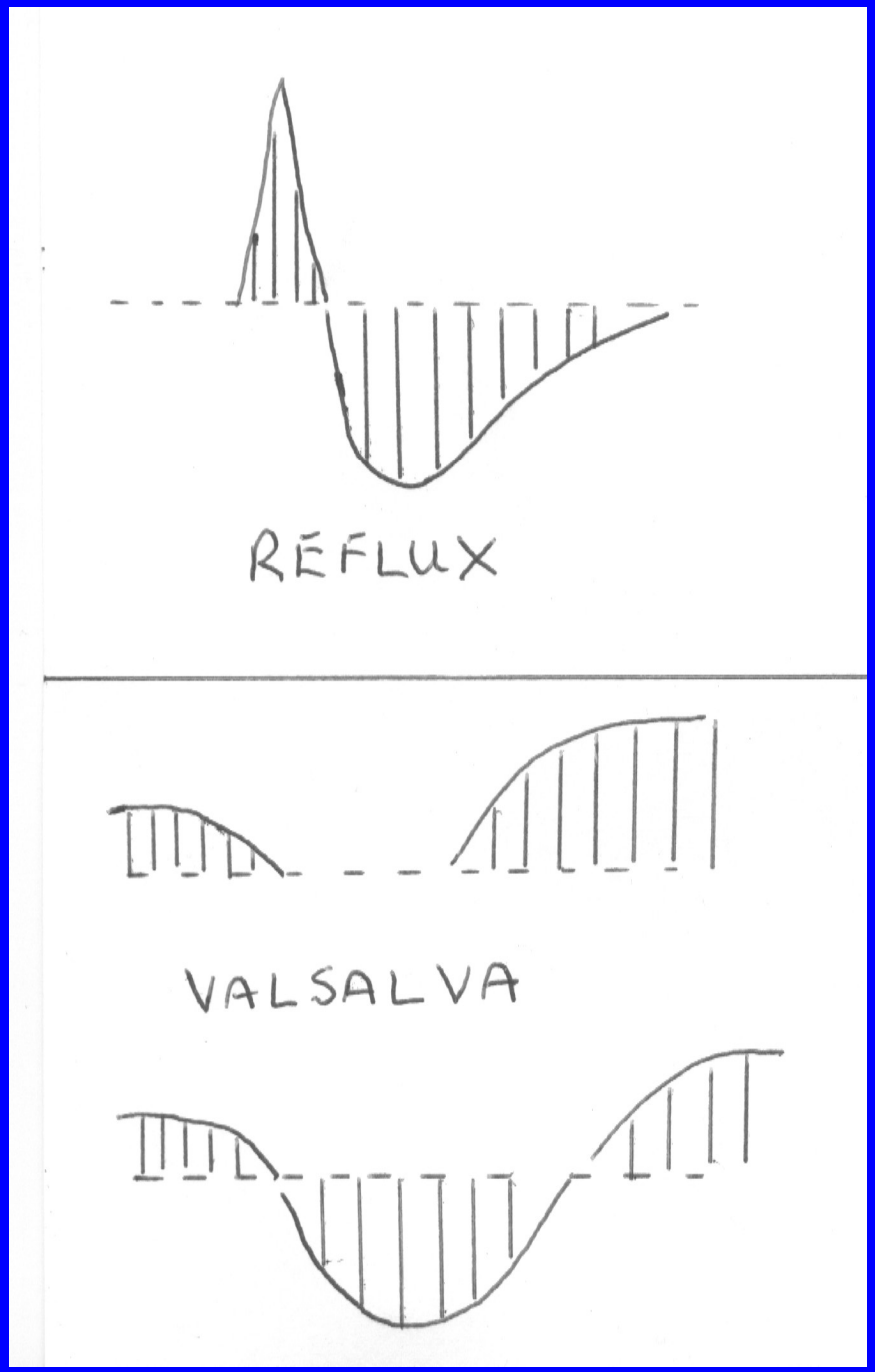


- Iliac obstruction
- lack of compliance of vein wall possible secondary to previous thrombus

Scanning Technique

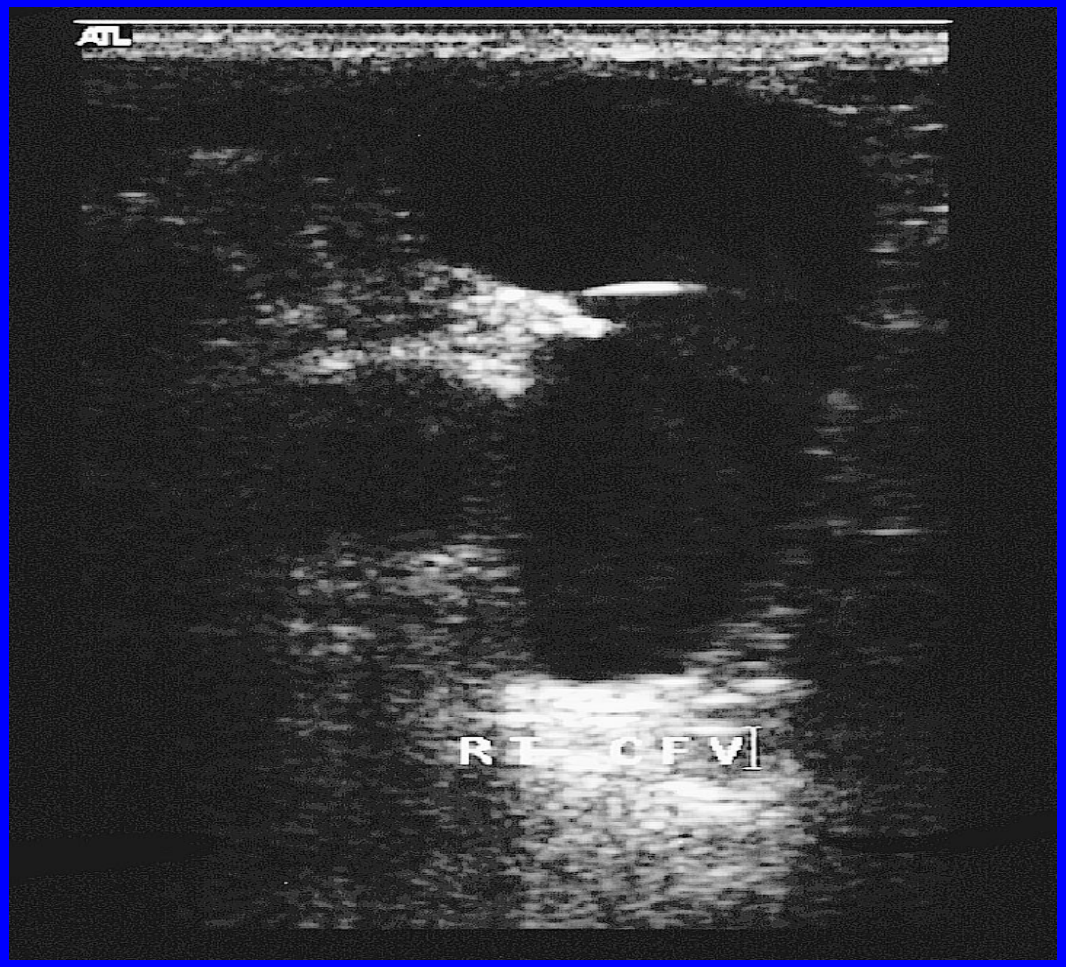
Standing,step,radiographer

- Groin SFJ + tributaries
- Thigh LSV + Perforators
  SFV -- Reflux
- Knee Popliteal
  SPJ
- Calf Perforators
  Deep Veins

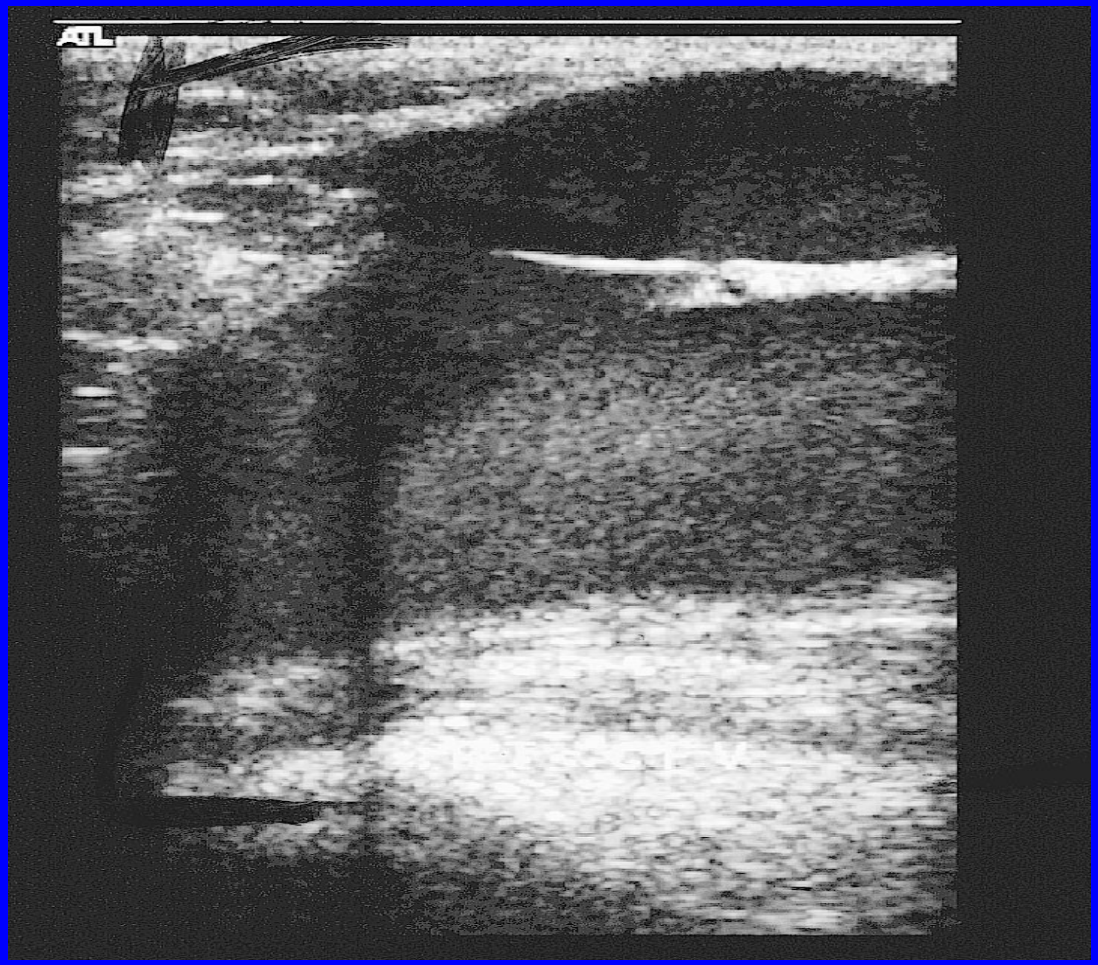


- Compression
- Valsalva

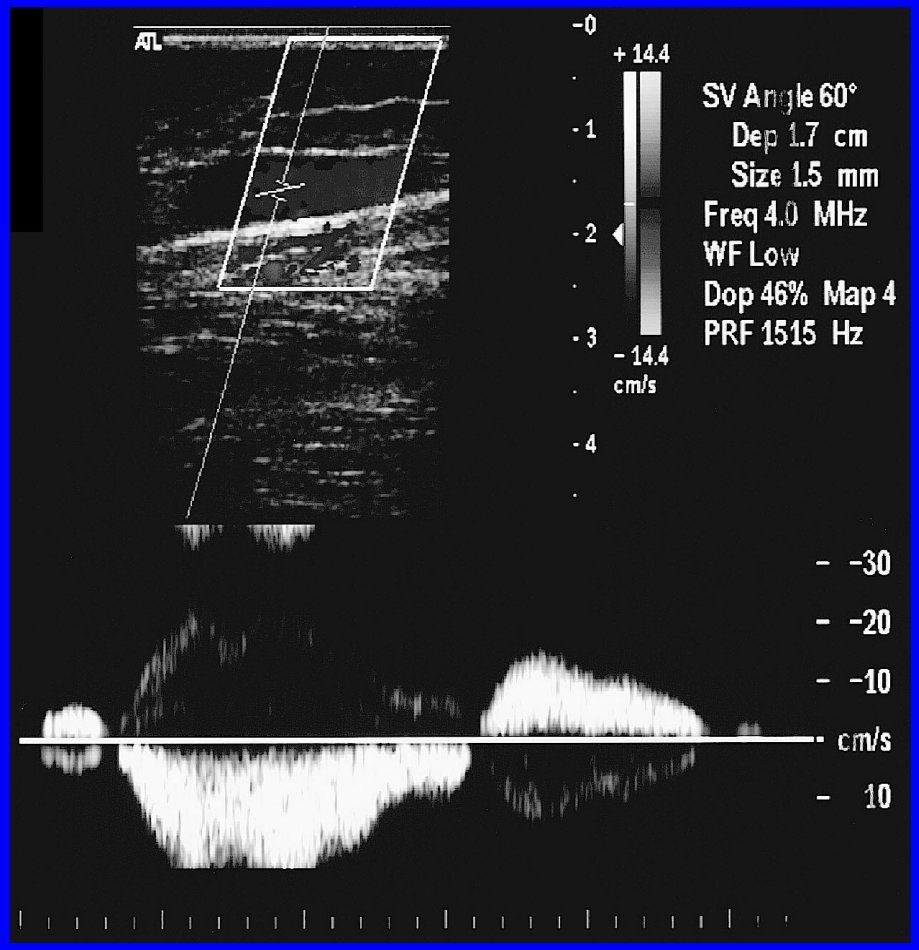
Incompetent SFJ



Incompetent SFJ



Reflux on Valsalva



Report

- Deep Veins
  - Patency
  - Competent
- Superficial Veins
  - SFJ
  - LSV + Thigh Perforators
  - SPJ
  - Calf Perforators + locatation

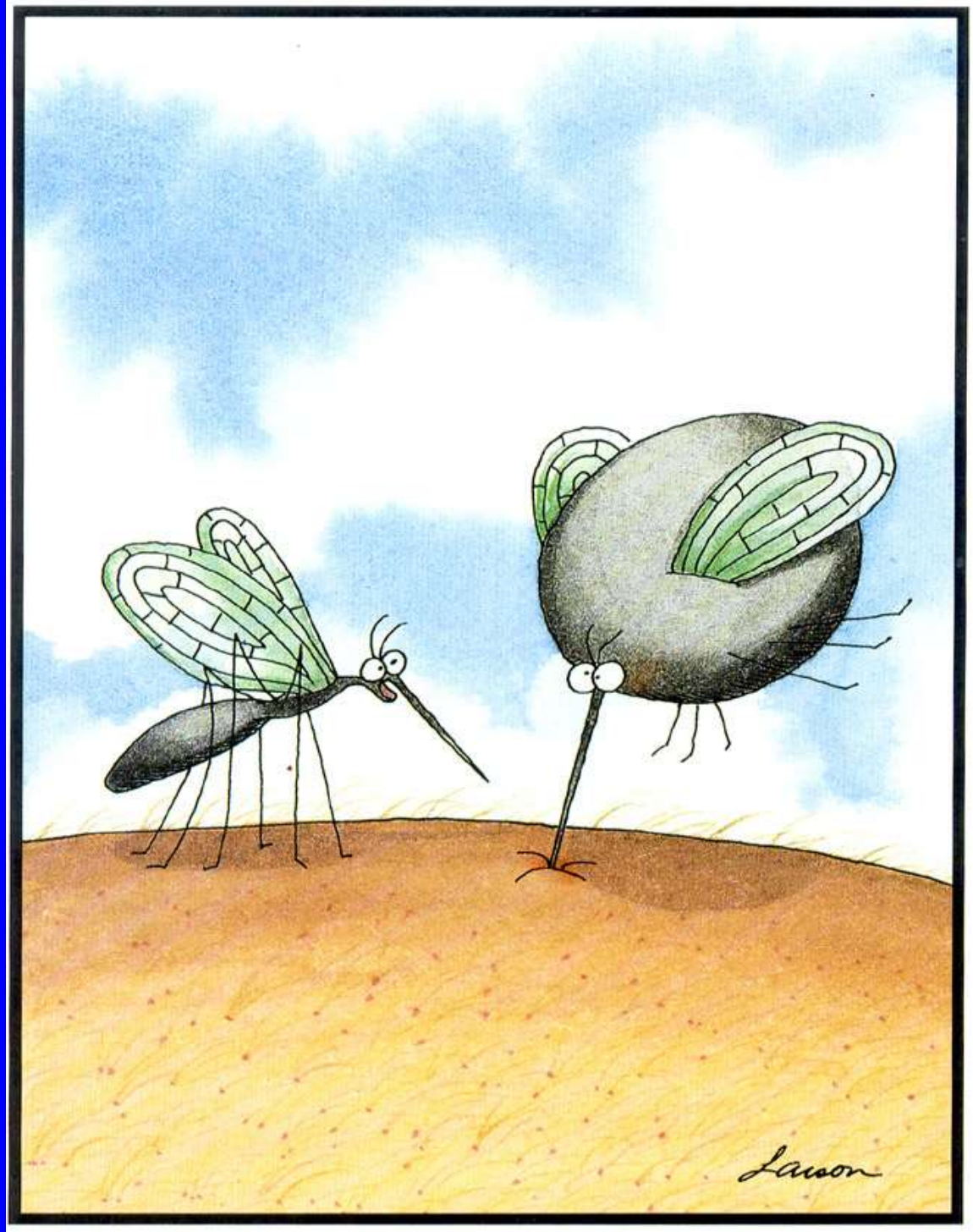
Prevention of PTS

- Early Diagnosis
- Adequate anti-coagulation
- Thrombectomy????
- Compression Elastic Stockings

Treatment of PTS

- Conservative
  -Compression bandage + elevation
- Surgery
  -Superficial venous incompetence surgery
  -Value reconstruction,vein by-pass

Generally poor results in comparison with Primary venous insufficiency



"Pull out! Pull out! . . . You've hit an artery!"