

Ulcer Management Workshop

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Ulcer management Workshop

- Diagnosis
- Management
- How and when to measure ABI
- How to apply compression
- Role of surgery (and other intervention)

- “A leg ulcer is a loss of skin below the knee on the leg or foot which takes more than 6 weeks to heal”

Trauma

- “Most leg ulcers can be attributed to an episode of minor trauma”
- ?role of ACC

Underlying condition associated with leg ulceration

- Venous disease 70 %
- Arterial disease 22%
- Rheumatoid arthritis 8.5%
- Diabetes 5.5%
- Burns 2.5%
- Infections 1%
- Blood disease 1%
- Lymphoedema 0.5%
- Malignant disease rare

4 most important factors

- 1. Venous disease
- 2. Arterial disease
- 3. Diabetes mellitus
- 4. Rheumatoid arthritis

Venous ulcer management

- COMPRESSION!!!

Vasculitic ulcers

- Associated condition (esp RA)
- Painful
- Blood tests (RF,ESR etc)
- Biopsy
- ?steroids
- Difficult to manage
- Refer (either to Rheumatology or Vascular)



Rheumatoid arthritis



Diabetic Ulcer

- Arterial disease
- Neuropathy
- Increased risk of infection
- Mainly foot ulcers

Charcot's foot

- Usually normal blood supply
- Need blood supply for bone resorption
- Ulcers usually neuropathic over unusual bony prominences

Neuropathic ulcers



Diabetic Ulcer

- Refer
- High risk foot clinic
- Diabetic foot clinic
- Multidiscipline

Arterial ulcer

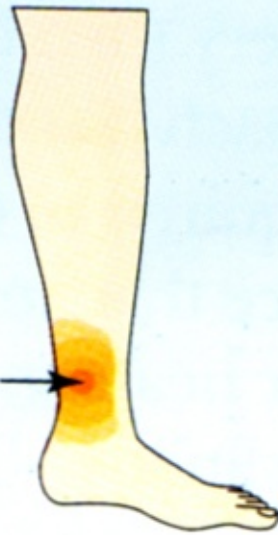
- Bony prominence
- Painful
- Necrotic edges
- Distal
- Poor pulses
- Hair?
- Buerger's sign





Venous

Above medial malleoli



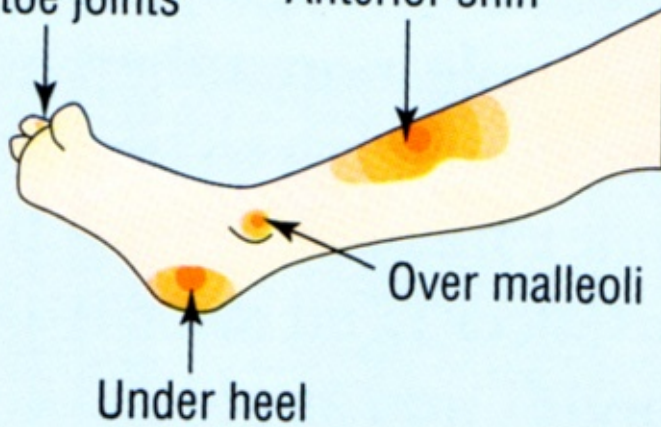
Above lateral malleoli



Arterial

Over toe joints

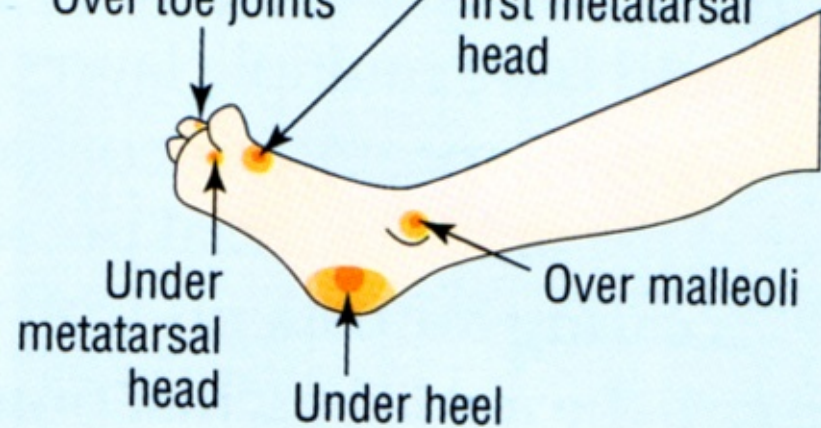
Anterior shin

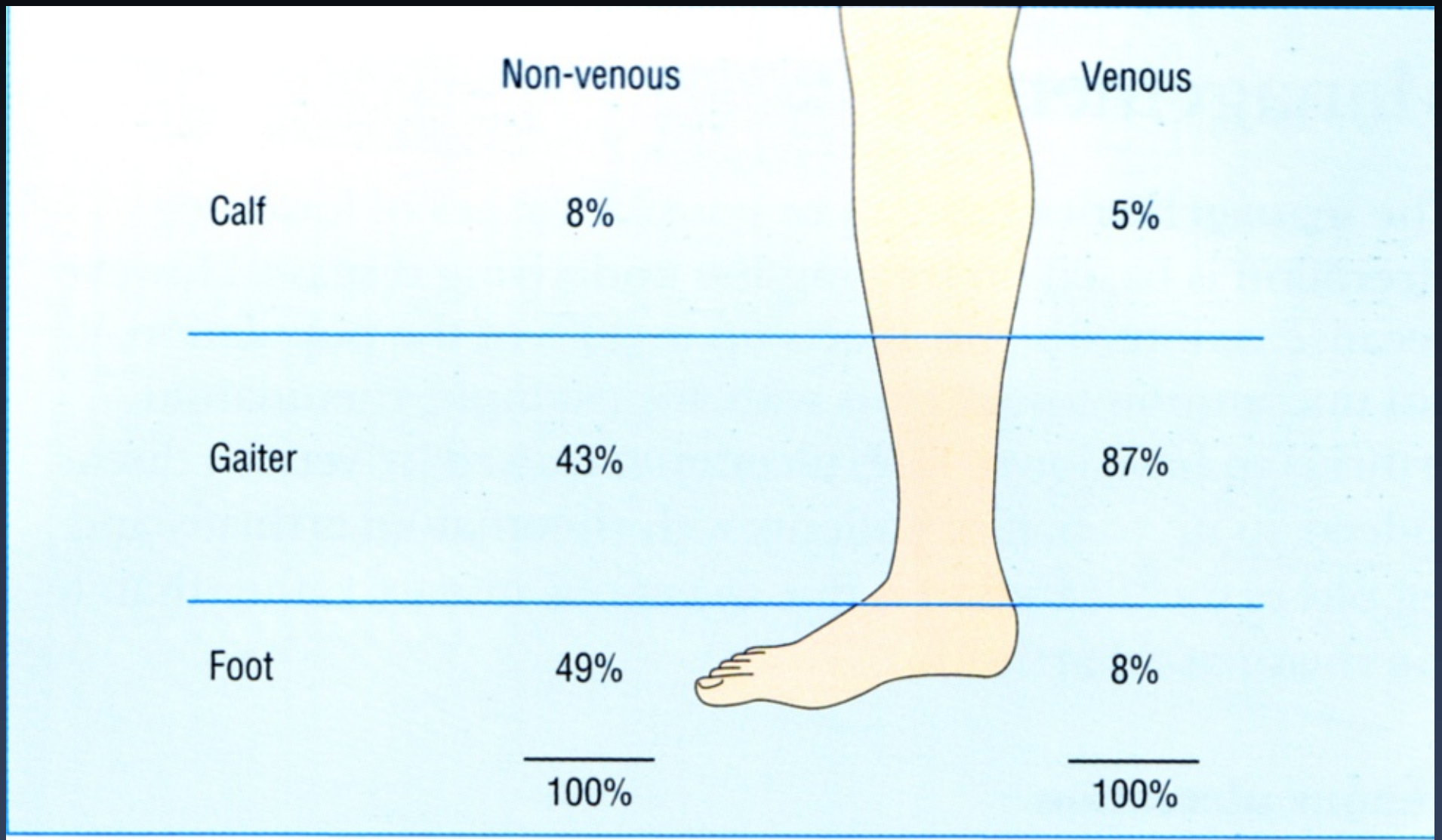


Neuropathic

Over toe joints

Inner side of first metatarsal head





Malignant ulcer



Arterial ulcer

History + Examination

- Risk factors
- Smoke
- Claudication
- Rest pain
- Pulses

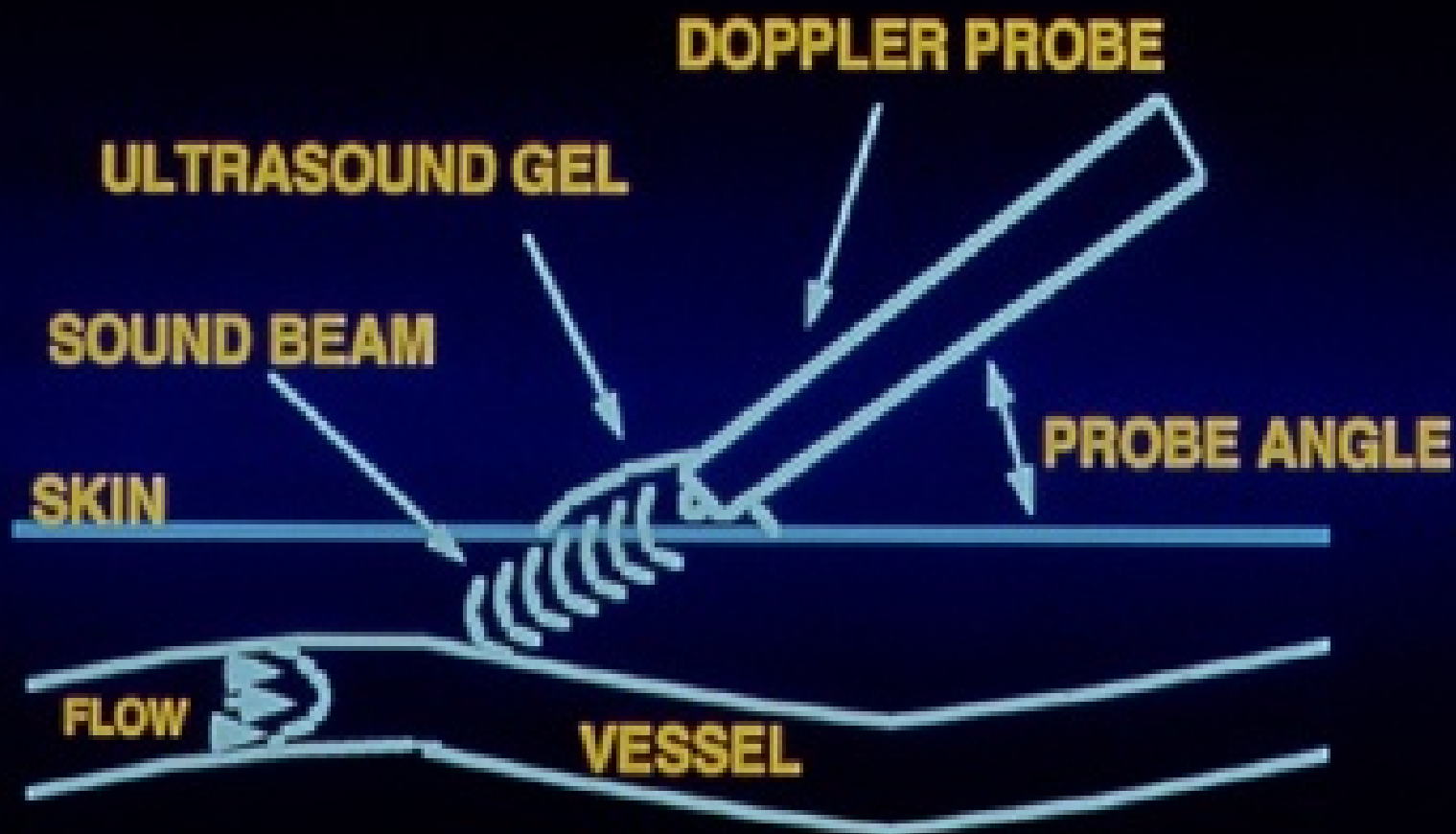
Ankle-brachial index

- DP or PT artery (highest)
- Pressure is under cuff
- Practice
- Listen for phasicity

Ankle-brachial index

- > 1 = normal
- < 0.8 is significant
- < 0.5 is often associated with rest pain

ARTERIAL DISEASE



Imox Medical Systems

Doppler ABI



Limitations of ABI

- Experience
- Diabetes
- Incompressible vessels

- However
- Very useful if limitations understood

Rx of arterial ulcer

- Remove cause (eg trauma)
- Clean and dress
- Topical antibacterial
- BUT
- Early intervention for low ABI or deterioration

Venous ulcer

- Common
- Well researched
- Treatment evidence based
- Overall management is a problem
- Costly

Venous ulcer

- Gaiter area
- Lipodermatosclerosis
- Inverted champagne bottle
- Pigmentation
- Varicose veins

Venous ulcer







Venous ulcer



Healed venous ulcer



Venous ulcer pathology

- Venous hypertension
- Refluxing superficial veins 60%
- Incompetent or occluded deep veins
- Incompetent deep and superficial 20%
- Inadequate calf pump

Venous ulcer treatment

- COMPRESSION

Venous ulcer management

- High cost dressings
- Antibiotics
- Bedrest
- Skin graft

Dressings

- Hydrocolloids
- Hydrogels (alginate)
- Semi-permeable films
- Enzymic debriding agents
- Manuka honey

Antibiotics

- Unnecessary unless cellulitic
- Wound swabs always grow bacteria
- Topical antibacterial works best
- A/bs breed resistance
- Sometimes useful for significant ooze
- Topical antibiotic no better and breed resistance

Bedrest

- Works but costly
- Does not prevent recurrence

Skin graft

- May hasten healing but no evidence
- Pinch grafts
- Need to be clean and granulating

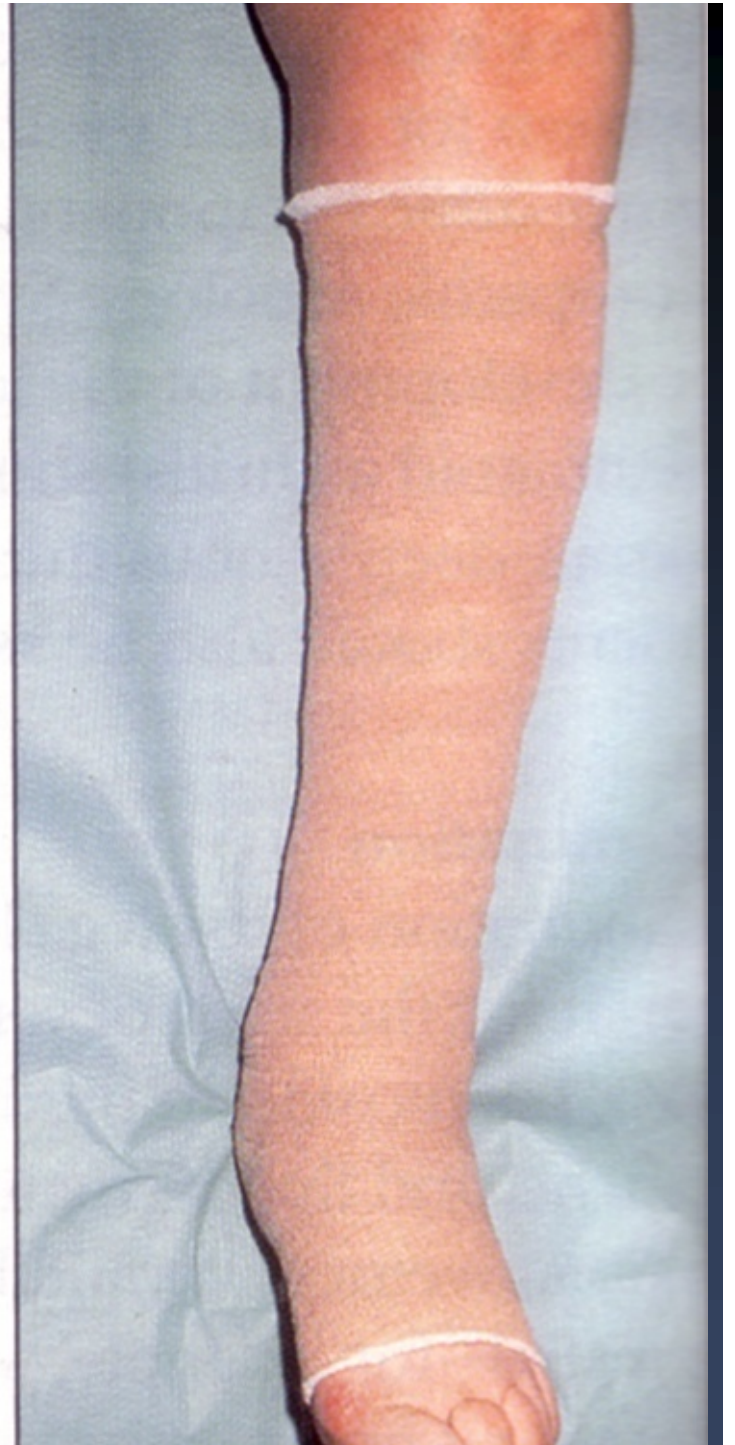


Pinch graft



Compression

- Grade 2 below knee stocking
- Compression bandage



PROFORE #1



PROFORE #2



PROFORE #3



PROFORE #4



Venous ulcer management

- 1 achieve healing
- 2 prevent recurrence
- 3 maintain mobility
- 4 improve lifestyle

Results

- 79% healed at 12/52
- 84% healed at 24/52

Difficulties

- Not all ulcers are venous
- Some venous ulcers have arterial component
- Compliance with compression
- Allergies to dressings
- Deep vein incompetence
- Calf pump problems
- Prevention of recurrence

Difficulty

- Cost
- ABI
- Expertise
- Compliance

Who should treat venous ulcers

- GP
- District nurse
- Nurse led clinic
- Vascular clinic (venous ulcer clinic)
- Access to product,ABI,training

GP management

- Diagnose
- ?ABI
- Gd 2 compression stocking
- Not tubigrip
- Early D/N referral for profor

Mixed ulcer

- $ABI > 0.8$ profor
 - $0.8 > ABI > 0.6$ try profor lite
 - $ABI < 0.6$ usually revascularise
-
- Refer early if ABI low

Mixed ulcer



Compression in PVD





Pain

- Arterial disease
- Infection
- Vasculitis

Prevention of recurrence

- Compression
- Varicose vein treatment
- Deep vein reconstruction
- Calf pump issues

Role of surgery

- Varicose vein surgery
- SSG
- Prevention of recurrence
- Surgery + compression does not increase ulcer healing but significantly reduces recurrence (ESCHAR trial) even with DVI

Problems preventing recurrence

- Compliance with compression
- Cost of compression
- Compression in PVD patient
- Access to and cost of vv treatment
- Inadequate calf pump

Calf pump

- Poor musculature
- Fused ankle
- Arthritis
- Obesity

Compliance issues



Conclusion

- Don't forget compression

Don't forget compression!



Don't forget compression!



Don't forget compression!



Don't forget compression!



Don't forget compression!



Foam protection



Padding the gaiter area



Figure of 8 bandage



Compliance with compression

- Analgesia
- Reassurance
- Patience
- Close followup (district nurse)

Allergy to dressings

- Unna's boot
- Zinc paste bandage (viscopaste, ichthopaste)

Infection

- Antibiotics for cellulitis
- Local infection - local treatment
 - Iodine
 - Manuka honey
 - Silver sulphadiazine
 - Potassium permanganate
 - Zinc paste

Infected ulcer



Split skin graft

- Meshed SSG
- Pinch grafts
- Increase healing rate



Duplex ultrasound scan

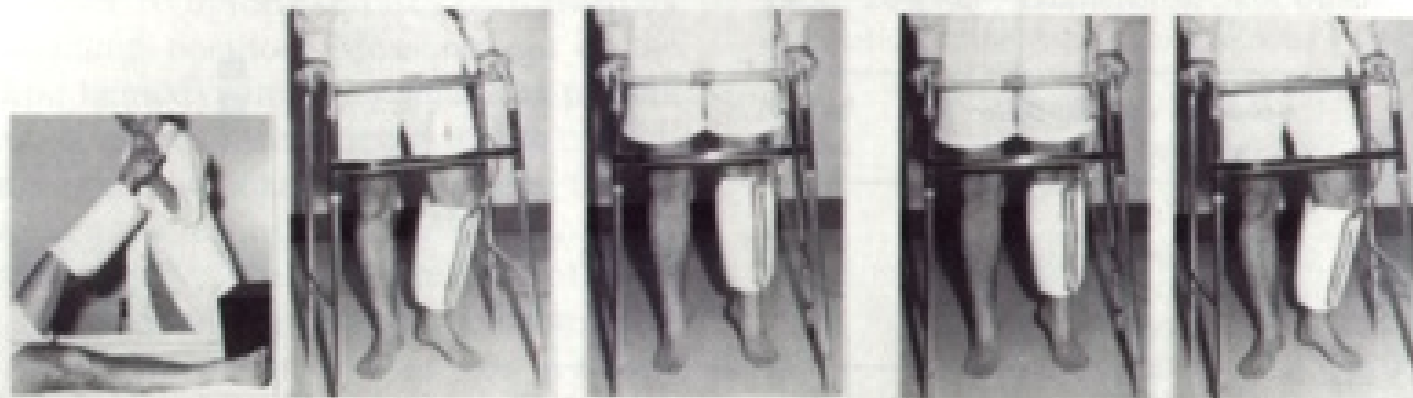
- Deep venous incompetence 20%
- Superficial venous incompetence 60%
- Both 20%
- Perforator incompetence

Duplex ultrasound

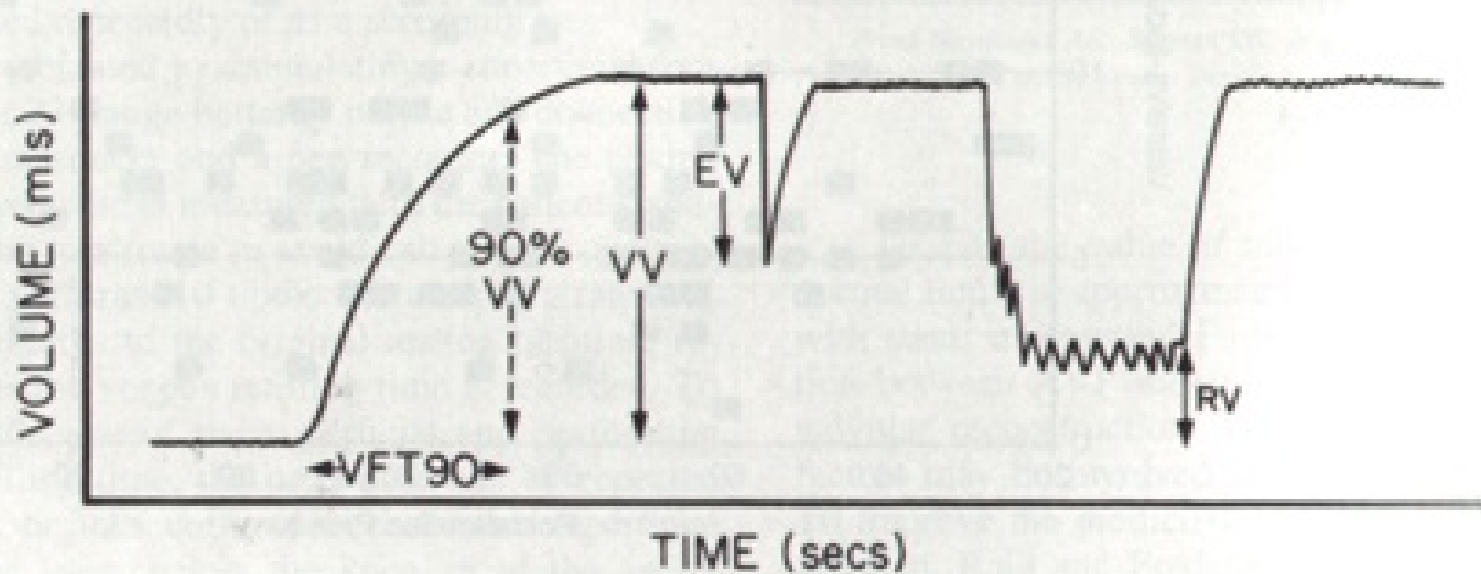
- Anatomical study
- Doesn't quantify deep vs superficial

Plethysmography

- APG
 - Diagnose and quantify reflux
 - Measure calf pump function



a b c (x1) d (x10) e



$$VFI = \frac{90\% VV}{VFT90}$$

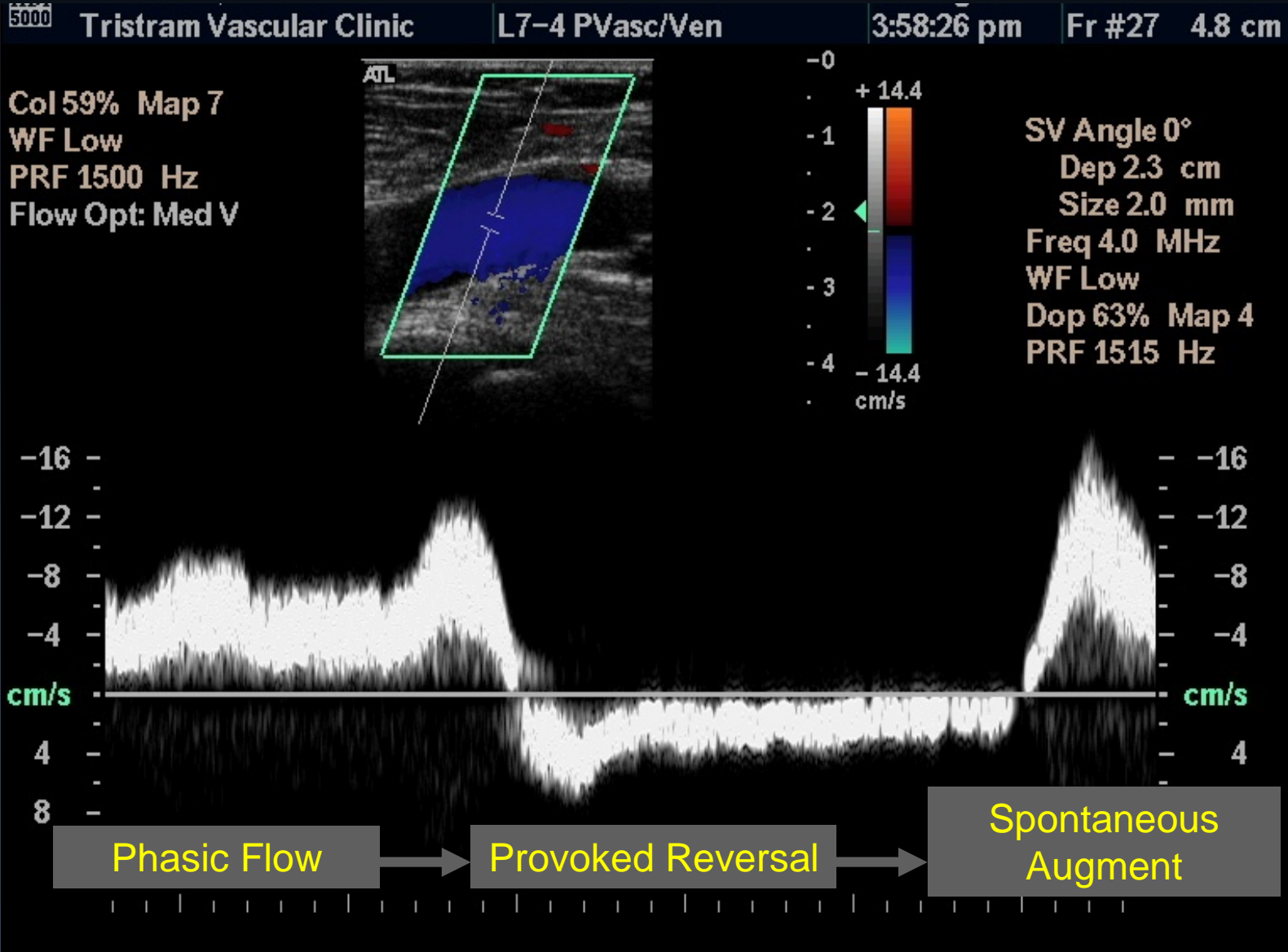
$$EF = \frac{EV}{VV} \times 100$$

$$RVF = \frac{RV}{VV} \times 100$$

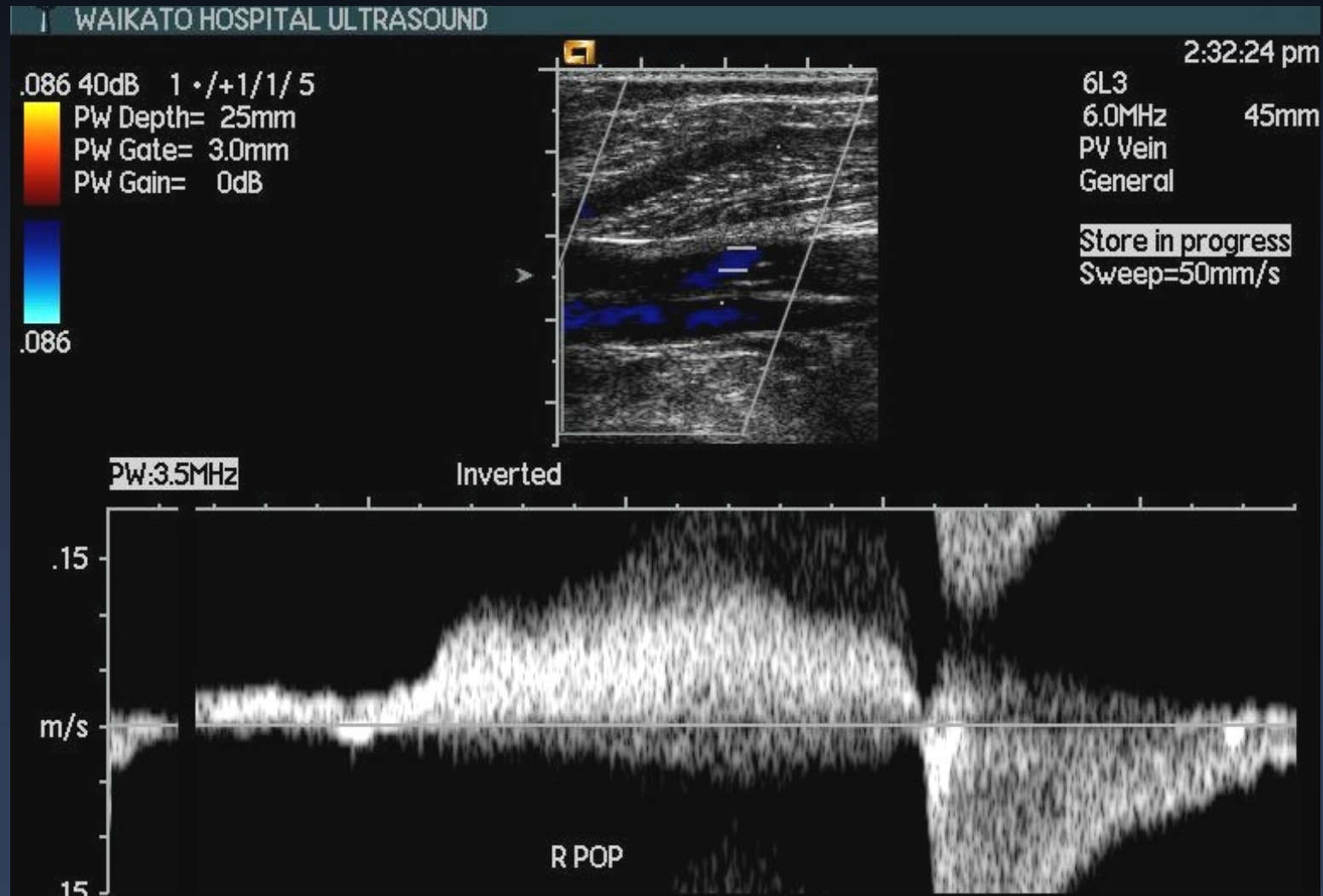
Plethysmography

- Doesn't reliably separate deep vs superficial
- Access difficult

Deep Vein Reflux

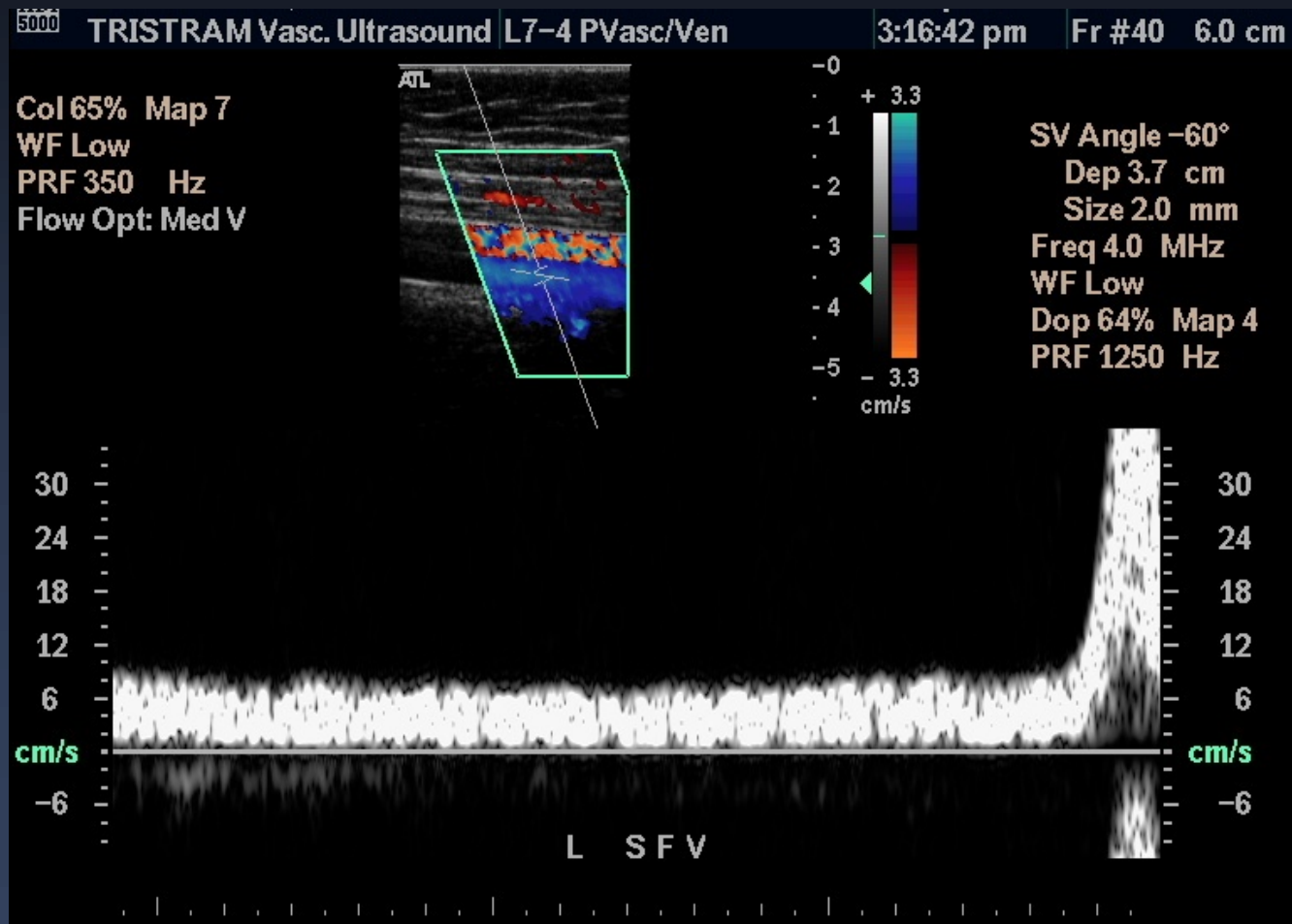


Deep Venous Reflux secondary to past DVT



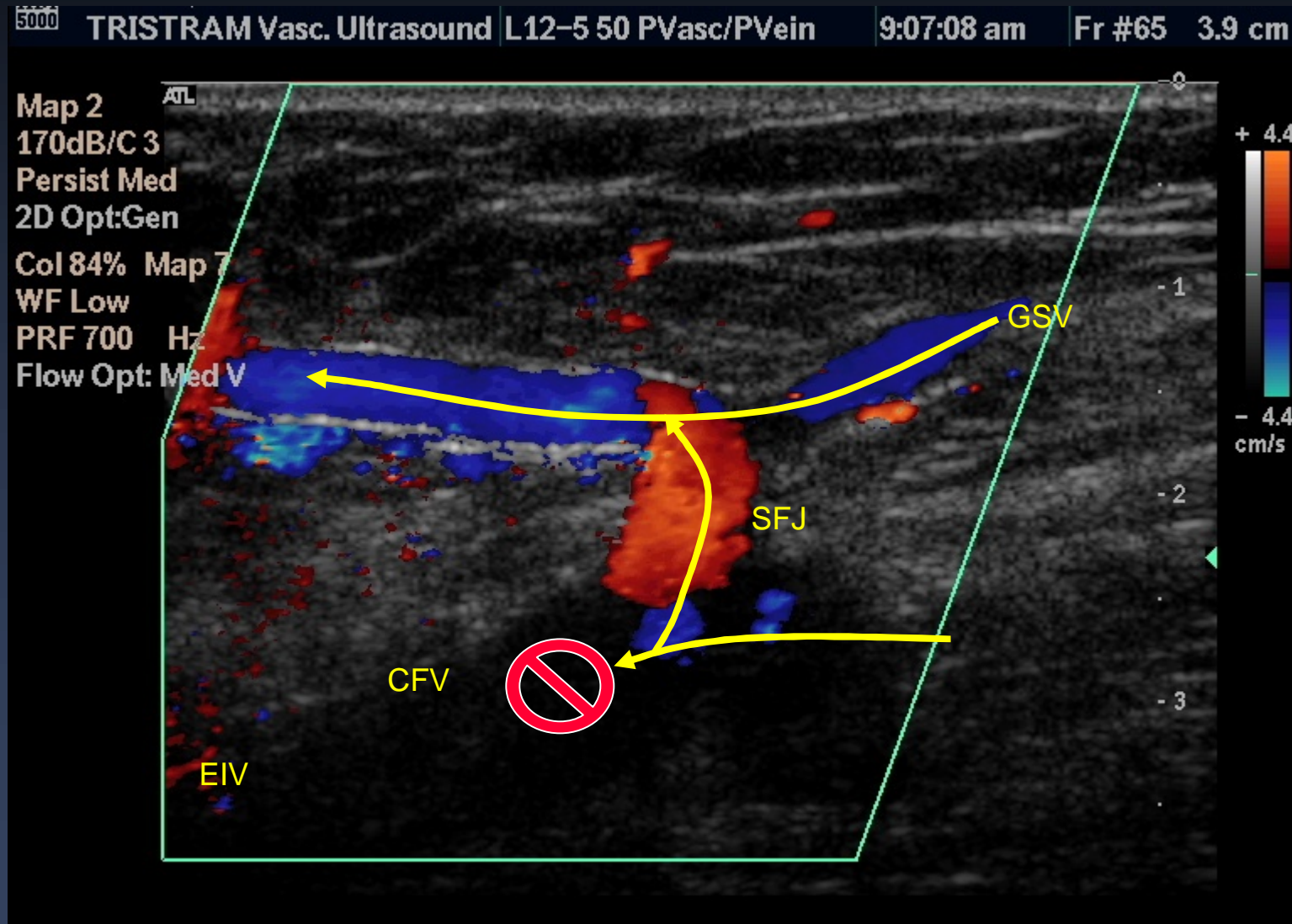
Downstream Occlusion

- Loss of respiratory phasicity
- Presence of good augment



Superficial Collateralization in patient with occlusive iliofemoral DVT

- Note the helpful contribution of SFJ reflux

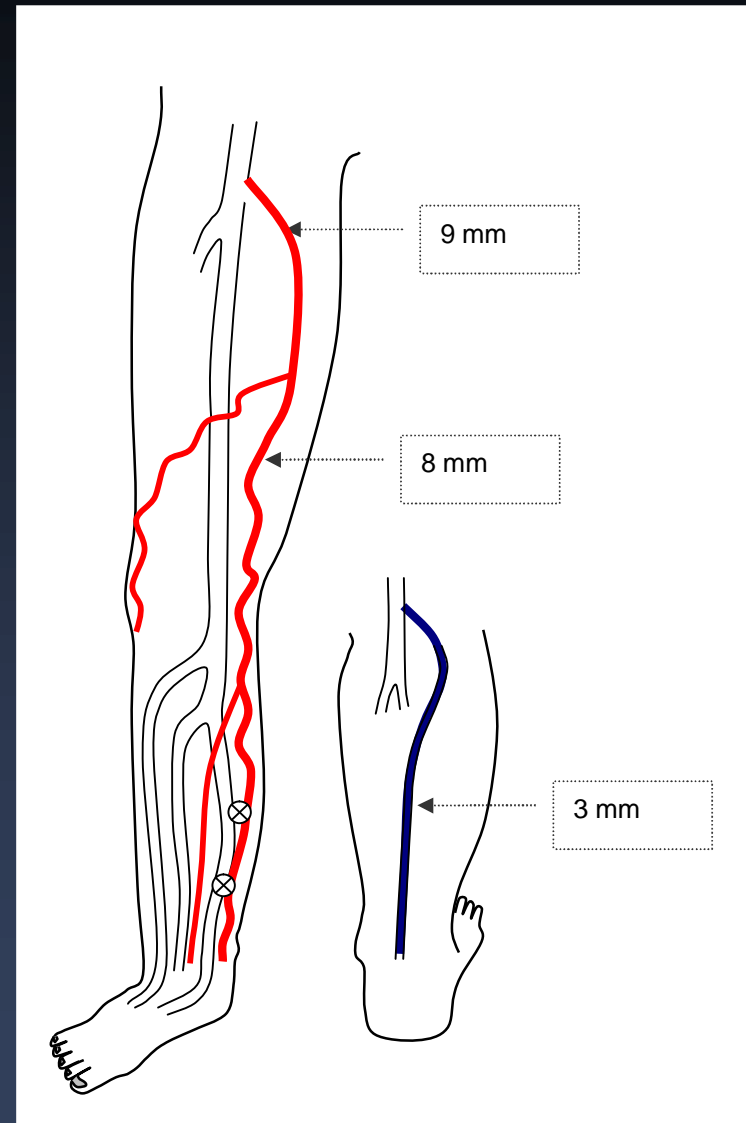


Reporting Results of Venous Duplex

- Clear concise
- Graphical (multicolor or arrows)
- What the surgeon wants to know

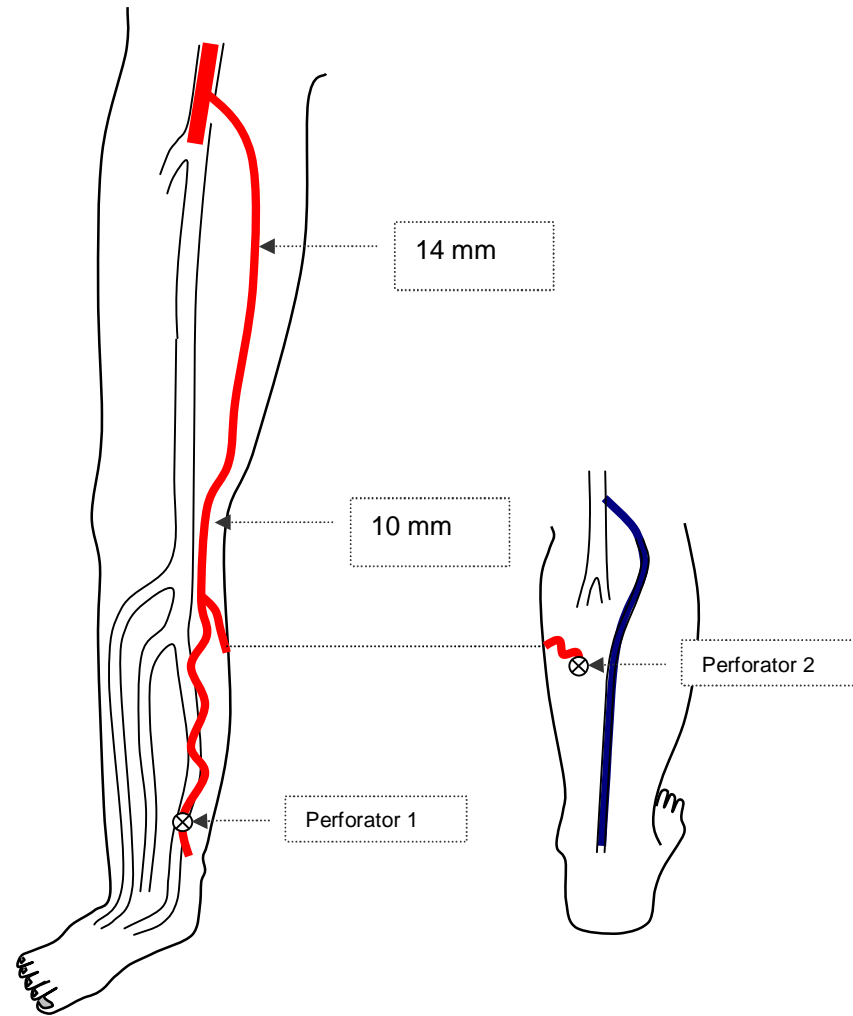
Things to be noted:

- Vessel Course
- Tributaries
- Presence of Reflux
- Superficial Vessel Diameter
- Site of Perforators
- Thrombosis (DVT, STP)
- Occlusion
- Anatomic Variants
- Incidental Findings
 - Baker's cyst, POP aneurysm, etc.

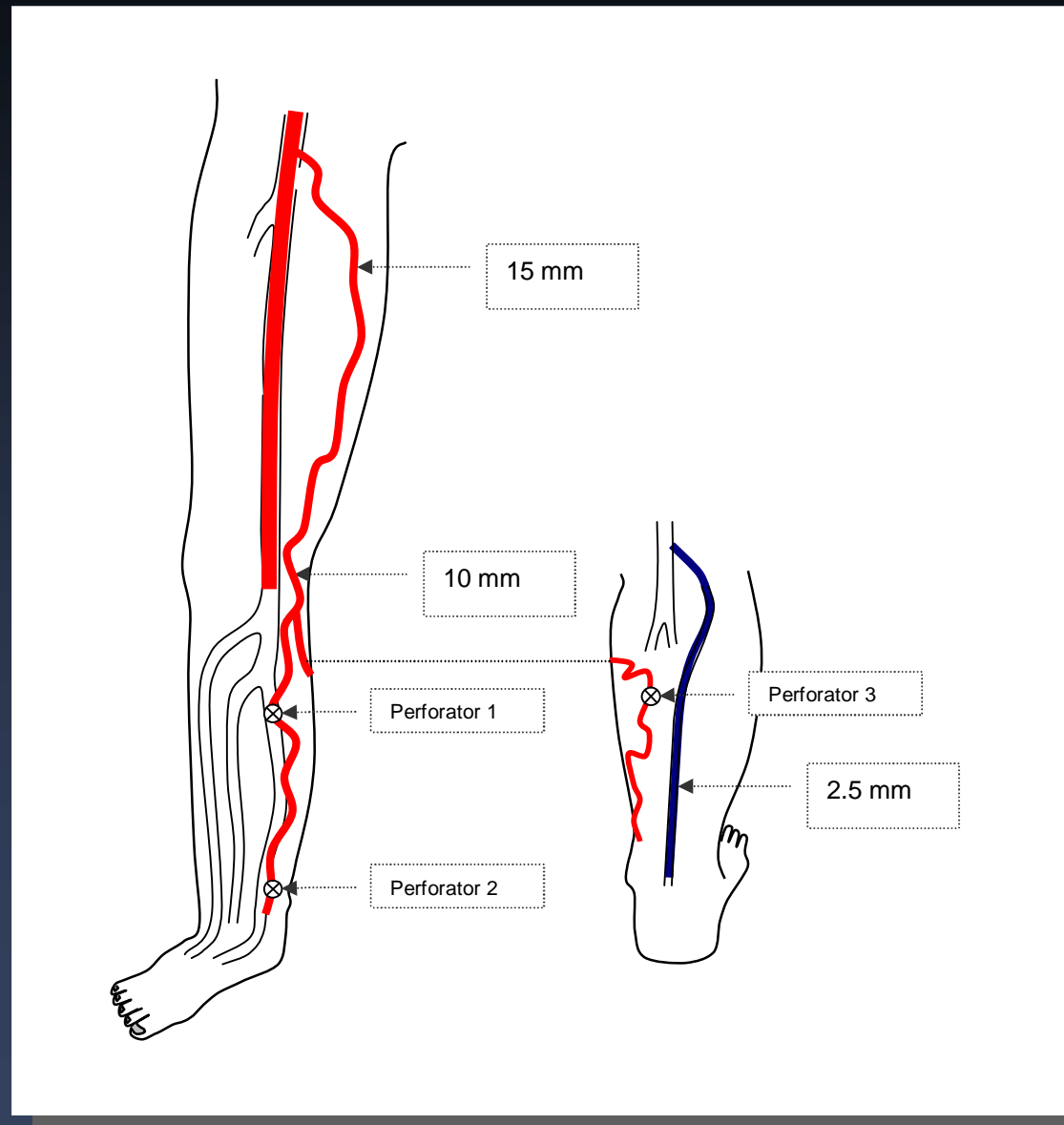


Legend: Normal Deep Normal Superficial Reflux Chronic Thrombus

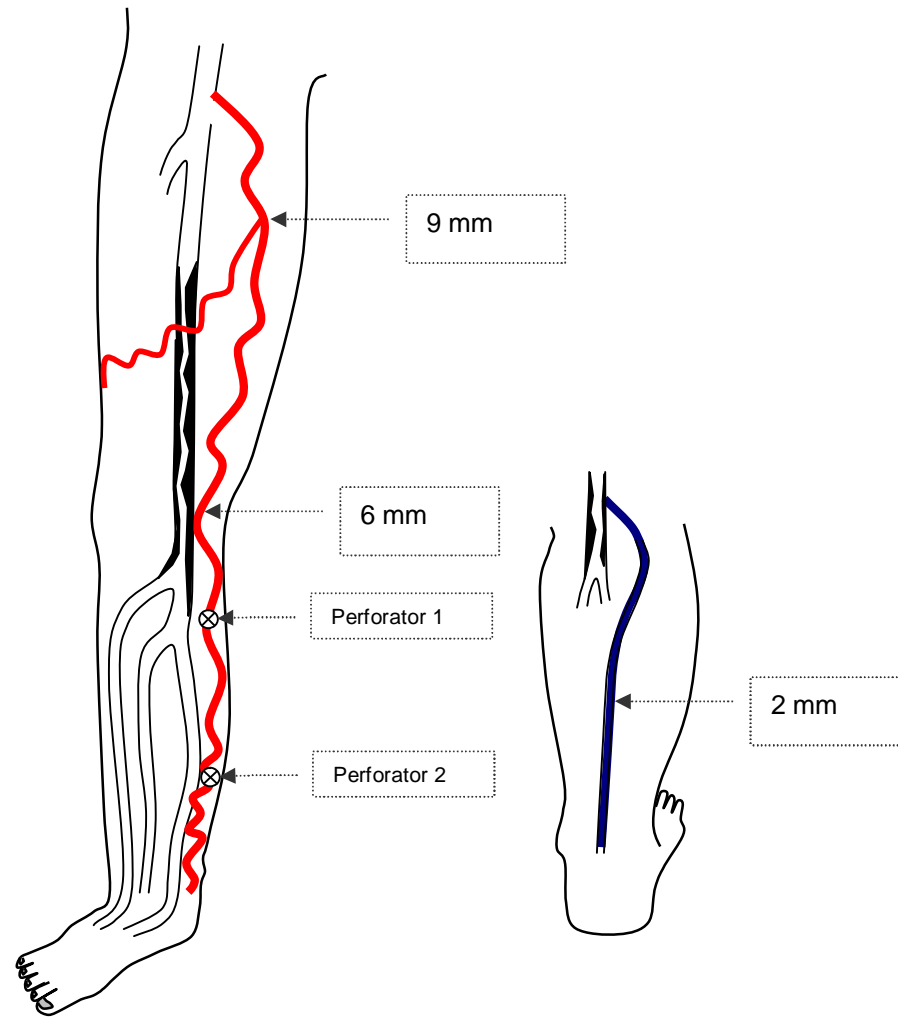
Report Examples



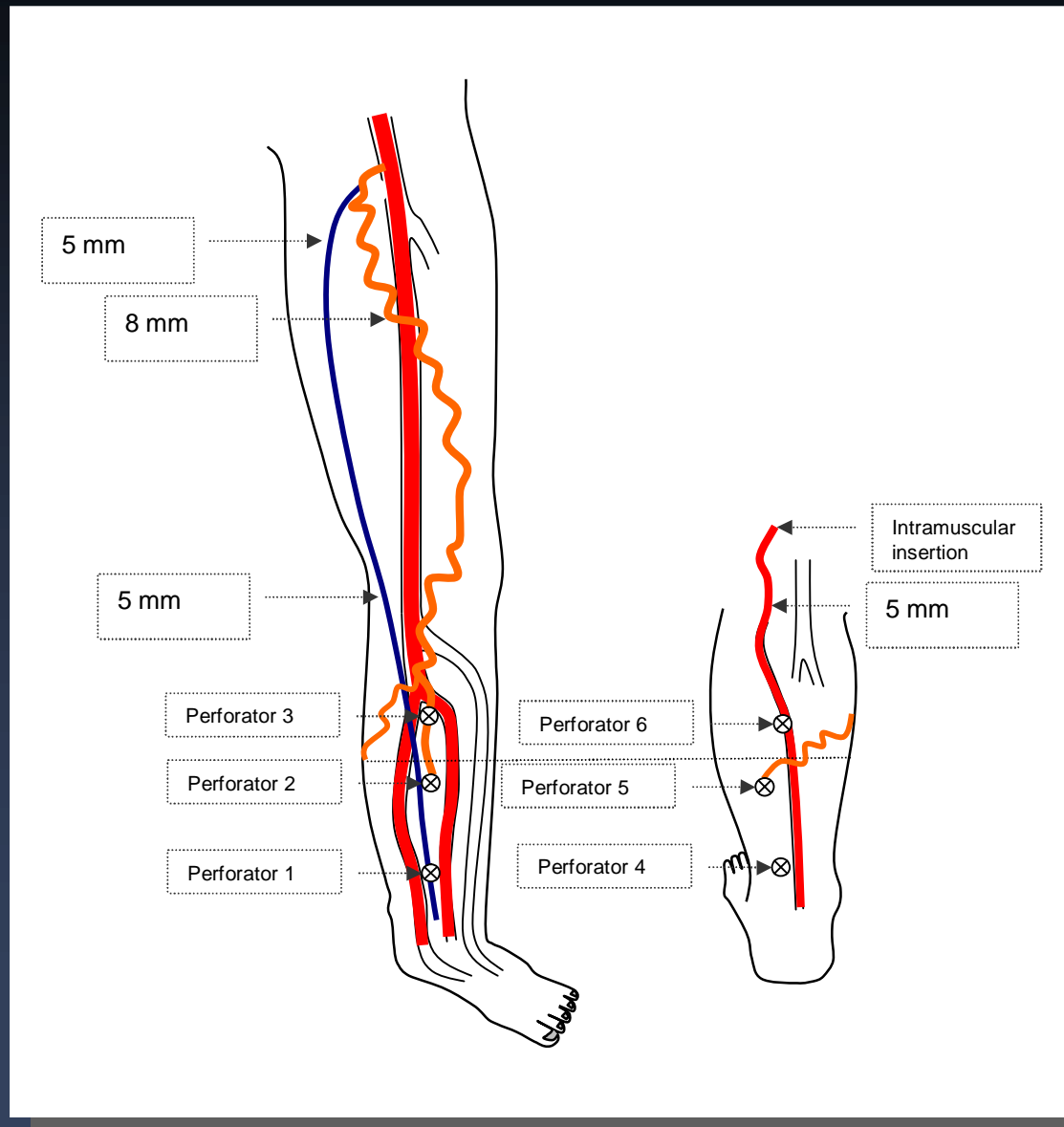
Report Examples



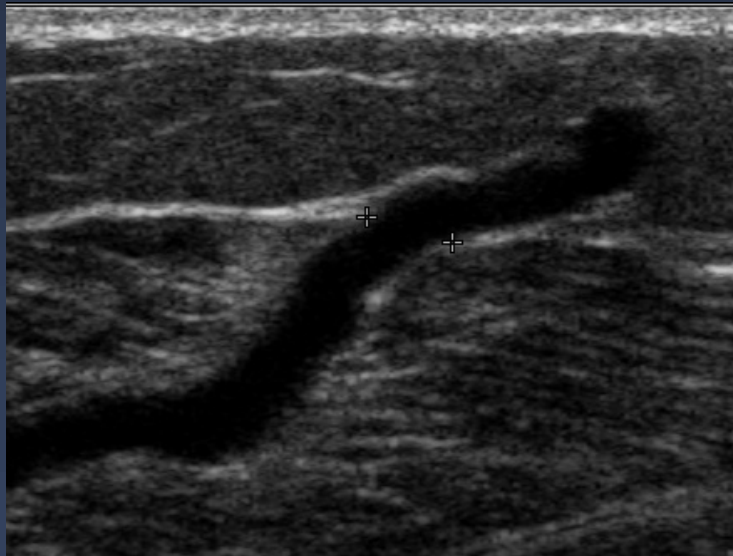
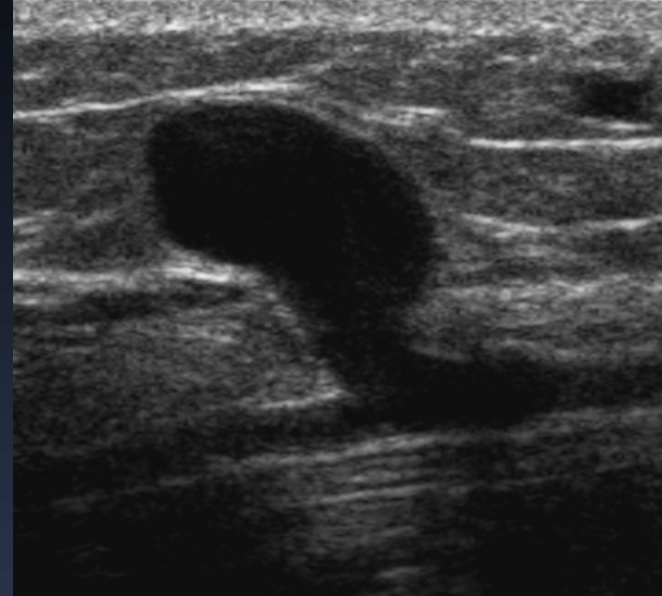
Report Examples



Report Examples



Perforators



Perforators

- SEPS
- UGS
- UG ligation
- Compression stockings