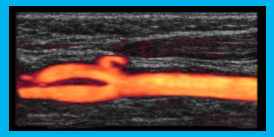
Modern Management of Varicose Veins

GPCME 2008

David Ferrar
Vascular and Endovascular Surgeon
Vascular Ultrasound Specialist

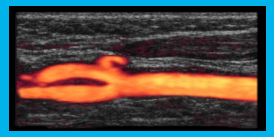


TRISTRAM
VASCULAR ULTRASOUND

David Ferrar, FRACS(Vasc), DDU (Vasc)
Chris Holdaway, FRACS(Vasc)
Martin Necas, RDMS, RVT

Multimodality treatment

- Compression stockings
- Sclerotherapy
- Ultrasound guided sclerotherapy
- Endovenous Laser
- Surgery
- Ovarian vein embolisation
- Vein Clinic

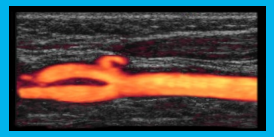


David Ferrar, FRACS(Vasc), DDU (Vasc)
Chris Holdaway, FRACS(Vasc)
Martin Necas, RDMS, RVT

GP alternatives

- Understand treatment alternatives
- Arrange investigation (usually duplex ultrasound)
- Explain each to patient and gain an understanding of which Rx would best meet their expectations (including cost)
- Refer appropriately
  - OR

  Refer to multimodality vein clinic

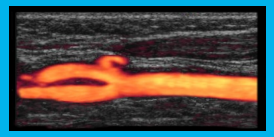


TRISTRAM
VASCULAR ULTRASOUND

David Ferrar, FRACS(Vasc), DDU (Vasc)
Chris Holdaway, FRACS(Vasc)
Martin Necas, RDMS, RVT

Indications for Treatment

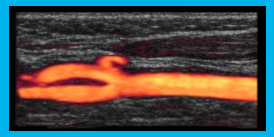
- Cosmetic
- Symptomatic ache,itch, swelling
- Complications ulcer, eczema,STP,LDS



David Ferrar, FRACS(Vasc), DDU (Vasc)
Chris Holdaway, FRACS(Vasc)
Martin Necas, RDMS, RVT

Investigations

- History
- Examination
- Ultrasound



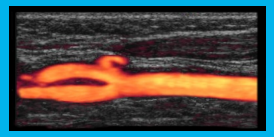
David Ferrar, FRACS(Vasc), DDU (Vasc)
Chris Holdaway, FRACS(Vasc)
Martin Necas, RDMS, RVT

OR

Ultrasound

- History
- Examination

- (appropriate for those that will definitely be treated)



David Ferrar, FRACS(Vasc), DDU (Vasc)
Chris Holdaway, FRACS(Vasc)
Martin Necas, RDMS, RVT

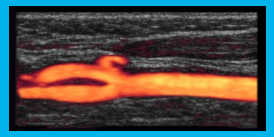
History

- Symptoms (or reason for wanting treatment)
- Previous treatments
- History of DVT or thrombophilia
- Brief medical history

Ache

- Achey veins
- Achey legs

- (Be clear about expectations)

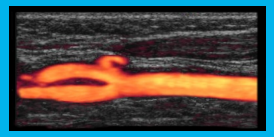


TRISTRAM
VASCULAR ULTRASOUND

David Ferrar, FRACS(Vasc), DDU (Vasc)
Chris Holdaway, FRACS(Vasc)
Martin Necas, RDMS, RVT

Ultrasound

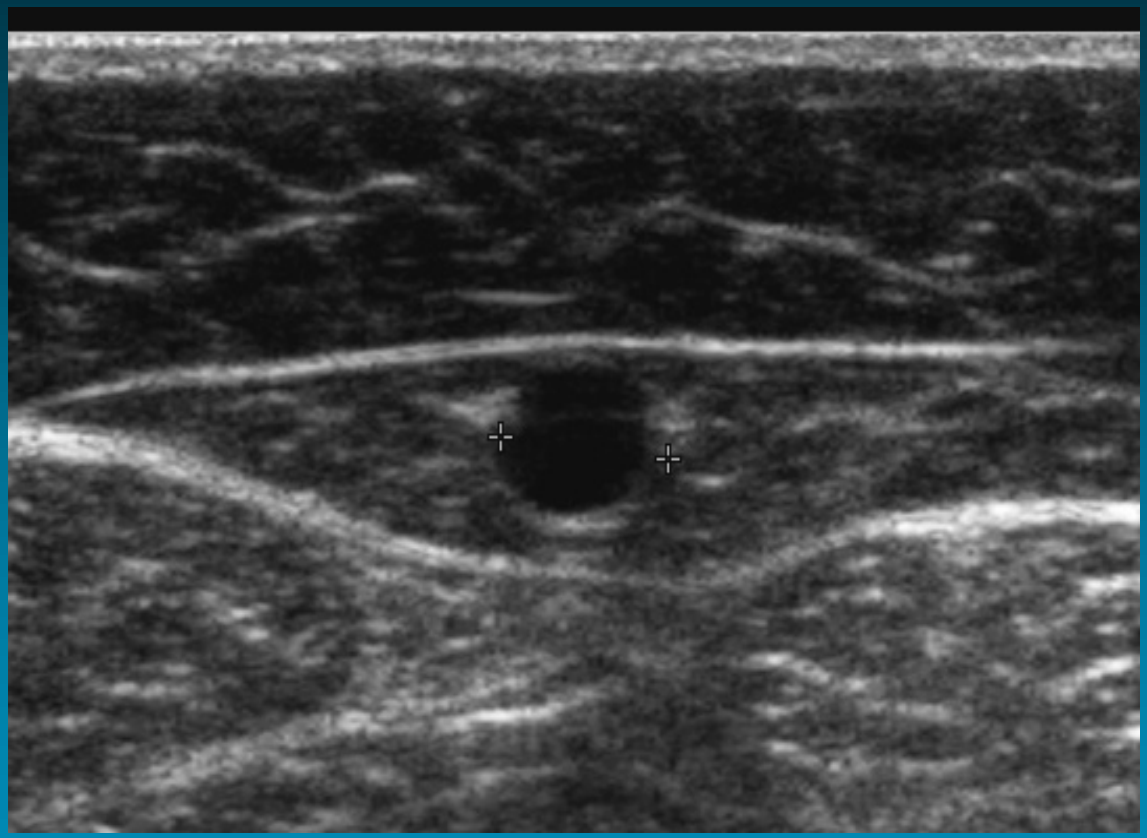
- Patency,competence of deep veins
- SFJ, GSV
- GSV relation to saphenous sheath
- SPJ, SSV
- Perforators
- Extra anatomical sources of reflux (esp recurrence)
- ?ovarian vein incompetence



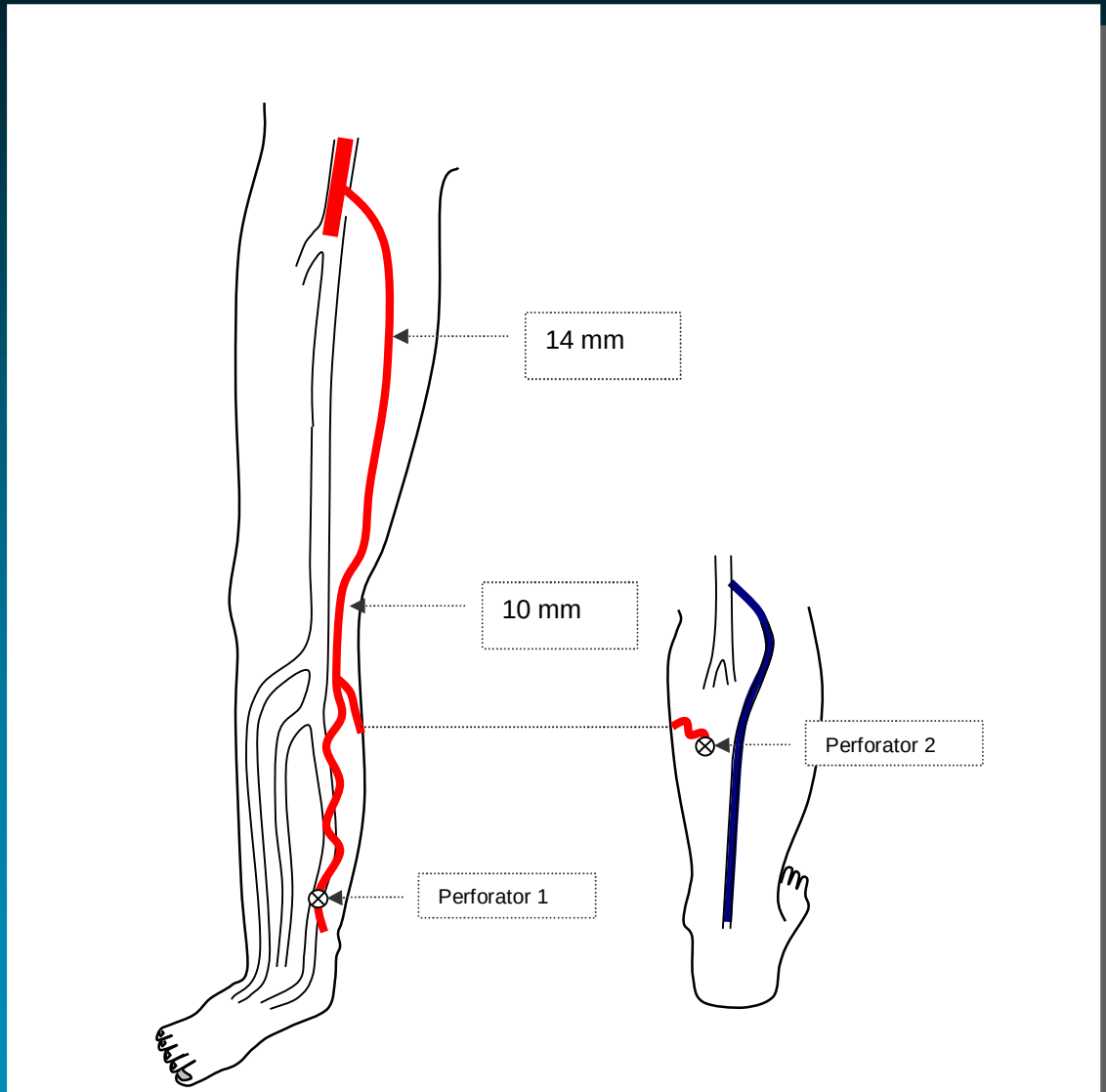
TRISTRAM
VASCULAR ULTRASOUND

David Ferrar, FRACS(Vasc), DDU (Vasc)
Chris Holdaway, FRACS(Vasc)
Martin Necas, RDMS, RVT

Great Saphenous Vein
saphenous sheath



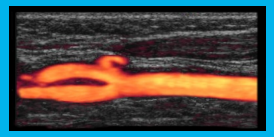
Report Examples



Choice of treatment - Primary vvs

Endovenous Laser

- Surgery
- Occasionally UGS

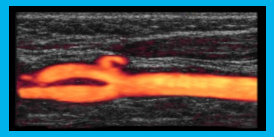


David Ferrar, FRACS(Vasc), DDU (Vasc)
Chris Holdaway, FRACS(Vasc)
Martin Necas, RDMS, RVT

Choice of treatment - Post surgical recurrence

Ultrasound guided sclerotherapy (UGS)

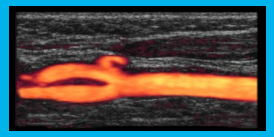
- Surgery
- Rarely EVLT (if GSV still present)



David Ferrar, FRACS(Vasc), DDU (Vasc)
Chris Holdaway, FRACS(Vasc)
Martin Necas, RDMS, RVT

Development of Sclerotherapy

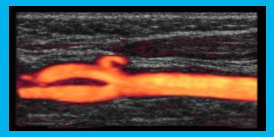
- “Evolutionary not revolutionary”
- Started early 20th century
- Foam described 1939
- Fegan technique 1970s NHS
- Use of ultrasound guidance 1980s-90s



David Ferrar, FRACS(Vasc), DDU (Vasc)
Chris Holdaway, FRACS(Vasc)
Martin Necas, RDMS, RVT

Sclerotherapy

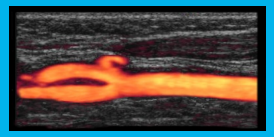
- Visible veins
- Spiders, reticular veins, varicosities
- Hypertonic (20%) saline
- Polidocanol (0.5 - 5%)
- Sodium Tetradecyl Sulphate (0.5 - 3%)
- Foam



David Ferrar, FRACS(Vasc), DDU (Vasc)
Chris Holdaway, FRACS(Vasc)
Martin Necas, RDMS, RVT

Ultrasound guided sclerotherapy

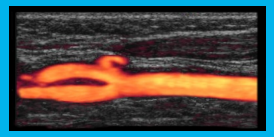
- ?Possible to treat all vvs withUGS
- Foam
- Compression
- ?best suited to post surgical recurrence



David Ferrar, FRACS(Vasc), DDU (Vasc)
Chris Holdaway, FRACS(Vasc)
Martin Necas, RDMS, RVT

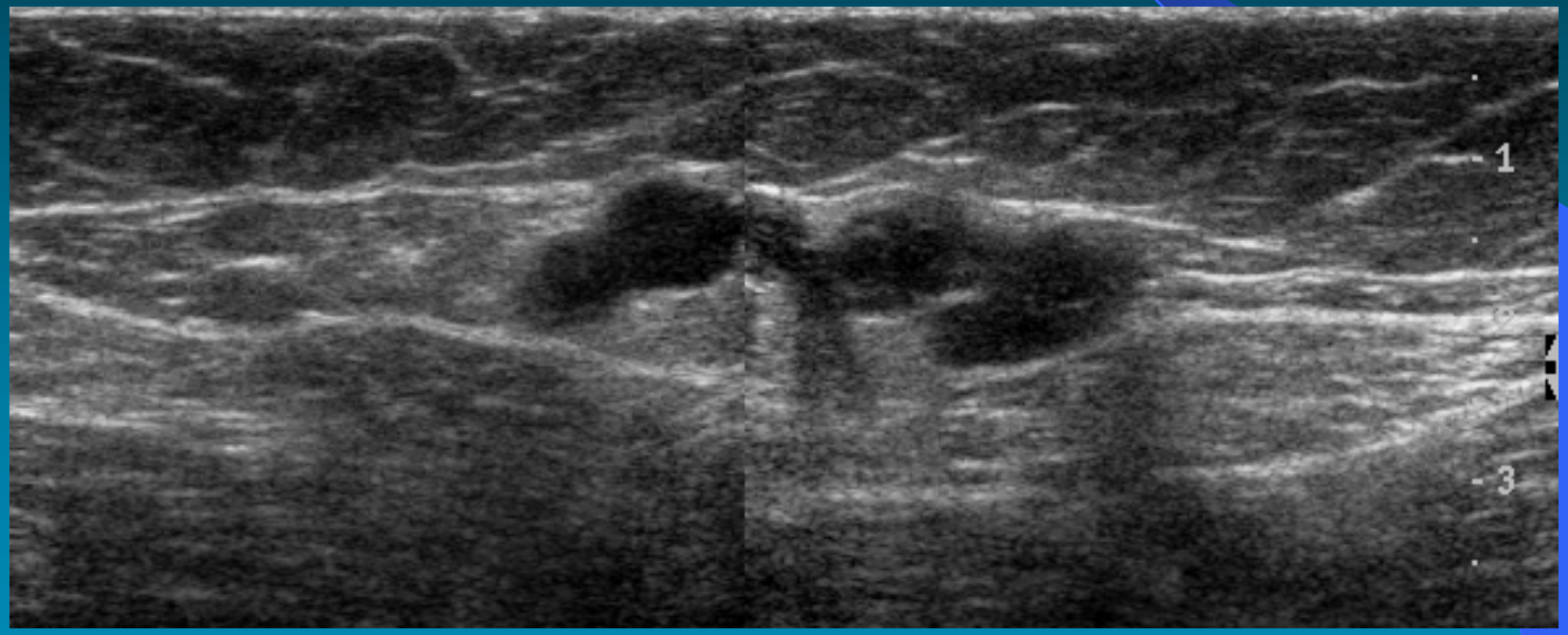
Recurrent varicose veins (post surgical)

- GSV not stripped
- SFJ not accurately ligated
- SSV
- Perforators
- Non axial recurrence
- Pelvic vein incompetence
- Neovascularisation



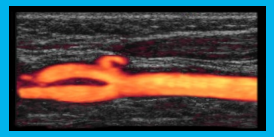
David Ferrar, FRACS(Vasc), DDU (Vasc)
Chris Holdaway, FRACS(Vasc)
Martin Necas, RDMS, RVT

Recurrent GSV varices



Foam

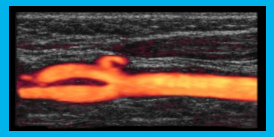
- Tessari technique
- Increase effective surface area
- Displacement of blood from treated vein
- Ultrasound contrast agent
- Less dose required
- ?less problems with extravasation



David Ferrar, FRACS(Vasc), DDU (Vasc)
Chris Holdaway, FRACS(Vasc)
Martin Necas, RDMS, RVT

Ultrasound guided sclerotherapy
Pros

- Simple
- Minimal pain
- Cheapest option
- Treats bleeding veins well

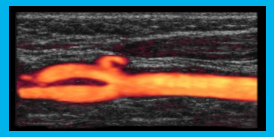


TRISTRAM
VASCULAR ULTRASOUND

David Ferrar, FRACS(Vasc), DDU (Vasc)
Chris Holdaway, FRACS(Vasc)
Martin Necas, RDMS, RVT

Ultrasound guided sclerotherapy
Cons

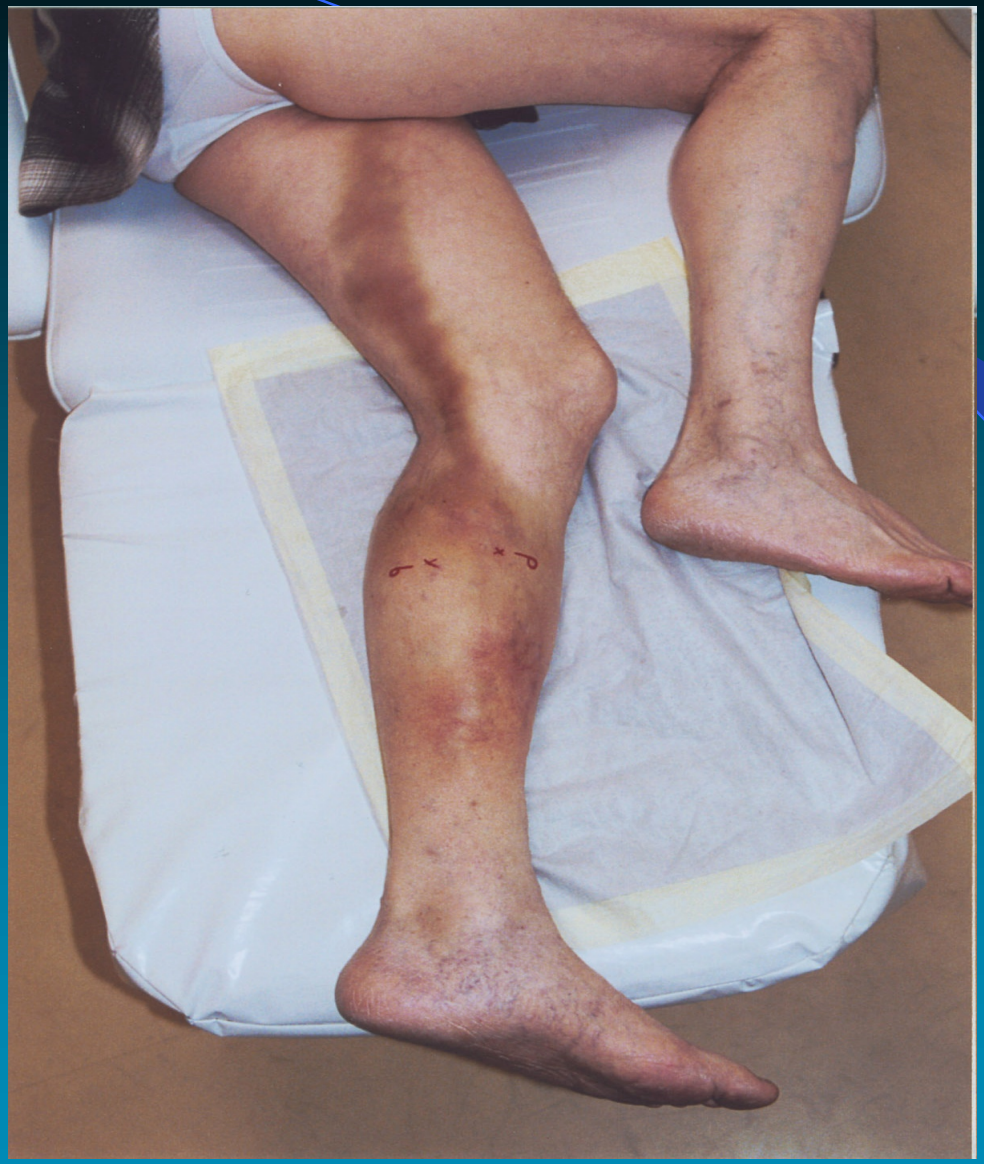
- Needles
- Stocking
- Anaphylaxis
- Phlebitis
- Staining
- Recurrence
- Telengiectatic matting
  Complications unpredictable
- ?best suited to post surgical recurrence



TRISTRAM
VASCULAR ULTRASOUND

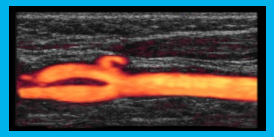
David Ferrar, FRACS(Vasc), DDU (Vasc)
Chris Holdaway, FRACS(Vasc)
Martin Necas, RDMS, RVT

Pigmentation



Endovenous saphenous ablation

- Treat GSV (or SSV)
- Mainly for primary veins
- VNUS radiofrequency ablation
- Endovenous Laser (810,940,980,1064,1320,2078nm wavelength)
- ? Difference in pain,bruising



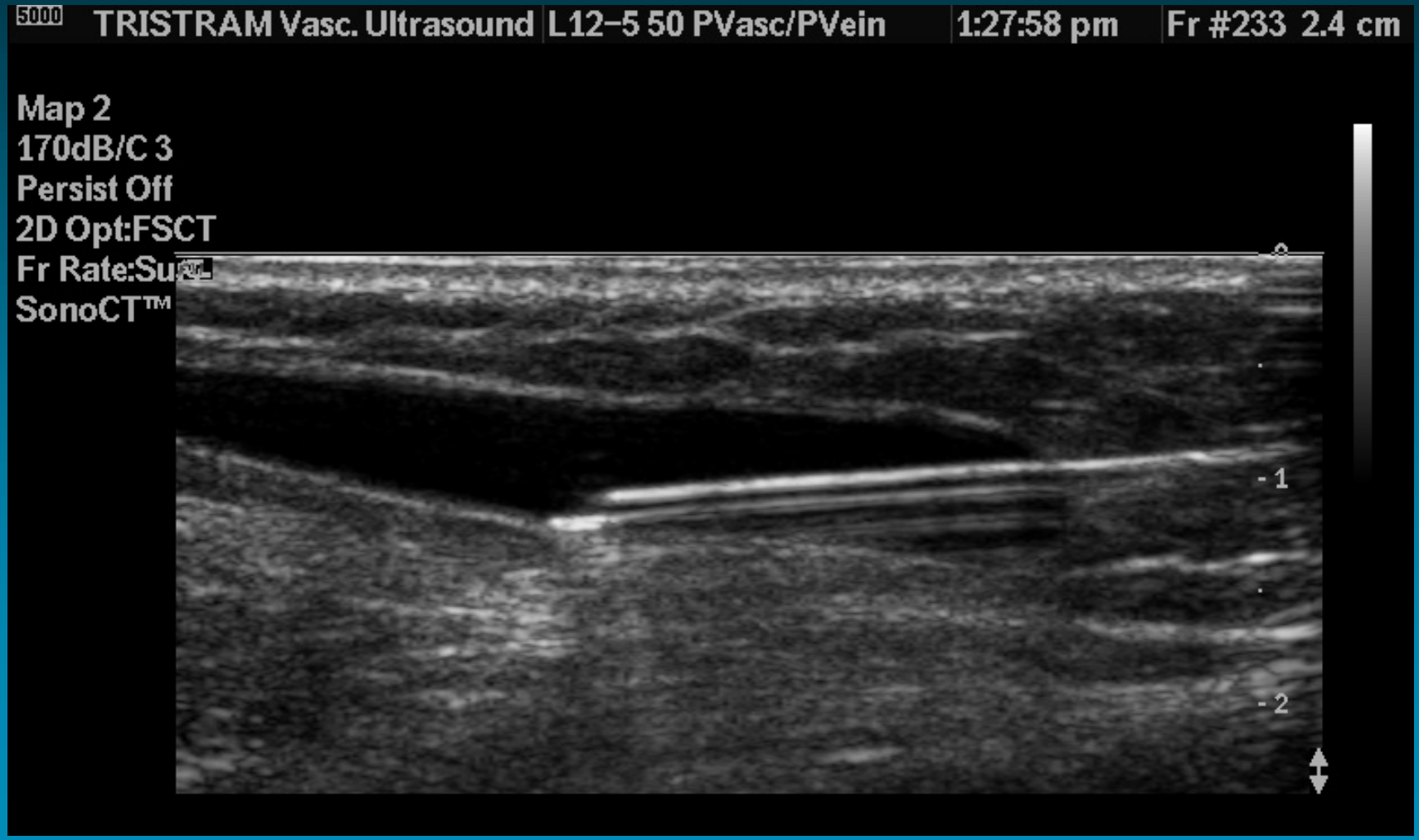
David Ferrar, FRACS(Vasc), DDU (Vasc)
Chris Holdaway, FRACS(Vasc)
Martin Necas, RDMS, RVT

Common Principles

- Local anaesthetic (+/- sedation)
- Ultrasound guided approach to GSV around knee level
- Disposable kit
- Needle, guidewire, sheath(Seldinger), Diode laser
- Tumescent anaesthesia
- Ablation by continuous / intermittent pull-back
- Adjuvant sclerotherapy / phlebectomy

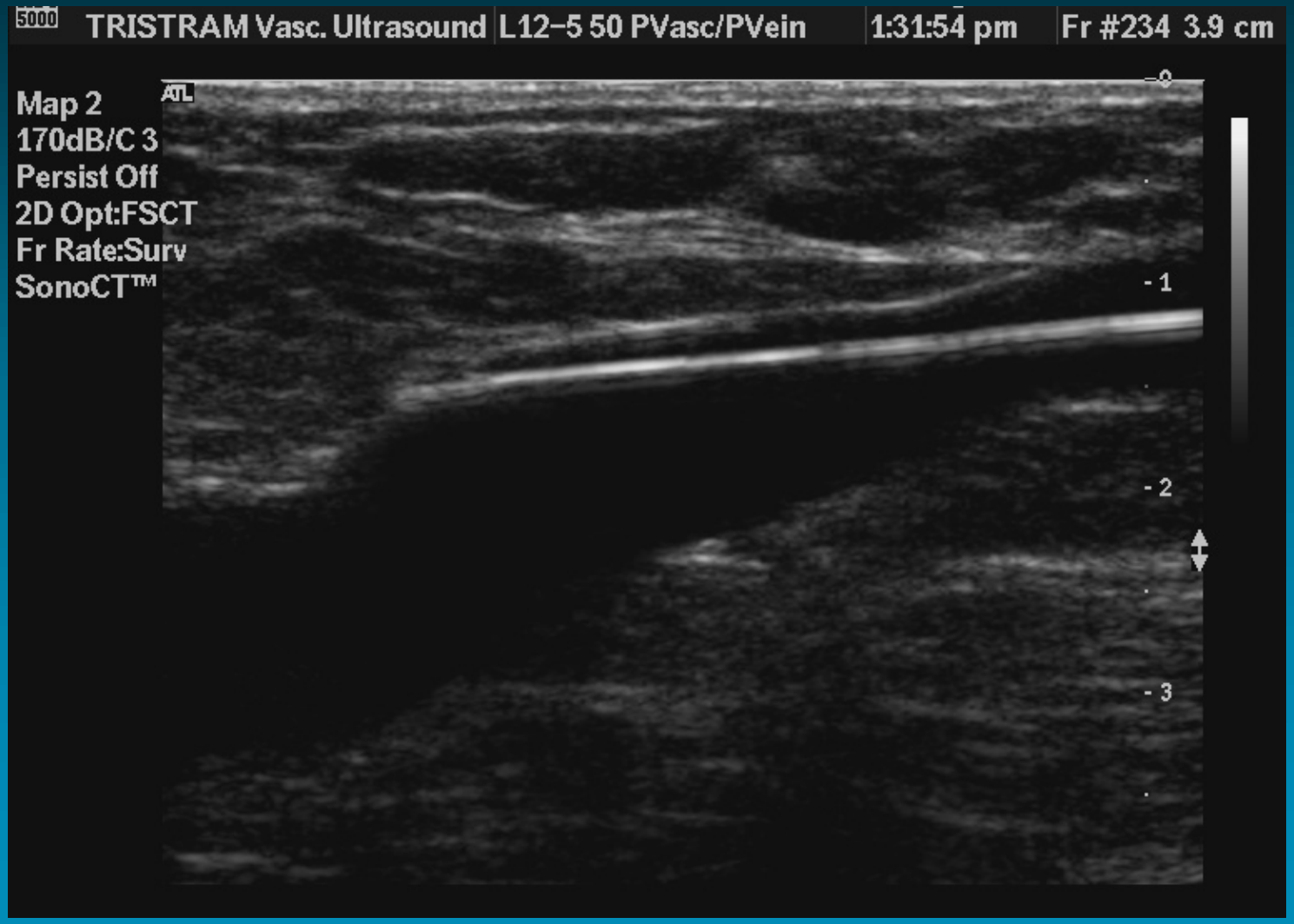
EVLT: Access

- Access in LONGITUDINAL
- Large calibre needle (16gauge) easy to see



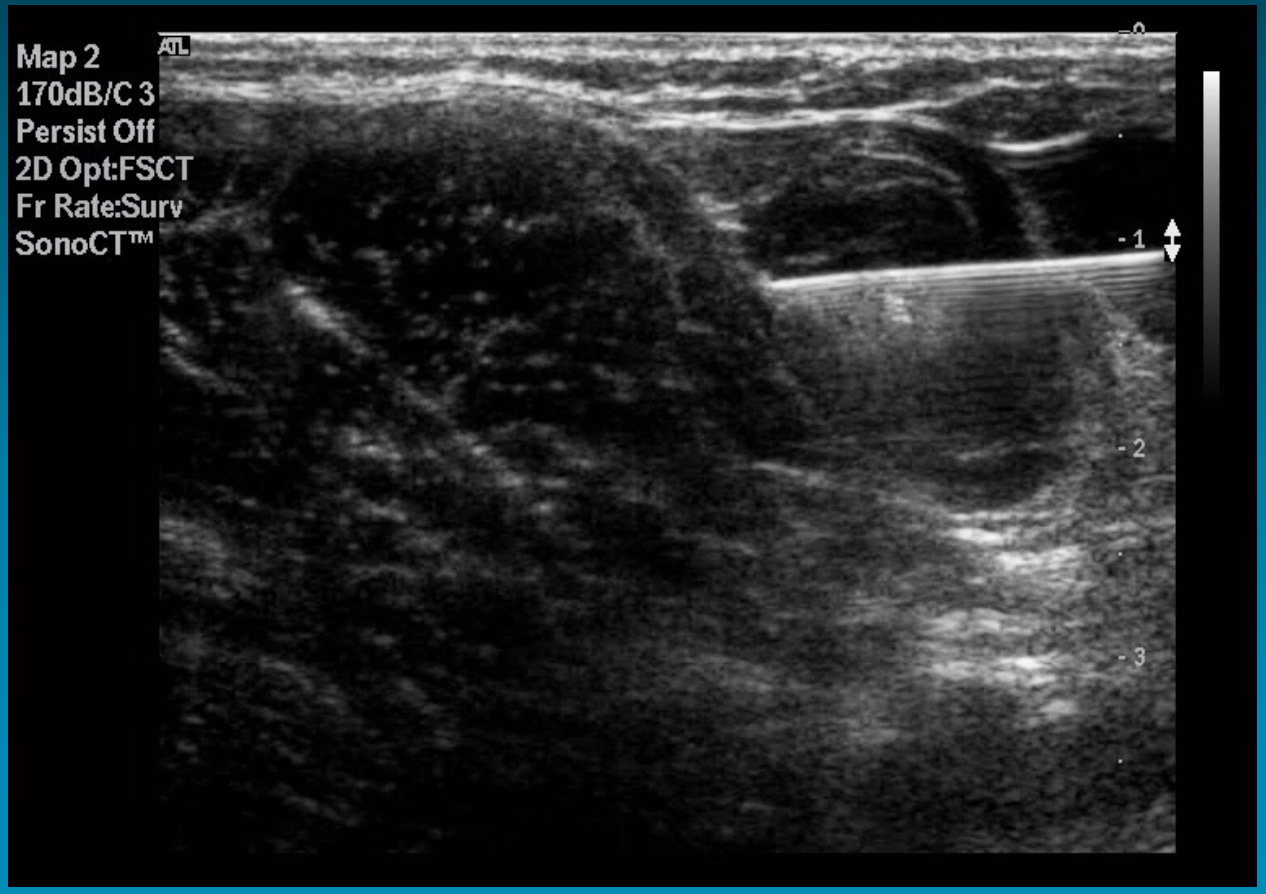
EVLT Laser tip Positioning

- Laser fibre thin, but well seen
- U/S guidance: tip 1-2 cm from SFJ



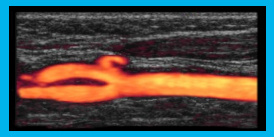
Local Anaesthetic Injection Guidance

- Preparation for EVLT
- TRANSVERSE guidance is practical
- Flooding of LSV fascial envelope with local anesthetic



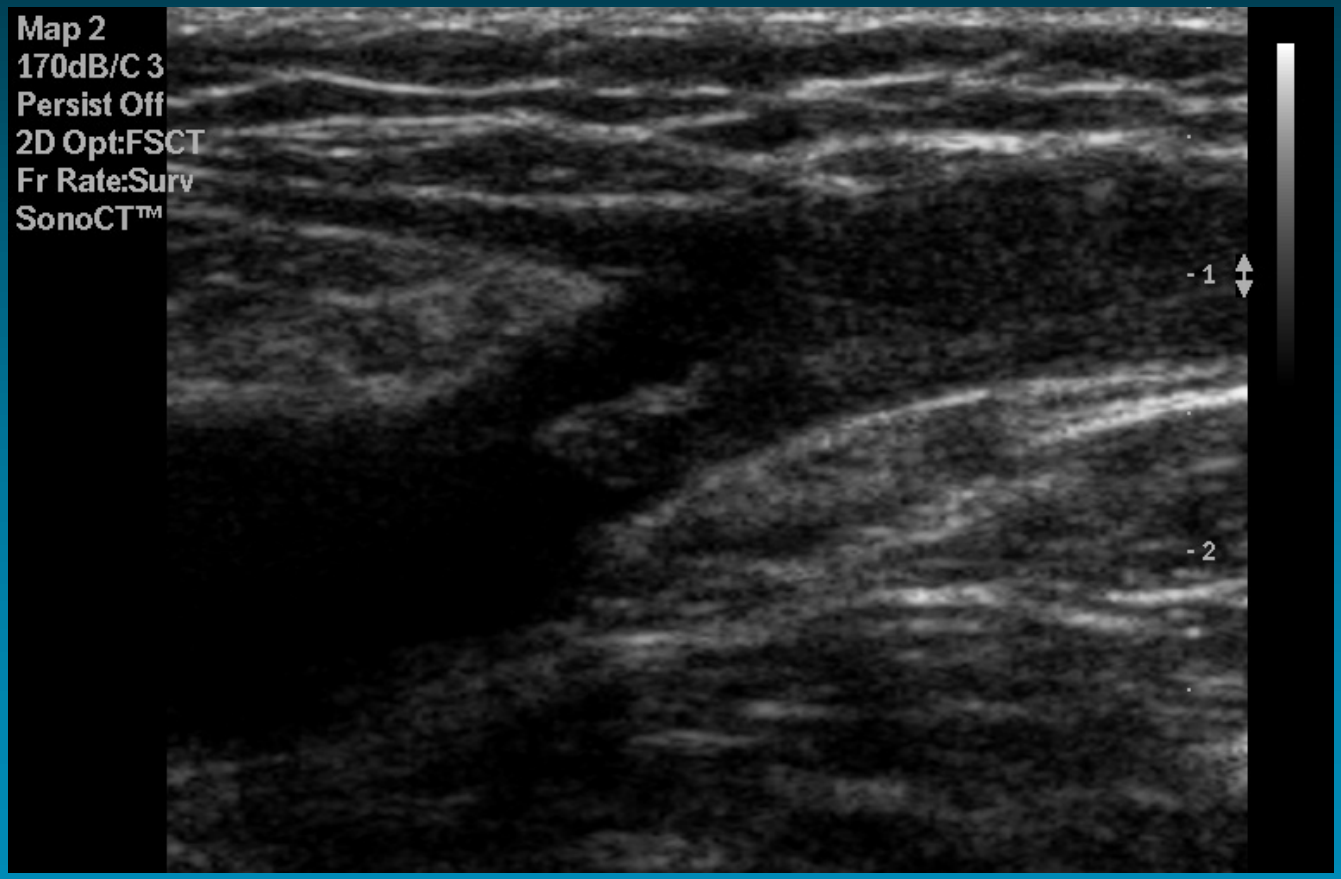
Local anaesthetic

- Analgesia
- Compress, spasm vein
- Heat sink

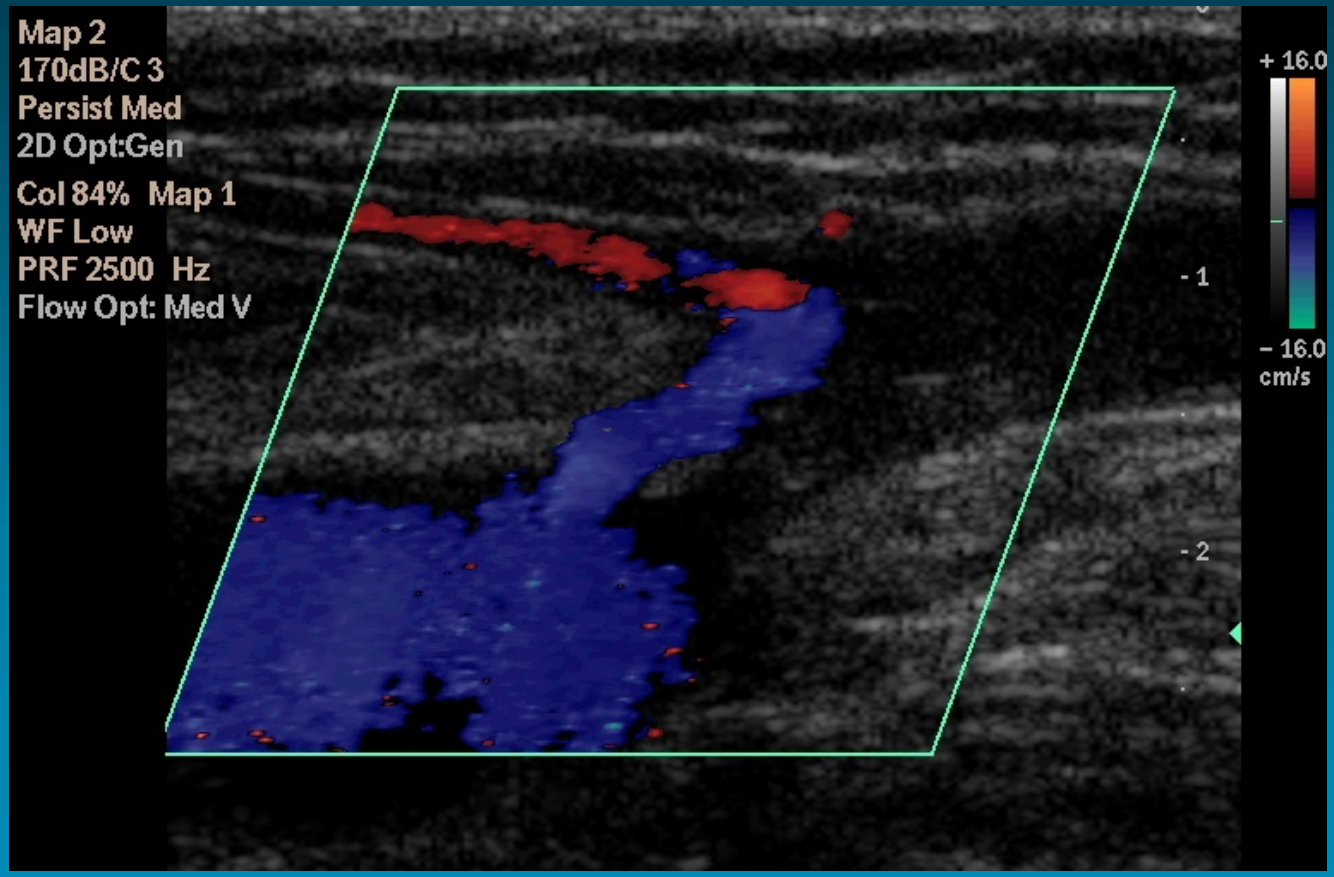


David Ferrar, FRACS(Vasc), DDU (Vasc)
Chris Holdaway, FRACS(Vasc)
Martin Necas, RDMS, RVT

Post EVLT



Post EVLT


Map 2
170dB/C 3
Persist Med
2D Opt:Gen
Col 84% Map 1
WF Low
PRF 2500 Hz
Flow Opt: Med V
+ 16.0
- 1
- 2
– 16.0
cm/s

Comparison to stripping

Retains abdominal wall venous drainage
No crossectomy
More acceptable to some patients
No GA

Does it work?

GSV occlusion rates
Relatively short term
RFA 88% at 4 yrs (Merchant et al)
EVLT 93% at 2 yrs
?technique / energy dependent

Australasian results

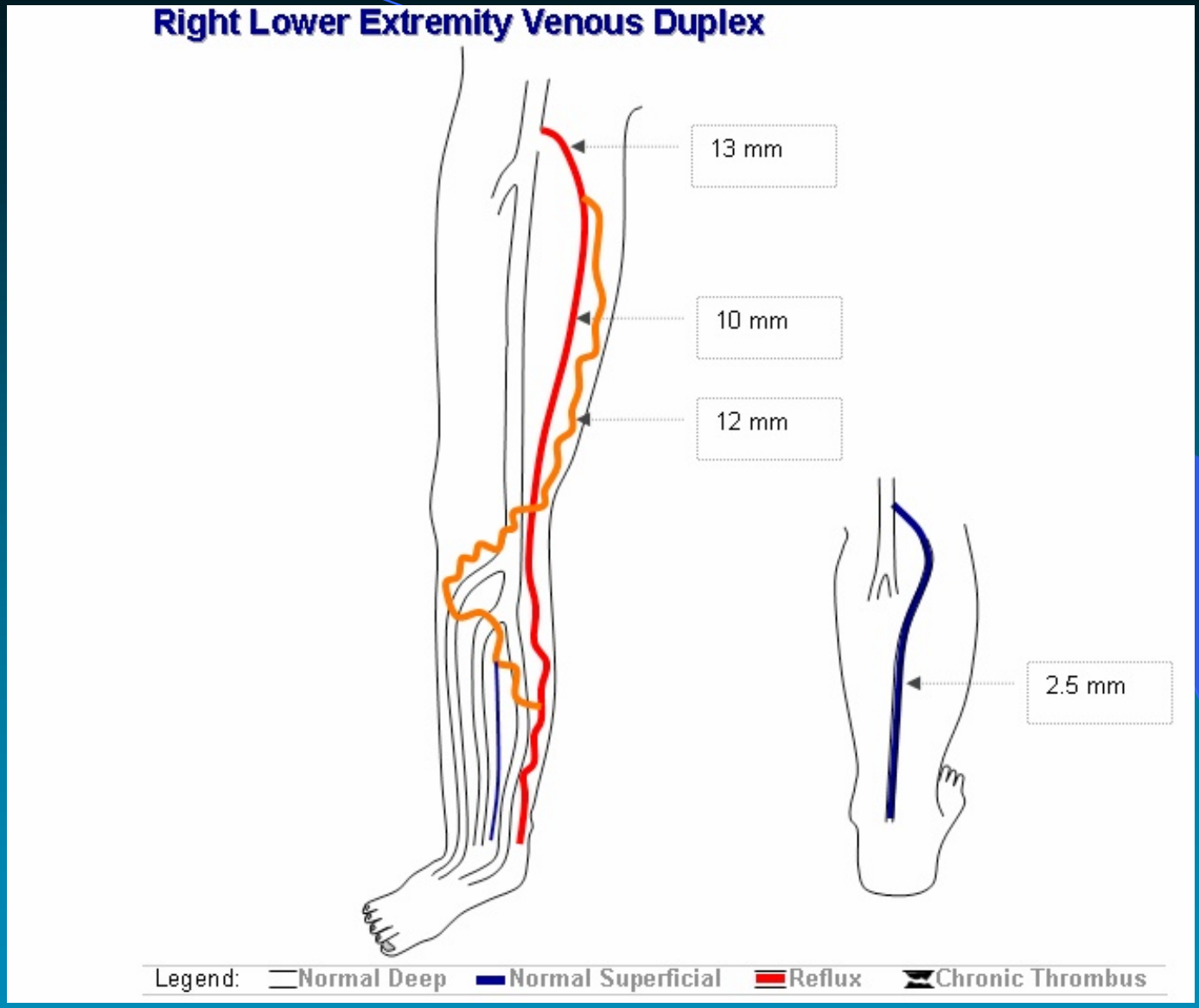
Myers and Fris MJA Aug 2006
404 veins in 308 pts
3 technical failures
21 recanalisation (minor, 11 had UGS)
Primary success 80%
Secondary u/s success 88%

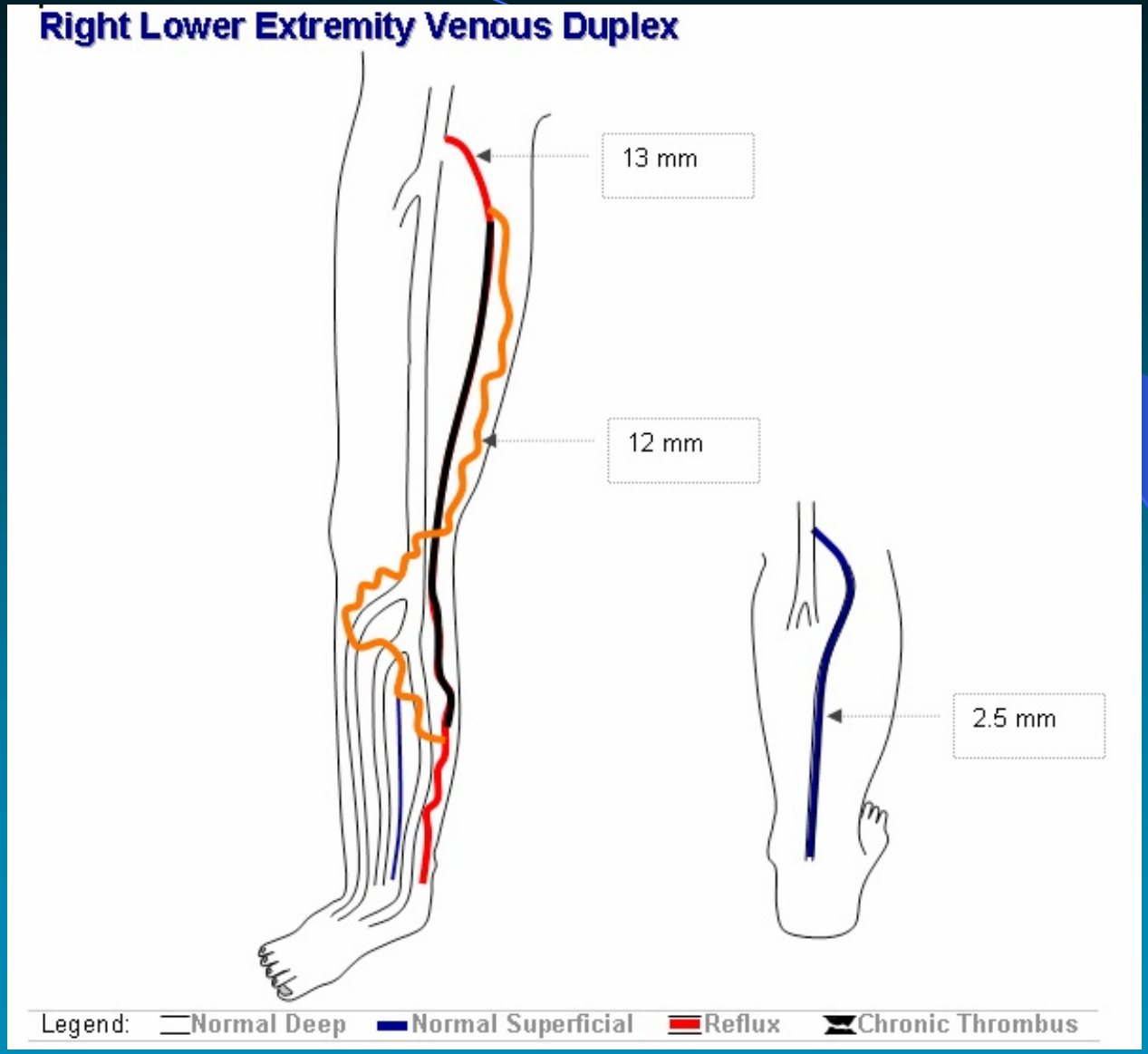
Results

Dec 2003-April 2008
351 pts (502 legs)
51 SSVs
2 failed access due to STP
2 other failed access
1failure treated by SFJ ligation
1 recanalisation, 3 minor recanalisation
No VTE

Results

Pain 0-14 days
NSAID use in 70%
10% pts took time off work beyond day of procedure
70% required adjuvant UGS
Significant STP 4 pts


Right Lower Extremity Venous Duplex
13 mm
10 mm
12 mm
2.5 mm
Legend:
Normal Deep
Normal Superficial
Reflux
Chronic Thrombus


Right Lower Extremity Venous Duplex
13 mm
12 mm
2.5 mm
Legend:
Normal Deep
Normal Superficial
Reflux
Chronic Thrombus

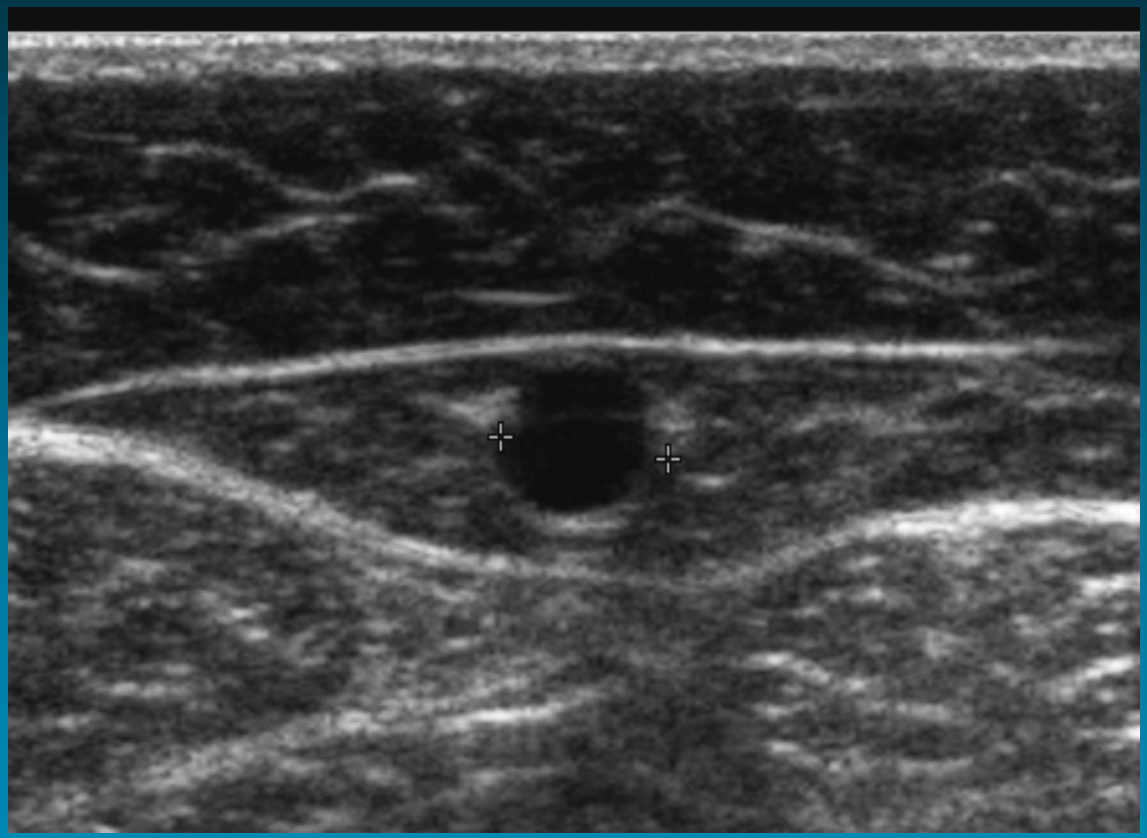
Reasons for choice between EVLTand surgery

Patient choice
Anatomical considerations
GA vs LA
Needle phobia
Repeated visits
Large tributary veins

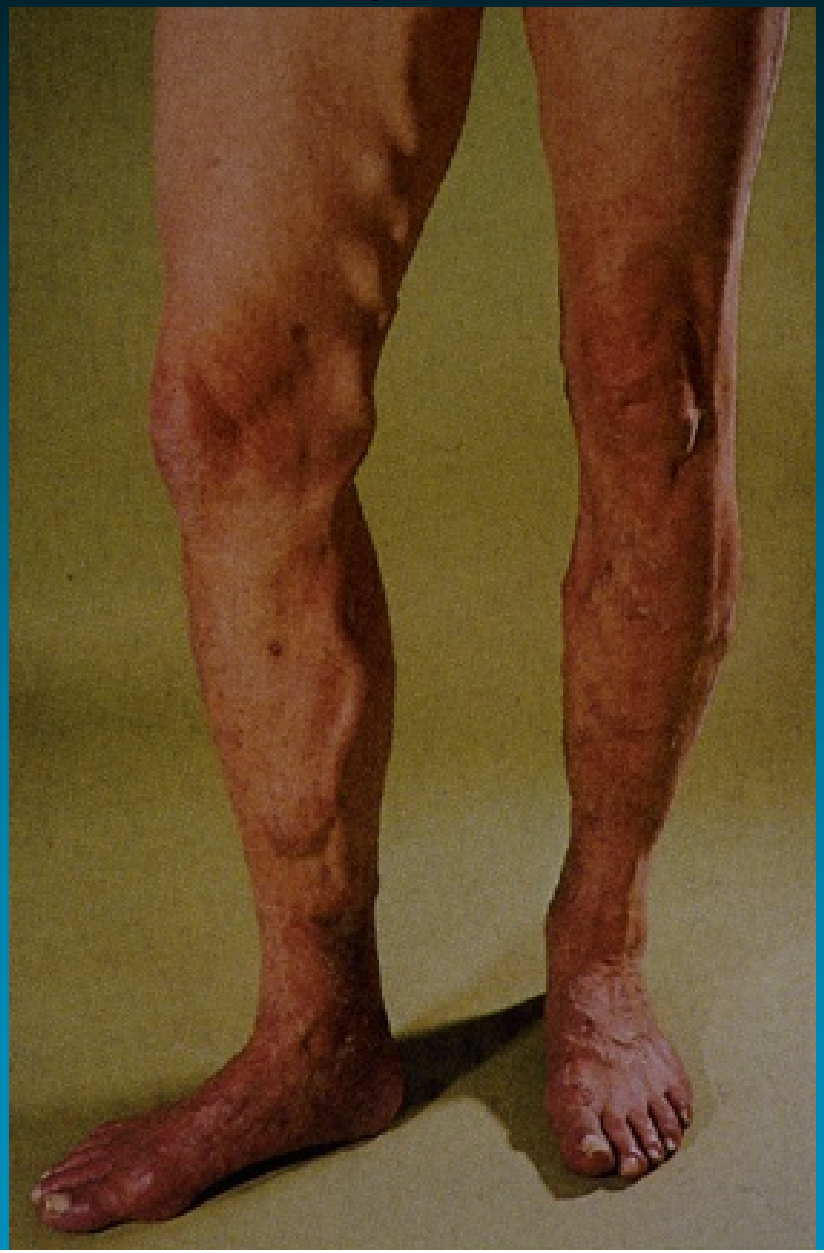
Anatomical considerations

GSV (or SSV)
Saphenous sheath
Large calibre tributary veins

Great Saphenous Vein
saphenous sheath

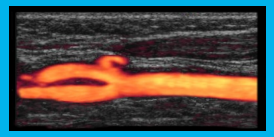


GSV not in saphenous sheath



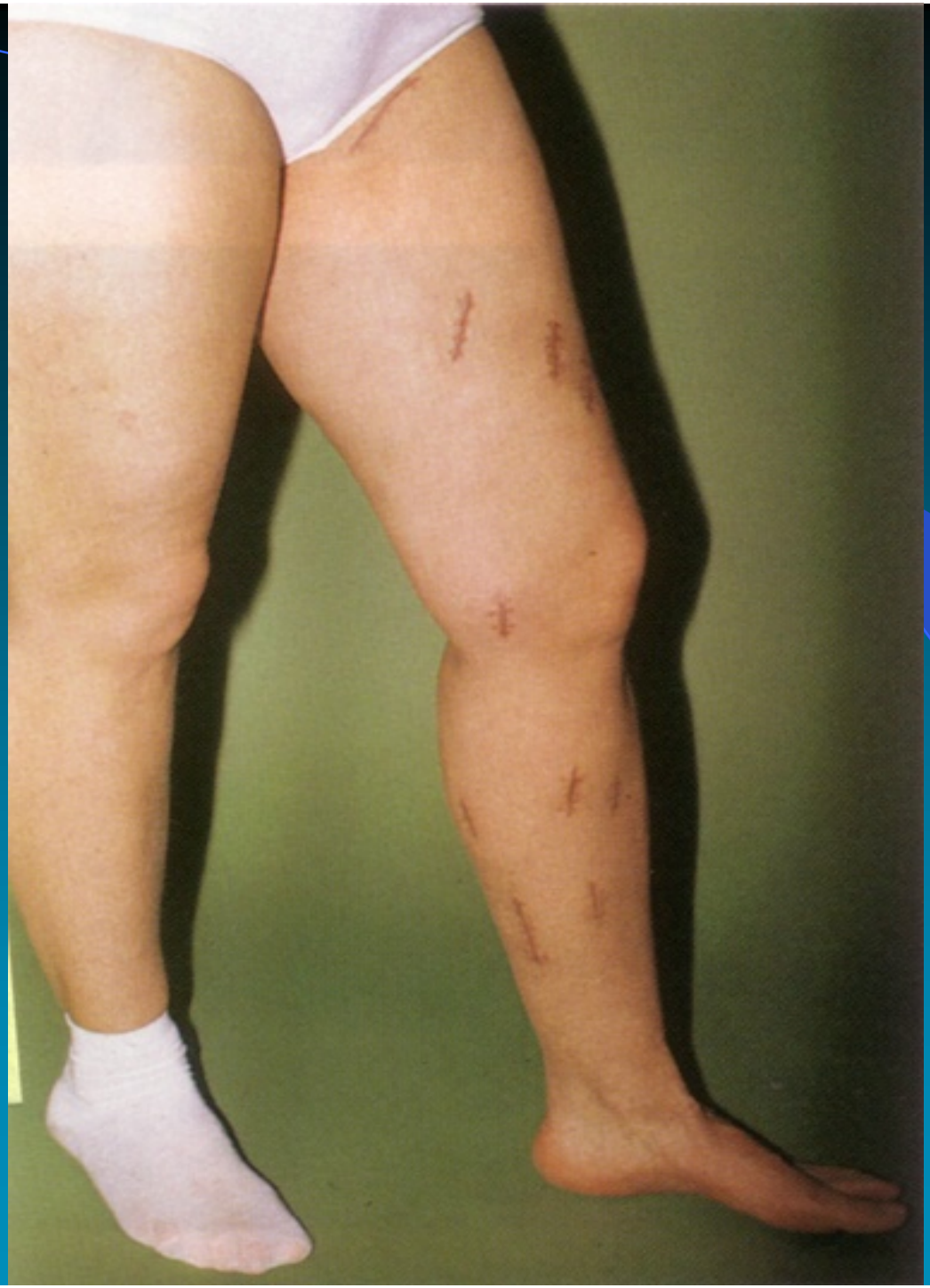
Surgery

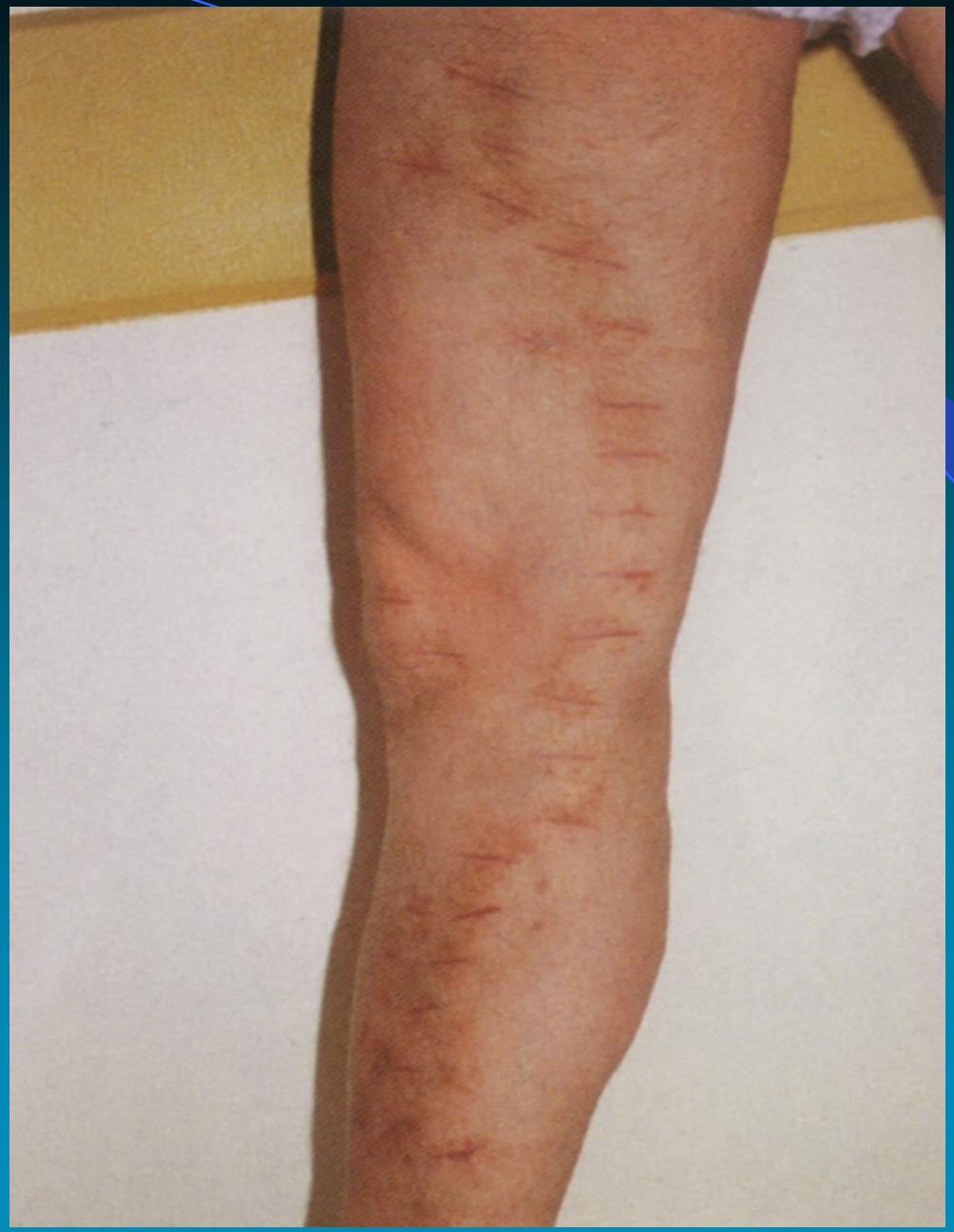
- Ultrasound guided
- Majority SFJ ligation GSV strip + avulsions
- Inversion strip
- Phlebectomy hooks
- Absorbable sutures
- Bandage 2/7
- No stocking
- Early mobilisation



TRISTRAM
VASCULAR ULTRASOUND

David Ferrar, FRACS(Vasc), DDU (Vasc)
Chris Holdaway, FRACS(Vasc)
Martin Necas, RDMS, RVT



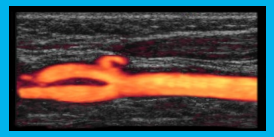


Questions

- Which treatment is best?
- Is surgical treatment outdated?
- Which has the best long term results?

Limitations of Scientific Evaluation

- No randomised controlled trials
- Limited comparitive literature
- Heterogeneous population
- Differing indications for treatment
- Differing definitions of recurrence
- Evolution of treatments

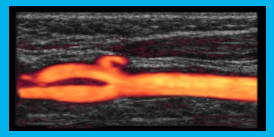


David Ferrar, FRACS(Vasc), DDU (Vasc)
Chris Holdaway, FRACS(Vasc)
Martin Necas, RDMS, RVT

Recurrence

- Clinical
- Ultrasound
- Significant
- Recurrence of symptoms
- Recurrence of ulceration

- Significant recurrence probably occurrs in 20-30% in the long term
- UGS v EVLT v Surgery



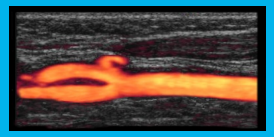
David Ferrar, FRACS(Vasc), DDU (Vasc)
Chris Holdaway, FRACS(Vasc)
Martin Necas, RDMS, RVT

UGS Recurrence

- Anywhere between 0 - 100%
- Published figures 50% at 5yrs
- Very dependent on pt selection

EVLT Recurrence

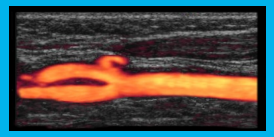
- Recanalisation of GSV
- Uncommon
- Probably 5-10%
- Dependent on energy used and size of vein



David Ferrar, FRACS(Vasc), DDU (Vasc)
Chris Holdaway, FRACS(Vasc)
Martin Necas, RDMS, RVT

Surgical Recurrence

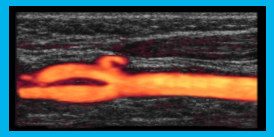
- Most scrutinised
- U/S recurrence high
- About 20% have further treatment
- Dependent on pt selection



David Ferrar, FRACS(Vasc), DDU (Vasc)
Chris Holdaway, FRACS(Vasc)
Martin Necas, RDMS, RVT

Small Saphenous vein (SSV,LSV)

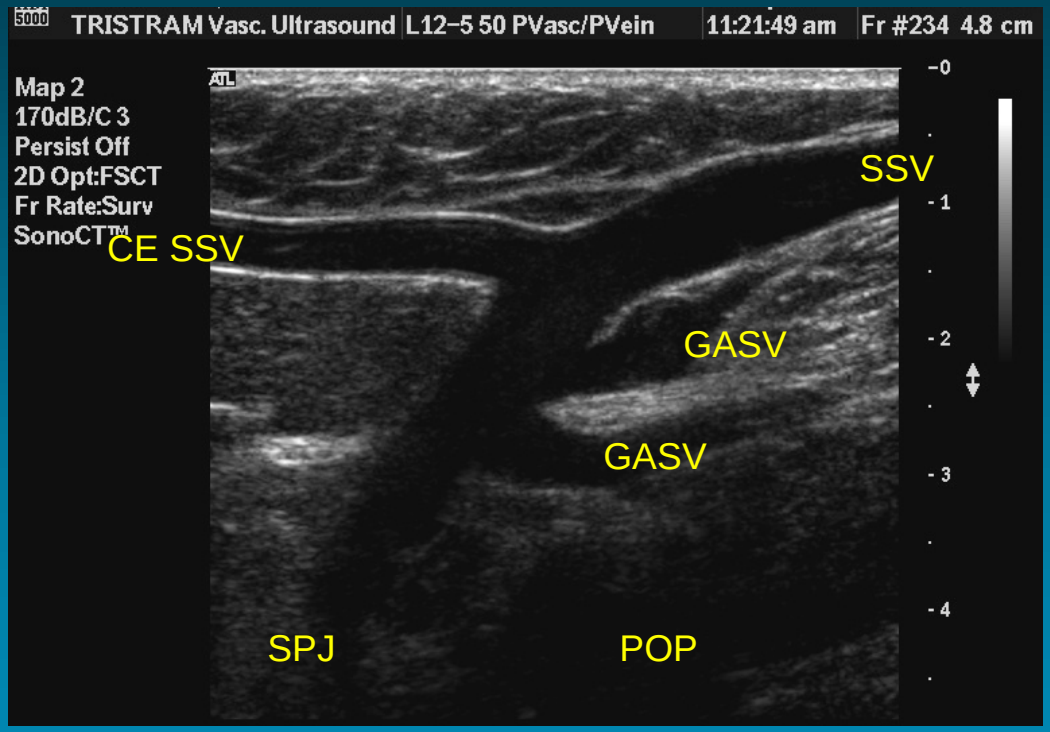
- Higher surgical recurrence
- ?related to lack of stripping
- EVLT,UGS may be indicated
- ?sural nerve

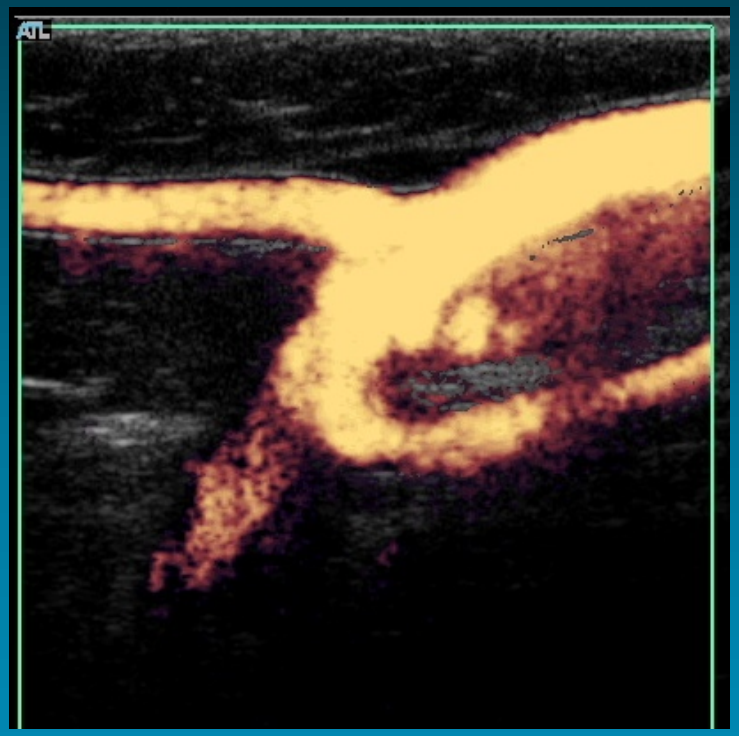


David Ferrar, FRACS(Vasc), DDU (Vasc)
Chris Holdaway, FRACS(Vasc)
Martin Necas, RDMS, RVT

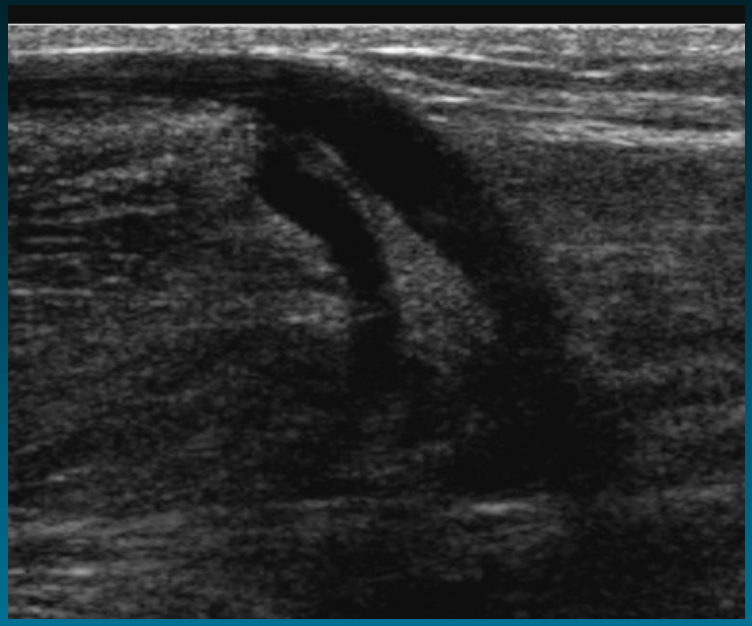
Normal Venous Anatomy: Superficial-Deep Junctions

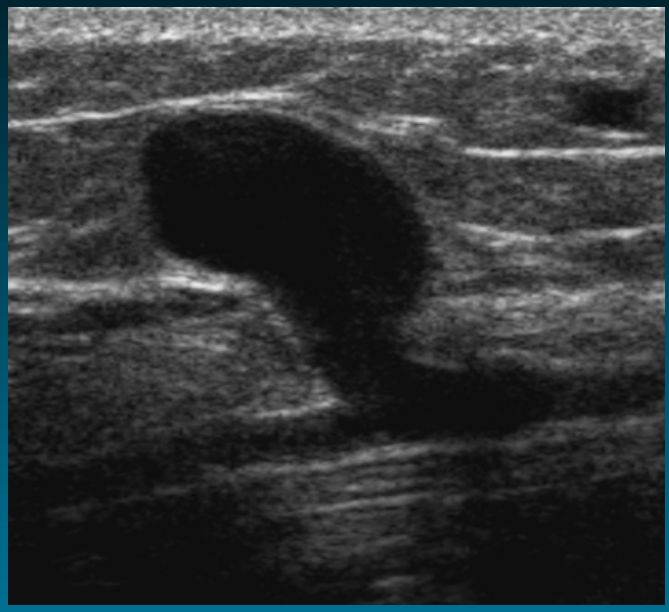
- Sapheno-Popliteal junction- variant

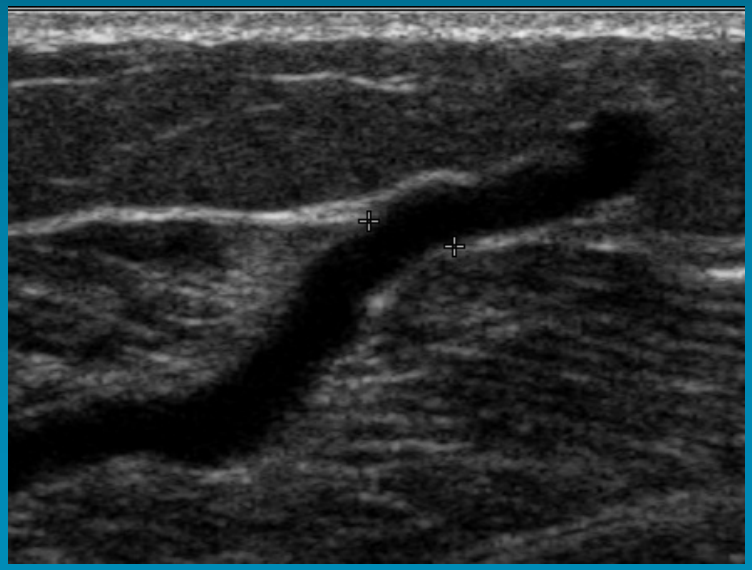


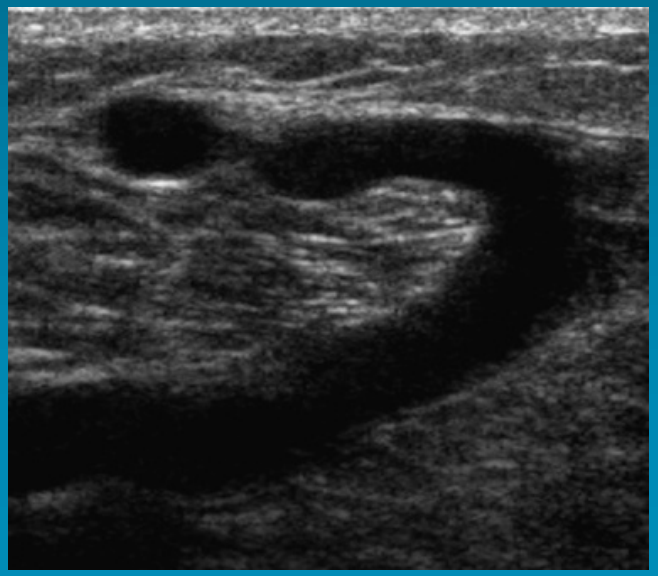


How do we treat perforators





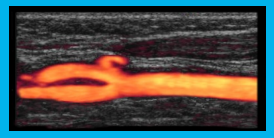




Incompetent Perforators

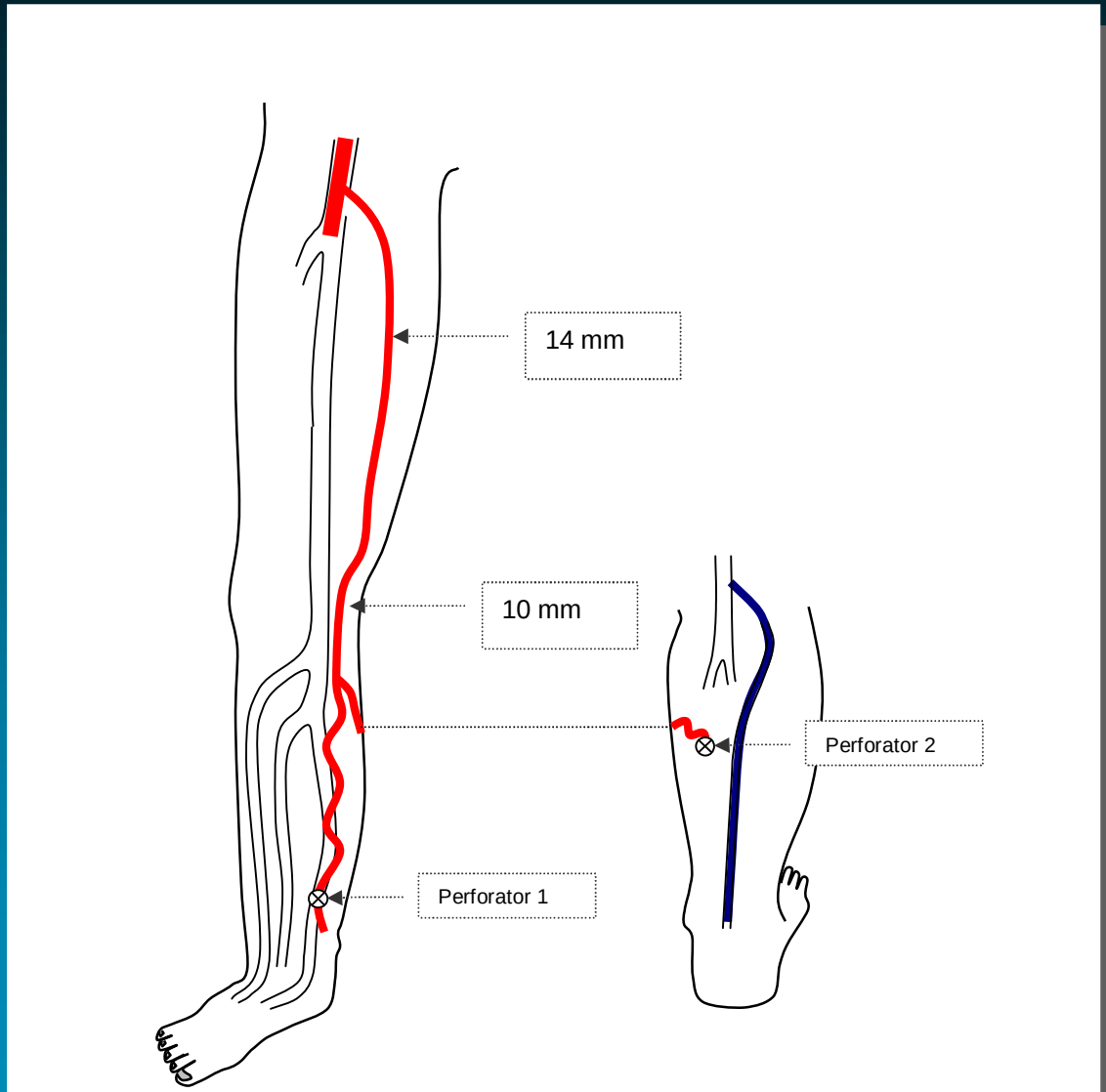
- Controversial whether to treat
- 1. Primary SFJ incompetence
- 2. Deep vein incompetence
- 3. Isolated perforator incompetence (athletes)

- Surgery, SEPS, UGS

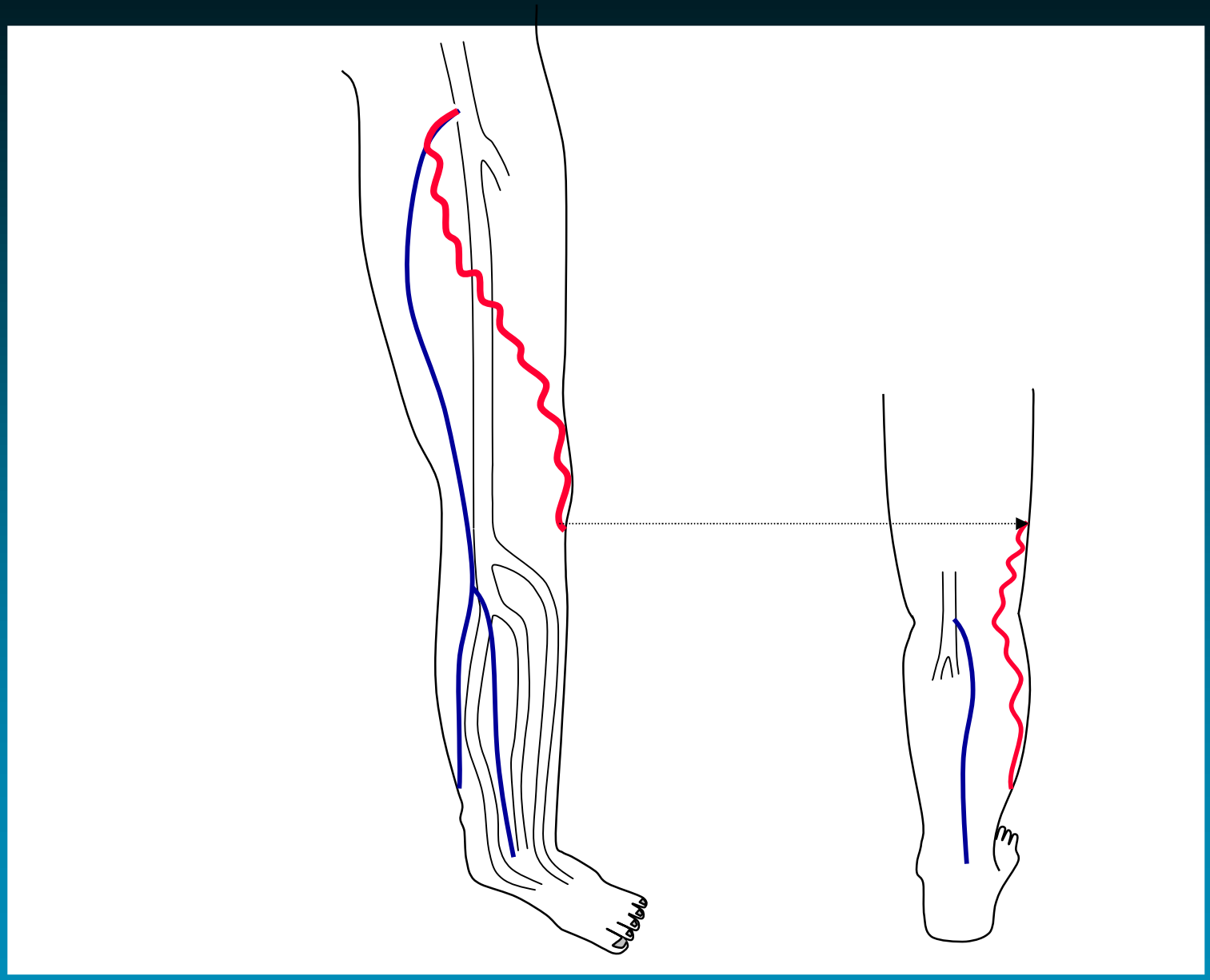


David Ferrar, FRACS(Vasc), DDU (Vasc)
Chris Holdaway, FRACS(Vasc)
Martin Necas, RDMS, RVT

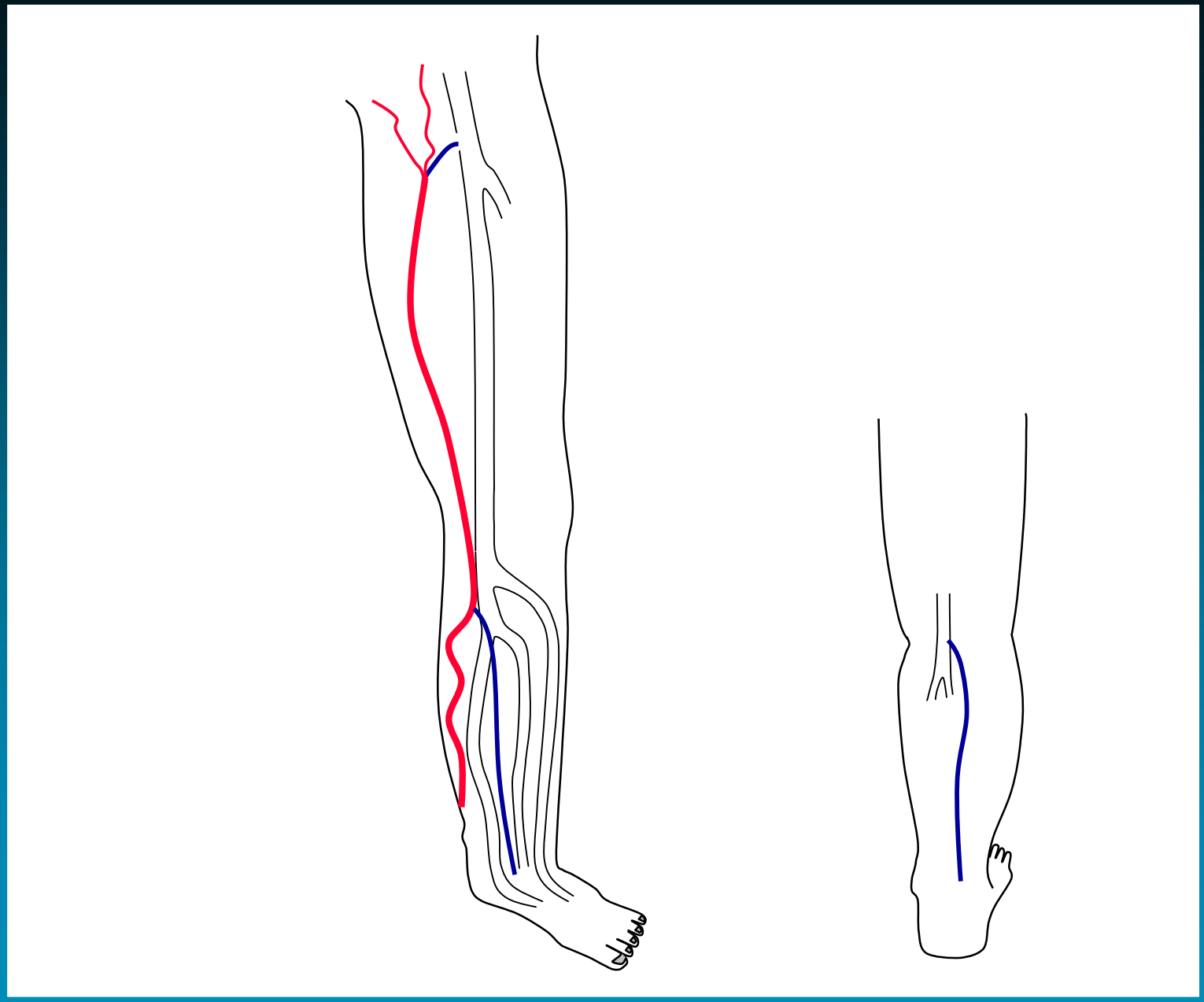
Report Examples



Anterior thigh circumflex vein reflux

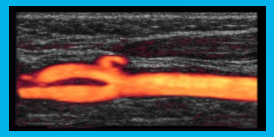


GSV incompetence



Ovarian vein Incompetence

- Common in women (usually asymptomatic)
- Causes pelvic venous congestion
- May cause vulval vvs
- May contribute to recurrence
- May cause pelvic pain
- May cause urge incontinence
-

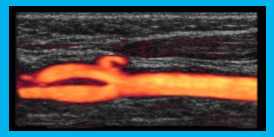


TRISTRAM
VASCULAR ULTRASOUND

David Ferrar, FRACS(Vasc), DDU (Vasc)
Chris Holdaway, FRACS(Vasc)
Martin Necas, RDMS, RVT

Ovarian vein Incompetence management

- Ultrasound
- ?pelvic ultrasound (TV)
- Vulval vvs usually regress
- Avulsion / sclerotherapy for veins
- Ovarian vein embolisation for selected pts
- Good results based on pt selection
-

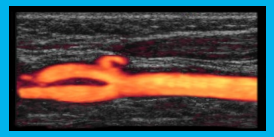


TRISTRAM
VASCULAR ULTRASOUND

David Ferrar, FRACS(Vasc), DDU (Vasc)
Chris Holdaway, FRACS(Vasc)
Martin Necas, RDMS, RVT

Summary

- Varicose vein management is not easy!
- Treatment options often are (if appropriate choice taken)
- Specialist vein clinics make it easy
-



David Ferrar, FRACS(Vasc), DDU (Vasc)
Chris Holdaway, FRACS(Vasc)
Martin Necas, RDMS, RVT

Keep your options open!

Keep your options open!

Keep your options open!

Keep your options open!

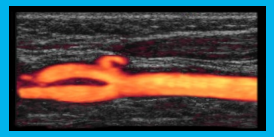
Keep your options open!

Keep your options open!

Keep your options open!

Primary Varicose Veins

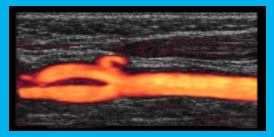
- 70% saphenofemoral + GSV incompetence
- Pelvic vein + GSV incompetence
- GSV + SSV
- SSV + CE
- Perforators
-



David Ferrar, FRACS(Vasc), DDU (Vasc)
Chris Holdaway, FRACS(Vasc)
Martin Necas, RDMS, RVT

Selection for endovenous ablation

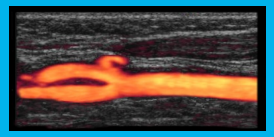
- GSV including recurrence
- Best if completely within fascial envelope
- Any size
- Small number of varicosities
- GSV reflux + spider veins ideal
- Avoid ATCV



David Ferrar, FRACS(Vasc), DDU (Vasc)
Chris Holdaway, FRACS(Vasc)
Martin Necas, RDMS, RVT

Ultrasound guided sclerotherapy

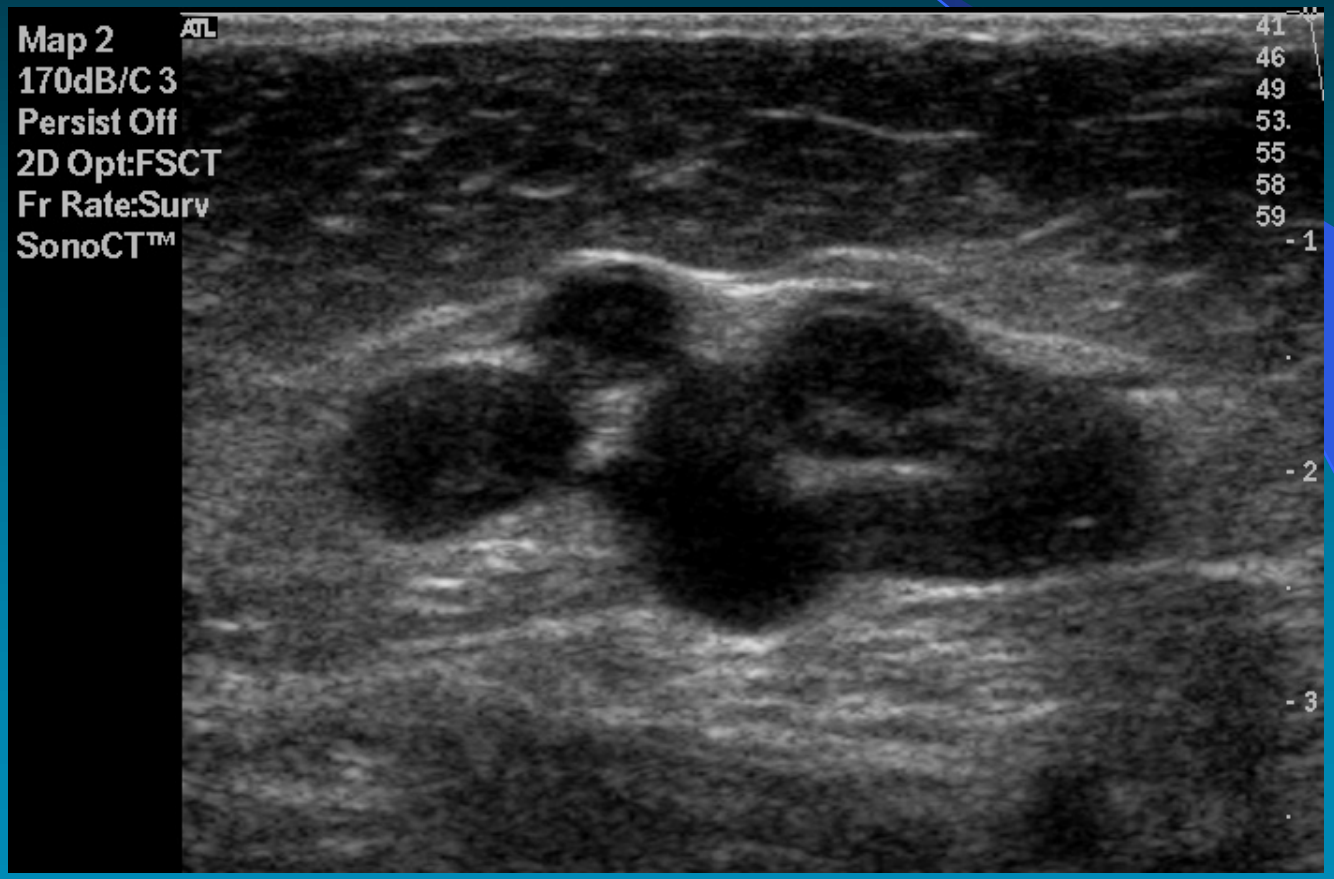
- Differing procedures
- Assessment of recurrence (0-100%)
- Best for small callibre veins
- Foam
- Choice of sclerosant
- Stocking



David Ferrar, FRACS(Vasc), DDU (Vasc)
Chris Holdaway, FRACS(Vasc)
Martin Necas, RDMS, RVT

	UGS	EVLT	Surgery
anaesthesia	nil	local	general
pain	minimal	mild	mild
stocking	3-4/52	1/52	bandage 2/7
time off	nil	0-2 days	5-10 days
Adjuvant procedure		often	
Cosmesis	++	+++	+++
Recurrence	0-100%	5%	20-30%

Recurrent GSV varices

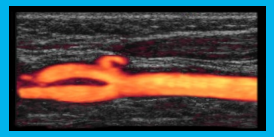


Primary Varicose Veins

- EVLT for straightforward GSV reflux
- Medical comorbidities (warfarin)

- Surgery for large callibre varicosities
- ATCV varicosities

- UGS for occasional small callibre GSV
- Unusual paraxial veins



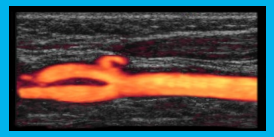
David Ferrar, FRACS(Vasc), DDU (Vasc)
Chris Holdaway, FRACS(Vasc)
Martin Necas, RDMS, RVT

Recurrent VVs

- Surgery if large callibre recurrent / residual SFJ
- EVLT for residual GSV
- UGS for widespread small callibre recurrence`

Superficial Thrombophlebitis

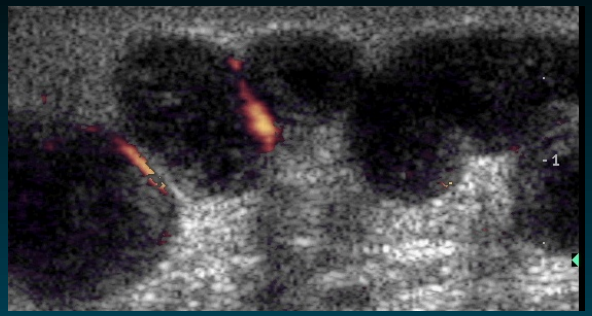
- Urgent ultrasound
- DVT - anticoagulate
- STP up to SFJ - urgent surgery
- STP - surgery for symptomatic (can wait)

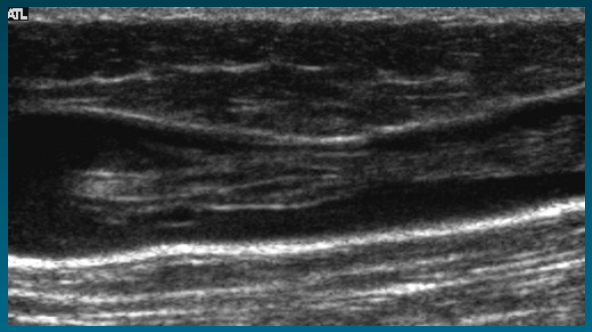


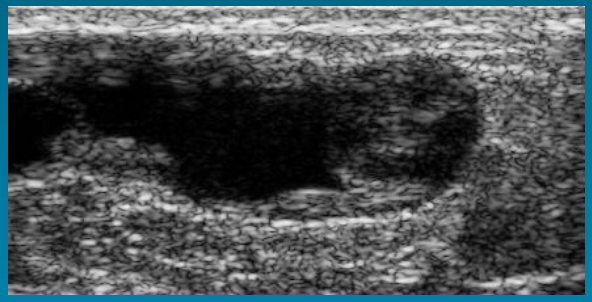
David Ferrar, FRACS(Vasc), DDU (Vasc)
Chris Holdaway, FRACS(Vasc)
Martin Necas, RDMS, RVT

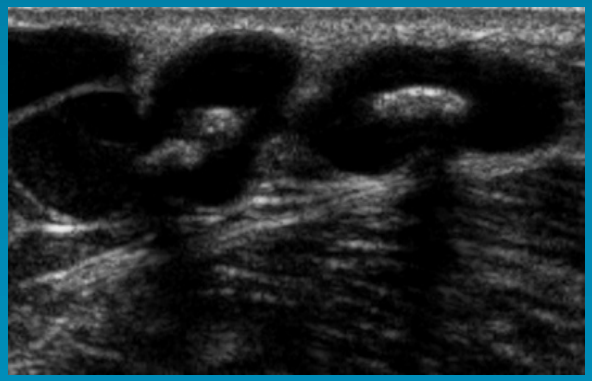
Superficial Thrombophlebitis

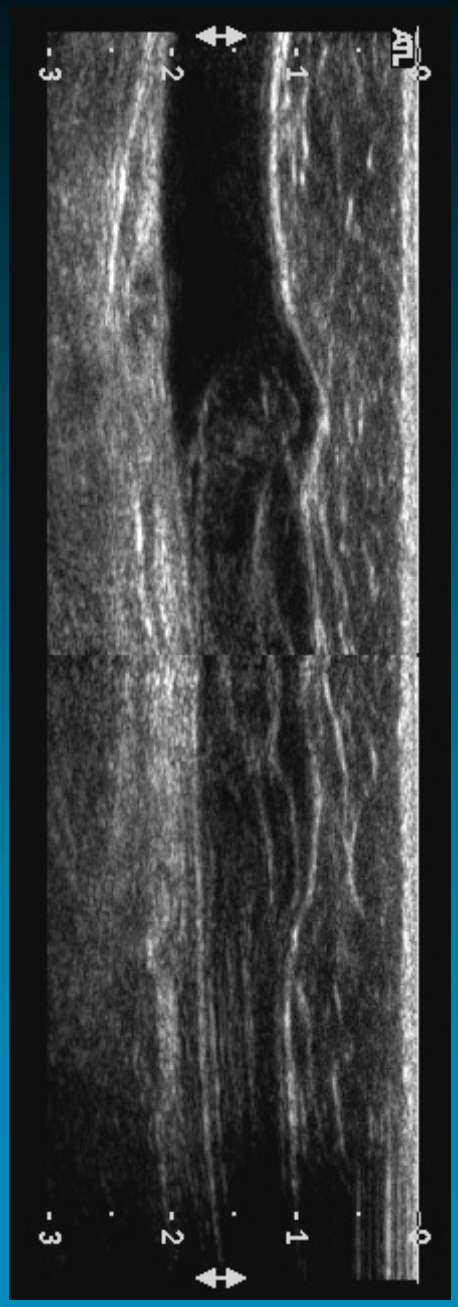
- Acute
- Recanalized
- Chronic
- Phleboliths





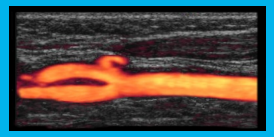






Chronic Superficial Thrombophlebitis

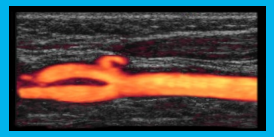
- Surgery can be difficult
- EVLT - passage of wire may be difficult
- ? Good indication for UGS



David Ferrar, FRACS(Vasc), DDU (Vasc)
Chris Holdaway, FRACS(Vasc)
Martin Necas, RDMS, RVT

CONCLUSION

- Multiple treatment modalities
- Numerous variations in vv distn
- Ultrasound is essential
- Differing treatments for differing anatomy
- In order to gain fully informed consent,you must discuss all options??



TRISTRAM
VASCULAR ULTRASOUND

David Ferrar, FRACS(Vasc), DDU (Vasc)
Chris Holdaway, FRACS(Vasc)
Martin Necas, RDMS, RVT