



Endovenous Treatment of Varicose Veins

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**Cumbria and Lancashire Vascular and Endovascular Centre
Operative Department Training – 4th May 2016**

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Disclosure

- No disclosures declared.
- No financial relationship with content.
- Personal experience with clinical evidence.



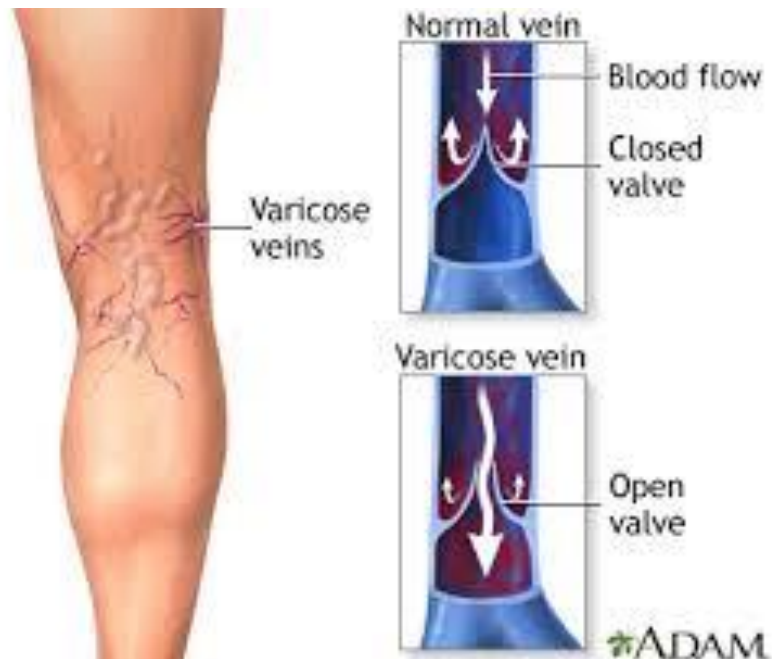
Learning Outcomes

- Background.
- Why Treat ?
- Therapeutic Strategies.
- Treatment Options.
- Clinical Outcomes.



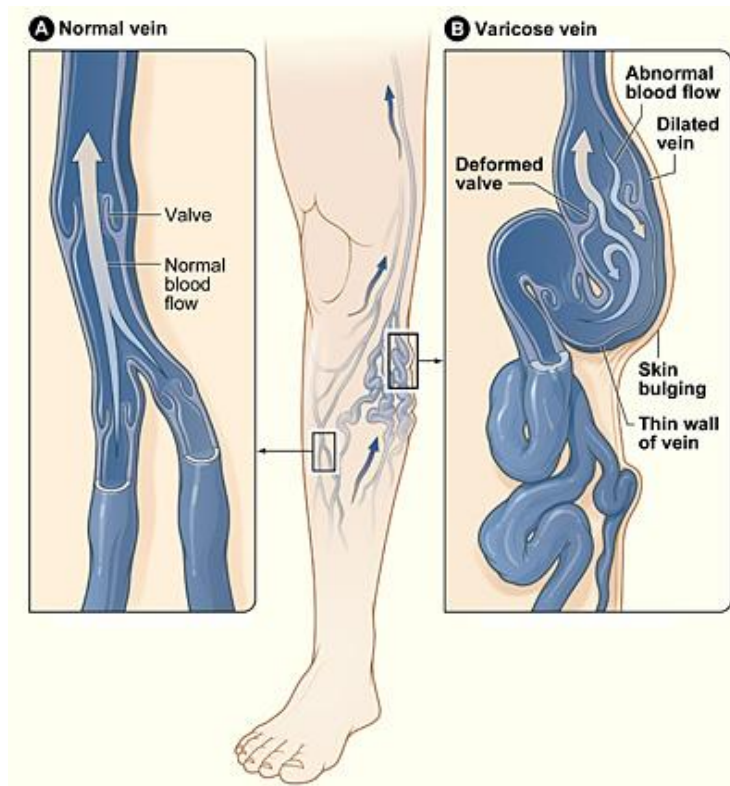
Definition

- Dilated, superficial, tortuous veins classically affecting the lower extremities.



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History

First in History

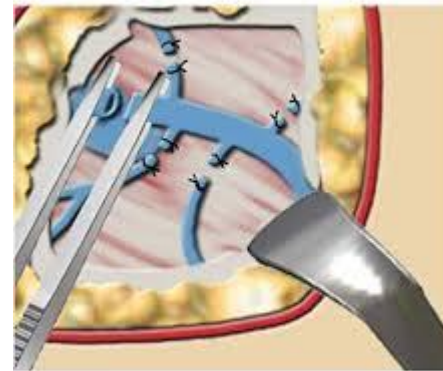
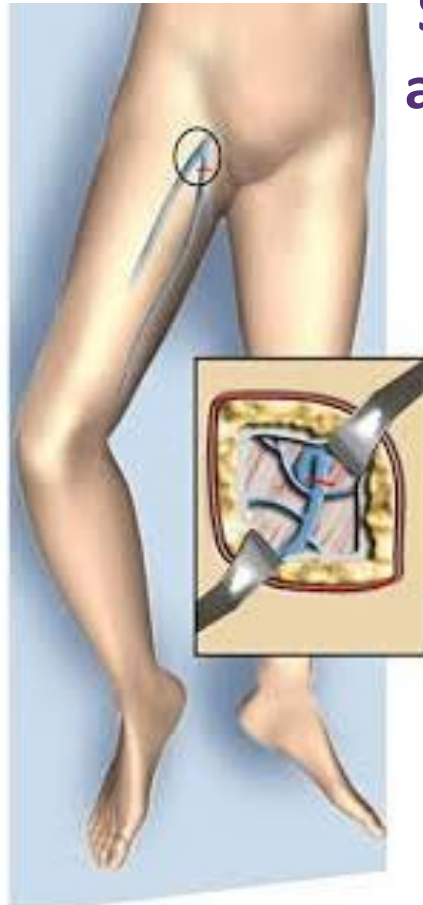
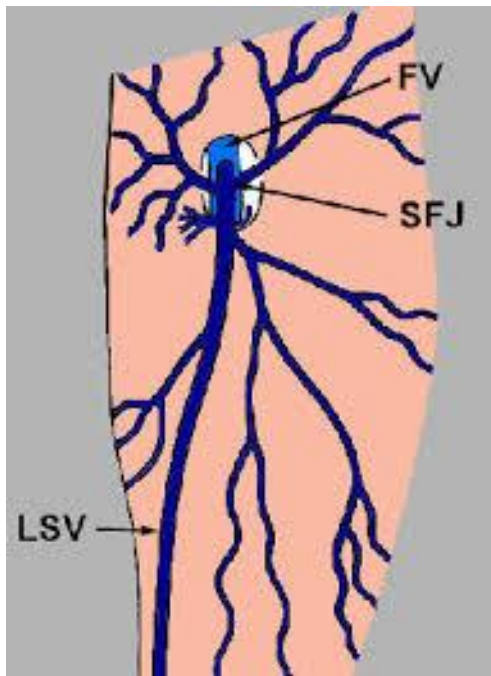


- **'Siragranthi'**- Varicose Veins
- Sushruta- Indian surgeon of antiquity is the first in history to document 'Siragranthi=Varicose veins' as aneurysmal dilation of Veins in 'Samhit'

-History of Vascular surgery, Chapter 13, Page 147



Traditional Open Surgery Sapheno-femoral junction ligation and great saphenous vein stripping





Recurrence rates between 15% and 20%

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Epidemiology

- Truncal veins very common;
 - Males 40% vs. females 32% .
- Mild varices – reticular / thread veins;
 - 80% of 18-64 years olds.
- Increases with age;
 - 15% of people between 25 and 34 years.
 - 50-60% of people between 55 and 64 years.



Aetiology

- Primary;
 - Occur in the absence of any underlying cause.
 - Risk factors – pregnancy, weight, posture and bowel habit.
 - Genetics – family history but no genetic link as yet.

- Secondary;
 - Occur as a consequence of another condition.
 - Congenital abnormalities.
 - Post-DVT.
 - Pelvic masses / tumours.
 - Valve abnormalities or venous outflow obstructions.



Clinical Features

- Most patients are symptomatic.
- Majority of patients consult for cosmetic reasons.
- Symptoms include;
 - Pain.
 - Swelling / heaviness.
 - Itch.
 - Burning / restlessness.
 - Cramps.
- Inflammation.
- Venous hypertension / ulcers.
- Bleeding.

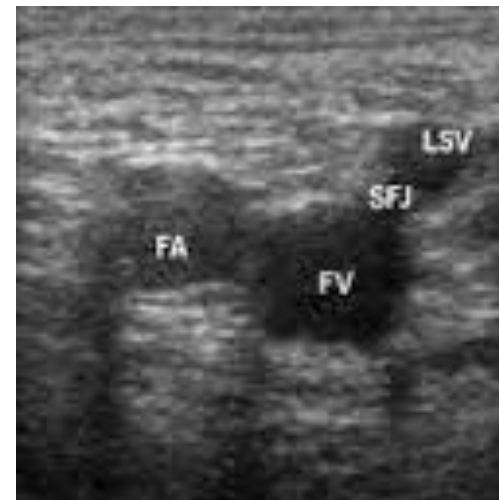
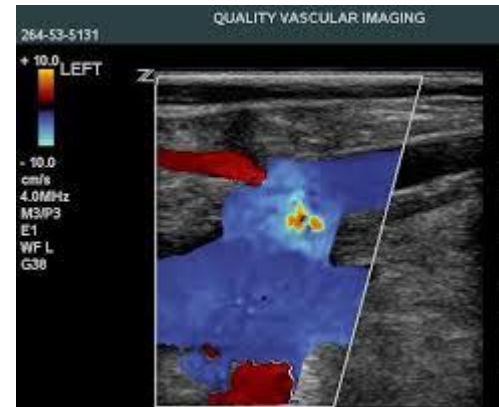


Clinical Assessment

- Inspection.
- Palpation.
- Tests;
 - Cough.
 - Tap.
 - Trendelenberg.
 - Tourniquet.
 - Perthes.
- Doppler.



Venous Duplex



Clinical*

- C₀ - No clinical signs
- C₁ - Small varicose veins
- C₂ - Large varicose veins
- C₃ - Edema
- C₄ - Skin changes without ulceration
- C₅ - Skin changes with healed ulceration
- C₆ - Skin changes with active ulceration

Etiology*

- E_C - Congenital
- E_P - Primary
- E_S - Secondary
(usually due to prior DVT)

Anatomy*

- A_S - Superficial veins
- A_D - Deep veins
- A_P - Perforating veins

Pathophysiology*

- P_R - Reflux
- P_O - Obstruction

"Early application of compression should be performed to correct swelling and progressive scarring and to initiate the healing process by improving the venous microcirculation."

Kistner R. Specific Steps to Effective Management of Venous Ulceration. Supplement to Wounds June 2010.

Clinical Classifications with examples



C₁ - telangiectasias or reticular veins



C₂ - varicose veins



C₃ - edema & corona



C₄ - lipodermatosclerosis and eczema



C₅ - ulcer scar



C₆ - active ulcer

International Consensus CEAP

Symptoms

Clinical signs

C0S

C1

C2

C3

C4

C5

C6



Heavy legs, pains in the legs, pruritus...
But no clinical or palpable signs of venous disease

[▶ read more](#)



Telangiectasia or reticular veins

[▶ read more](#)



Visible and palpable varicose veins

[▶ read more](#)



Venous oedema (without trophic changes)

[▶ read more](#)



Trophic changes of venous origin :
atrophie blanche, pigmented purpuric dermatitis, varicose eczema

[▶ read more](#)



healed ulcer with trophic changes

[▶ read more](#)



Presence of one or more active venous leg ulcers, often accompanied by trophic changes

[▶ read more](#)

C0 - C6 : description of the progression of the disease on the basis of the clinical signs present

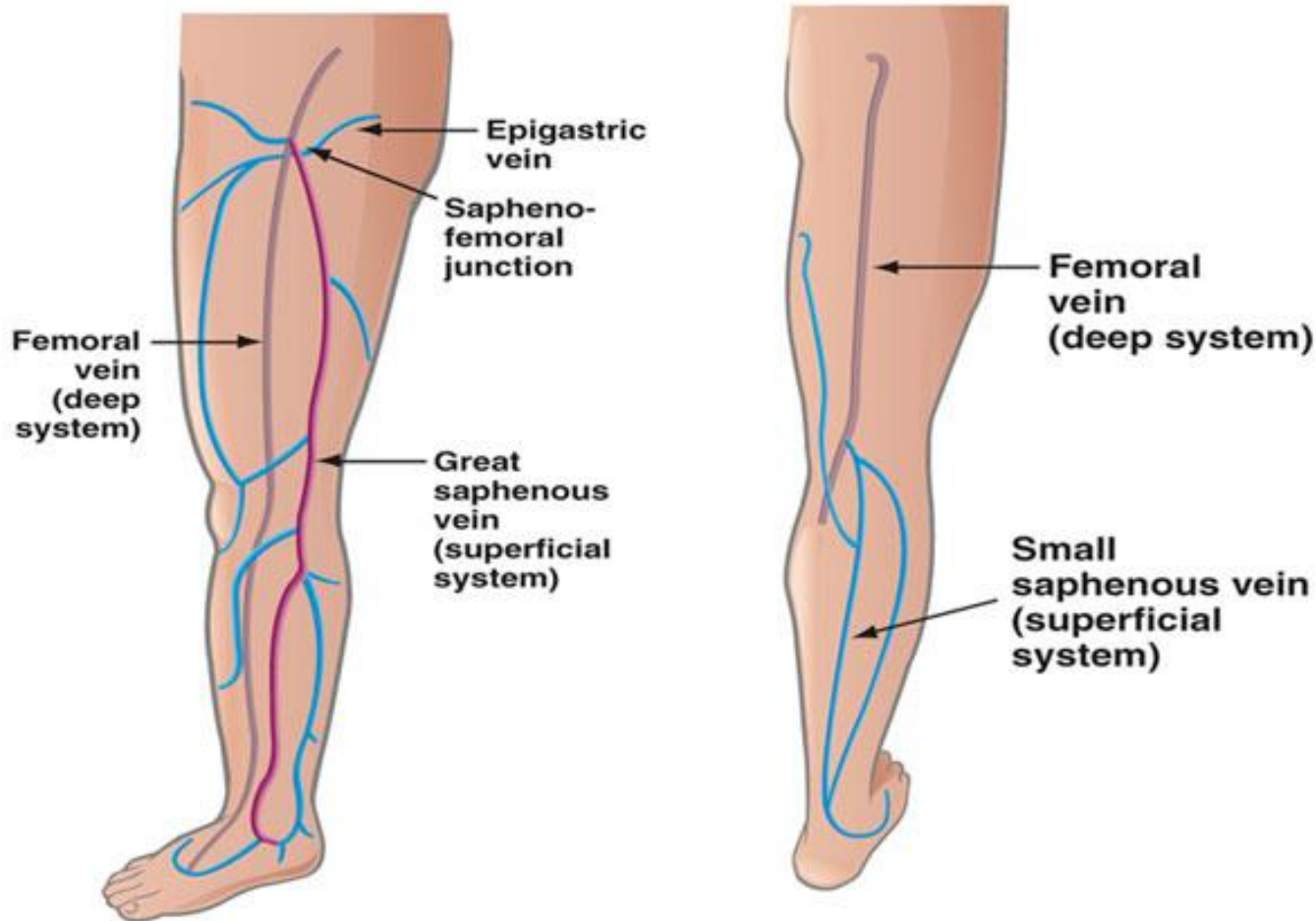
C : clinical signs

E : etiological classification

A : anatomical distribution

P : pathophysiological dysfunction

Anatomical Nomenclature



Why Treat – NICE Guidelines?

1.2 Referral to a vascular service

1.2.1 Refer people with bleeding varicose veins to a vascular service^[3] immediately.

1.2.2 Refer people to a vascular service if they have any of the following.

- Symptomatic^[4] primary or symptomatic recurrent varicose veins.
- Lower-limb skin changes, such as pigmentation or eczema, thought to be caused by chronic venous insufficiency.
- Superficial vein thrombosis (characterised by the appearance of hard, painful veins) and suspected venous incompetence.
- A venous leg ulcer (a break in the skin below the knee that has not healed within 2 weeks).
- A healed venous leg ulcer.

1.2 Referral to a vascular service



Why Treat – NICE Guidelines?

Interventional treatment

1.3.2 For people with confirmed varicose veins and truncal reflux:

- Offer endothermal ablation (see [Radiofrequency ablation of varicose veins](#) [NICE interventional procedure guidance 8] and [Endovenous laser treatment of the long saphenous vein](#) [NICE interventional procedure guidance 52]).
- If endothermal ablation is unsuitable, offer ultrasound-guided foam sclerotherapy (see [Ultrasound-guided foam sclerotherapy for varicose veins](#) [NICE interventional procedure guidance 440]).
- If ultrasound-guided foam sclerotherapy is unsuitable, offer surgery.

If incompetent varicose tributaries are to be treated, consider treating them at the same time.

Interventional treatment

1.3.3 If offering compression bandaging or hosiery for use after interventional treatment, do not use for more than 7 days.

Non-interventional treatment

1.3.4 Do not offer compression hosiery to treat varicose veins unless interventional treatment is unsuitable.



Why Treat – NICE Guidelines?

1.4 Management during pregnancy

- 1.4.1 Give pregnant women presenting with varicose veins information on the effect of pregnancy on varicose veins.
- 1.4.2 Do not carry out interventional treatment for varicose veins during pregnancy other than in exceptional circumstances.
- 1.4.3 Consider compression hosiery for symptom relief of leg swelling associated with varicose veins during pregnancy.



Therapeutic Strategies

- Radiofrequency Ablation.
- Laser.
- Mechanical.
- Glue.
- Cryotherapy.
- Varicosity Adjuncts.



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Radio Frequency Ablation - Closurefast



Safe | Personal | Effective



Therapeutic Strategies

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Laser



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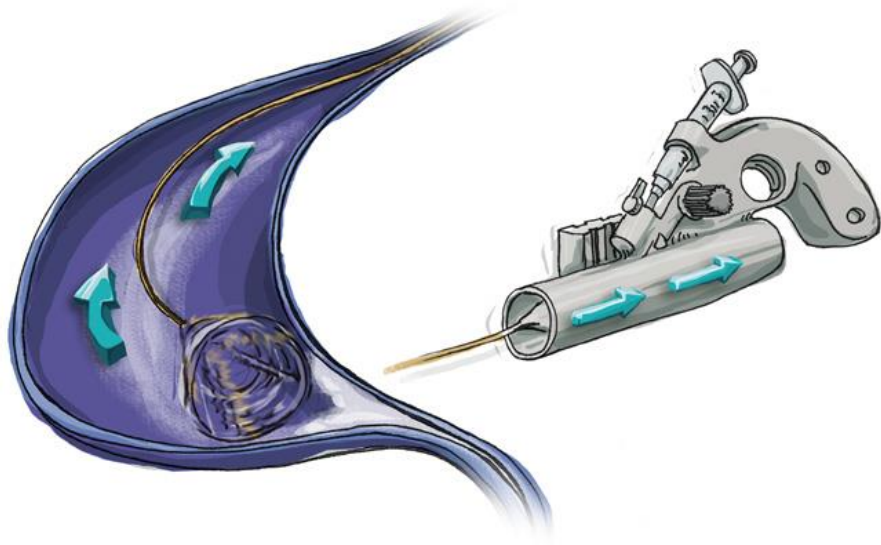


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Mechanical - Clarivein



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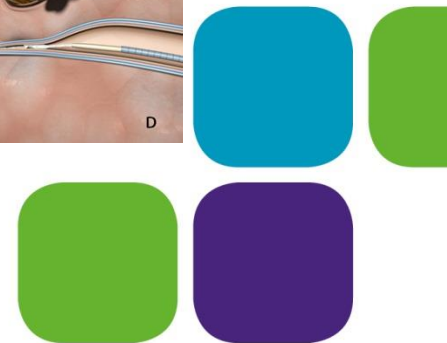
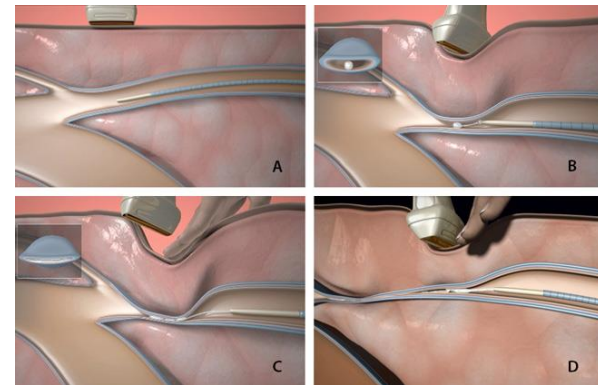
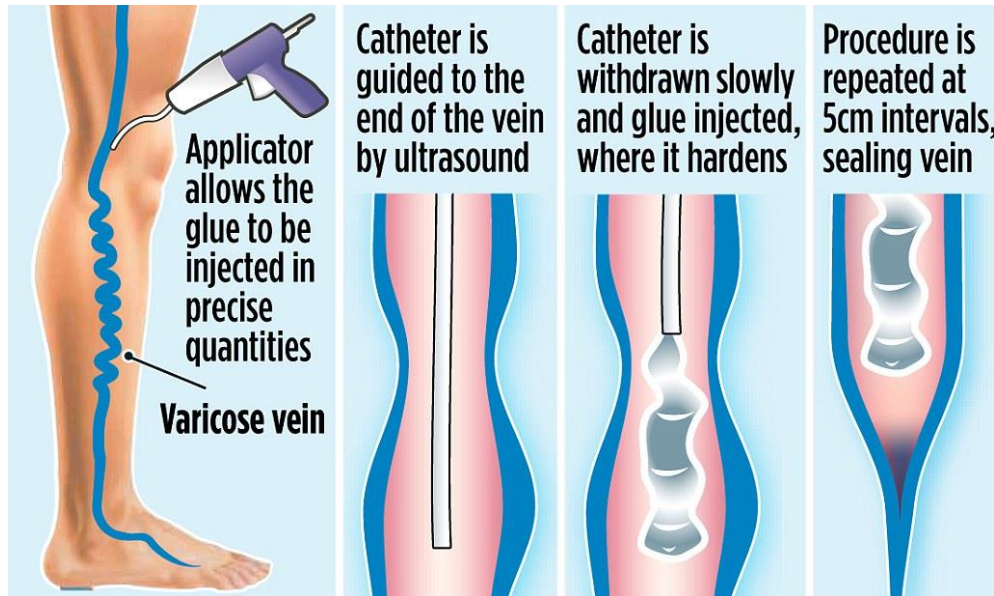


Therapeutic Strategies

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Glue - Venaseal



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Cryotherapy



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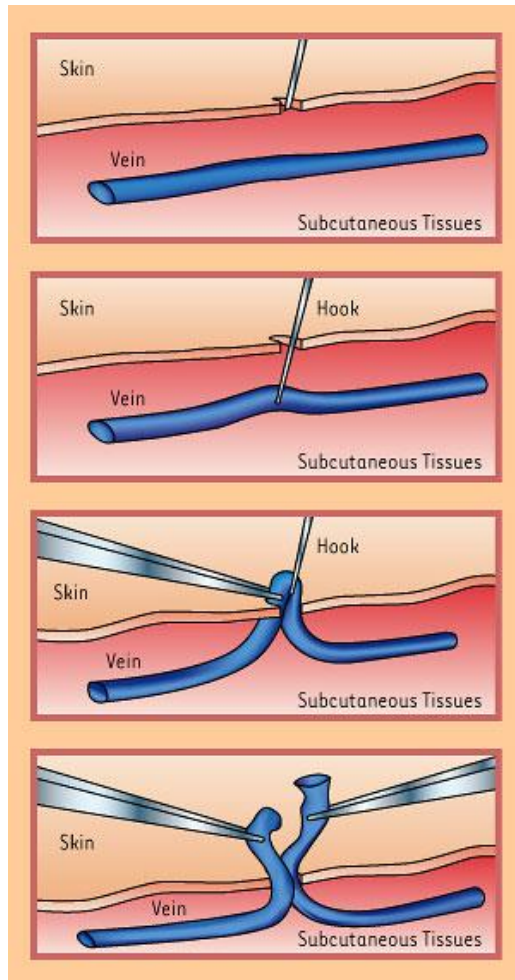


Therapeutic Strategies

- Radiofrequency Ablation.
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Traditional Phlebectomy



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Injection Sclerotherapy



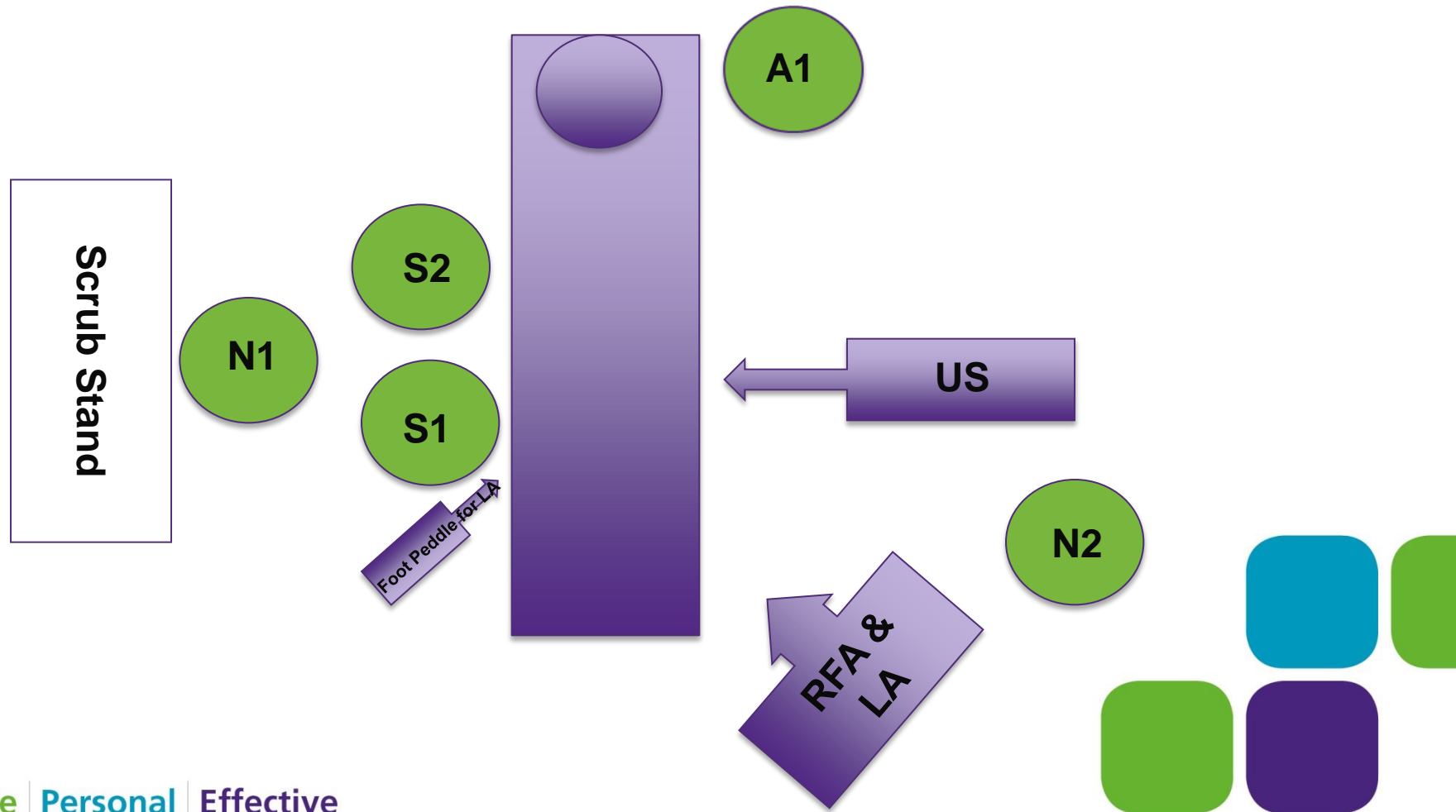
Reticular / Thread Veins



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Theatre Set-Up



Patient Preparation

- Normal operating table.
- Patient Position;
 - Supine for GSV.
 - Prone for SSV.
- No need for vein board.
- Shave phlebectomy sites.
- Generally local anaesthetic – add protocols.



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- Normal operating table.
- Patient Position;
 - Supine for GSV.
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- Shave phlebectomy sites.
- Generally local anaesthetic – add protocols.
- **7cm RFA catheter unless specifically advised.**

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RFA – ClosureFast Treatment

- Aseptic preparation of lower limb.
- Ultrasound evaluation of GSV entry point.
- 5mls syringe with 1-2 mls saline with 19G needle.
- Ensure needle not too tightly affected to syringe.
- 1% lidocaine for GSV puncture.



1- Vein Puncture

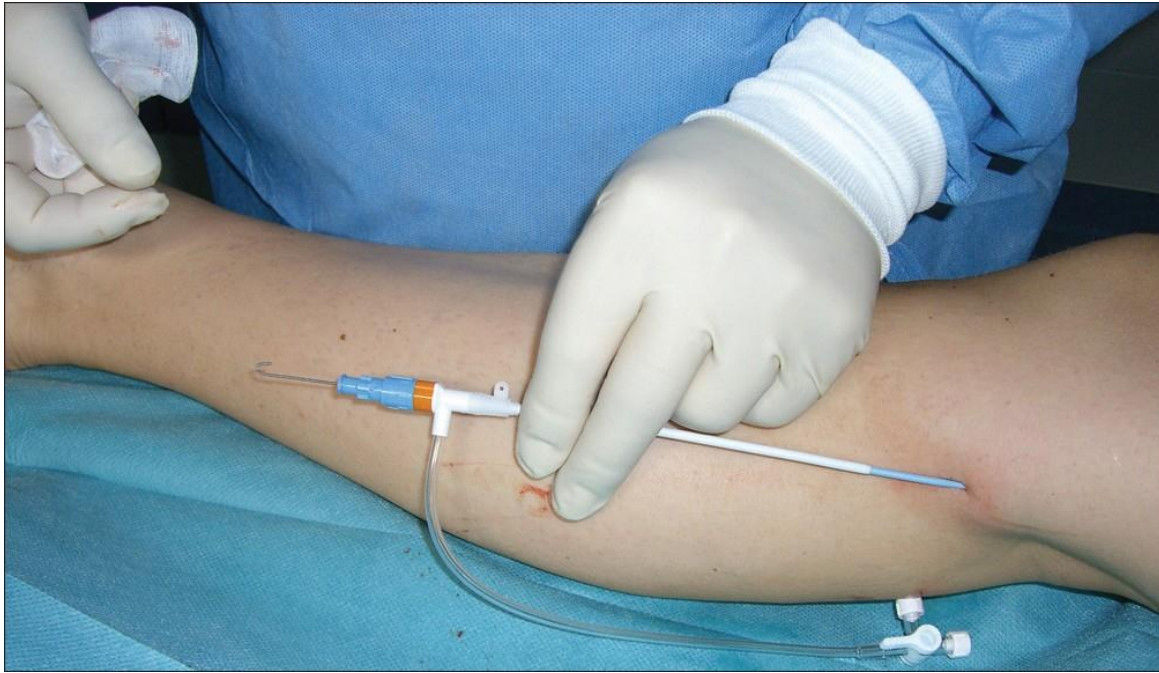


2 – Wire Insertion

- Vein accessed percutaneously and aspirating blood freely.
- Keep needle as still as possible and detach syringe.
- Insert wire – should have minimal resistance and pain for patient.
- Remove needle.
- Make a small vertical incision with scalpel.



3 – Sheath Insertion



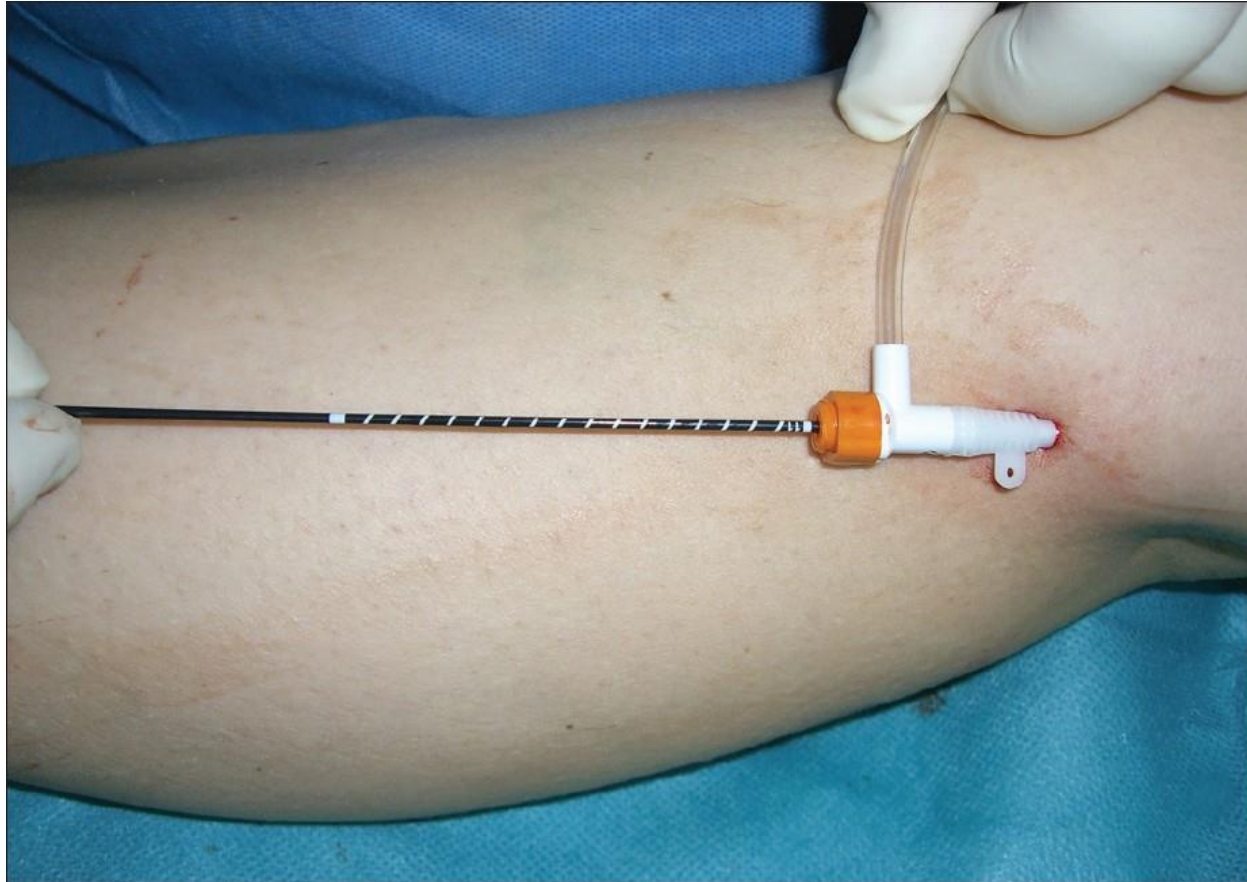
- 7Fr sheath inserted carefully holding wire;
 - Ensure sheath flushed.
 - Connect introducer properly.
 - Turn side taps off.



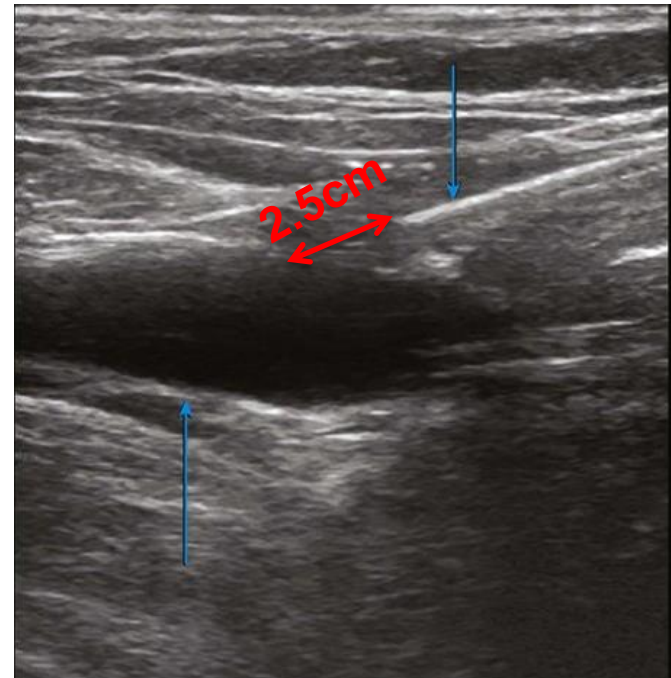
4 – Measure distance to SFJ



5 – ClosureFast Catheter Insertion



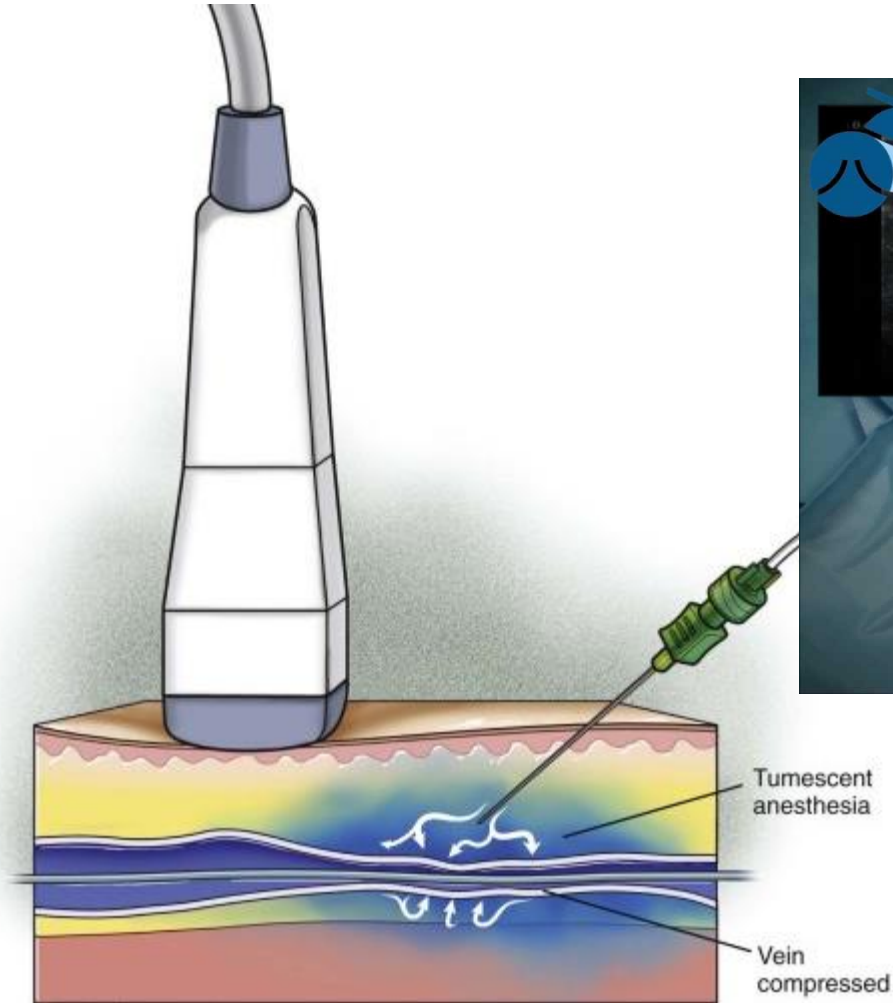
6 – Re-evaluate the SFJ



ClosureFast catheter placed 2.5cm distal to SFJ



7 – LA Tumescence

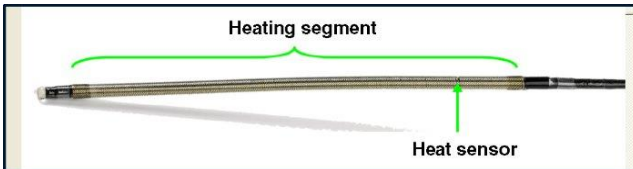
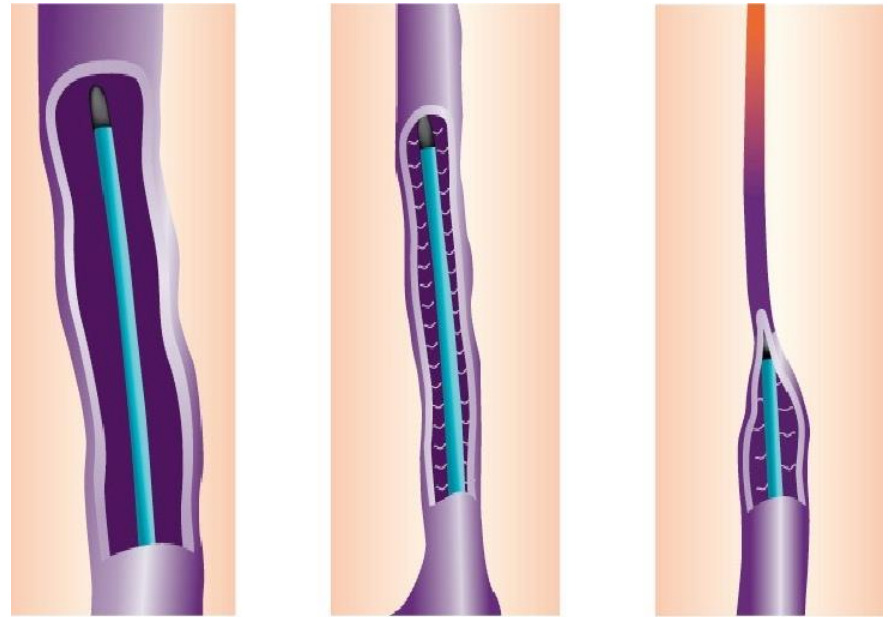


**50mls 1% Lidocaine +
Adrenaline in 500mls saline**

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8 – RFA Treatment



Double treat first 7cm zone.

Record number of 20sec treatment cycles

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9 – LA infiltration for phlebectomy



10 – Phlebectomy



Post-procedural care

- Lavage lower limb and dry.
- Steri-strips.
- Gauze / Wool / Crepe.
- Credilast compression hosiery.
- Day case discharge.
- Oral analgesia – 3pm and before bed.
- No OPD review.



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Dressings
Remove 24-48
hours

Compression
1 week only



Problems !!!

- Cannot stick vessel;
 - Warm room.
 - Elevate head.
 - More proximal puncture site.
- Cannot progress wire;
 - Bend straighten lower limb.
 - Massage area of difficulty under US guidance. I
- Painful procedure;
 - Stop immediately – more LA.



Complications

- Bleeding.
- Thrombophlebitis.
- Cellulitis.
- Endovenous Heat Induced Thrombosis – EHIT.



Complete
Occlusion



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Questions

