Management of Leg Vein Disease:
A Dermatologist's Perspective

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I have no relevant conflicts of interest

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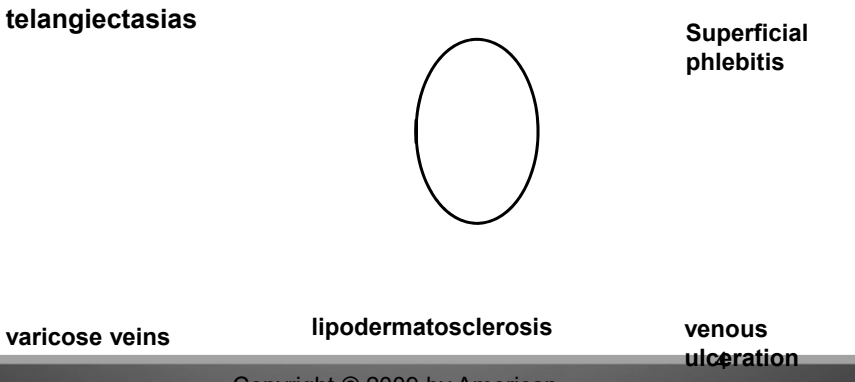
Burden of Chronic Venous Disease

- ~25% of adults have varicose veins[1]
  - 56% of women with isolated varicose veins have symptoms
  - 25% of men have symptoms
- Over half of the population over age 65 has varicose veins

1. Carpentier et al. Prevalence, risk factors, and clinical patterns of chronic venous disorders of lower limbs: A population-based study in France. J Vasc Surg 2004;40:650-9

THE SPECTRUM OF CHRONIC VENOUS DISEASE



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CEAP Classification System and Reporting Standard Revision 2020

C (Clinical Manifestations), **E** (Etiology), **A** (Anatomic Distribution), **P** (Pathophysiology)

	C0	No visible or palpable signs of venous disease
	C1	Telangiectasias or reticular veins
	C2	Varicose veins
	C2r	Recurrent varicose veins
	C3	Edema → Edema has many non venous etiologies
CVI	**C4**	Changes in skin and subcutaneous tissue secondary to chronic venous disease
CVI	C4a	Pigmentation or eczema
CVI	C4b	Lipodermatosclerosis or atrophie blanche
CVI	C4c	Corona phlebectatica
CVI	**C5**	Healed
CVI	**C6**	Active venous ulcer
CVI	C6r	Recurrent active venous ulcer

JVS-VL Journal of Vascular Surgery Venous and Lymphatic Disorders

Lurie et al. *J Vasc Surg Venous Lymphat Disord, May 2020*

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Chronic Lower Extremity Edema

- Bilateral
  - **Obesity**
  - Cardiac/hepatic/renal disease
  - Medications (Ca Channel blockers)
  - OSA
  - Pulmonary hypertension
  - Idiopathic edema
  - Less likely venous obstruction/insufficiency
- Unilateral
  - **Venous insufficiency/reflux**
  - Venous obstruction
  - Iliac vein compression
  - Lymphatic obstruction
  - Post-thrombotic syndrome
  - Tumor/mass

Outline

- Background
  - Anatomy of the Venous System
  - Pathophysiology of Venous Disease
- Epidemiology
- Approach to Patients
- Conservative Therapy (all patients)
- Procedural management
  - Spider and Reticular Veins
    - Sclerotherapy
  - Varicose Veins/Saphenous Reflux
    - Endovenous ablation
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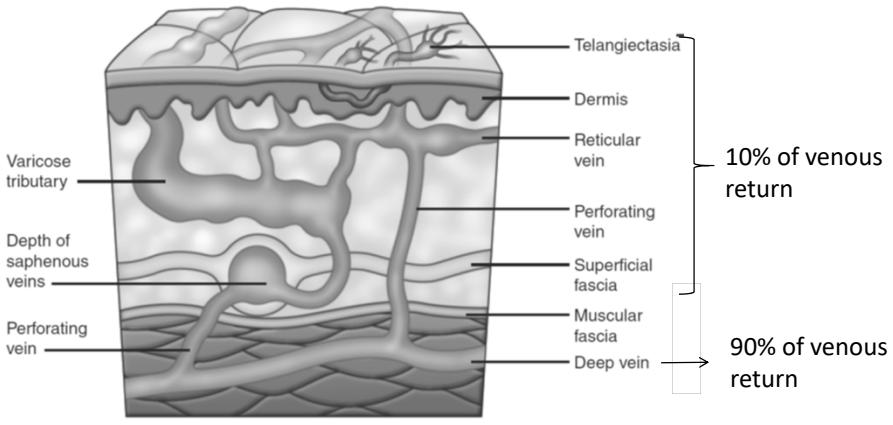
The Venous System



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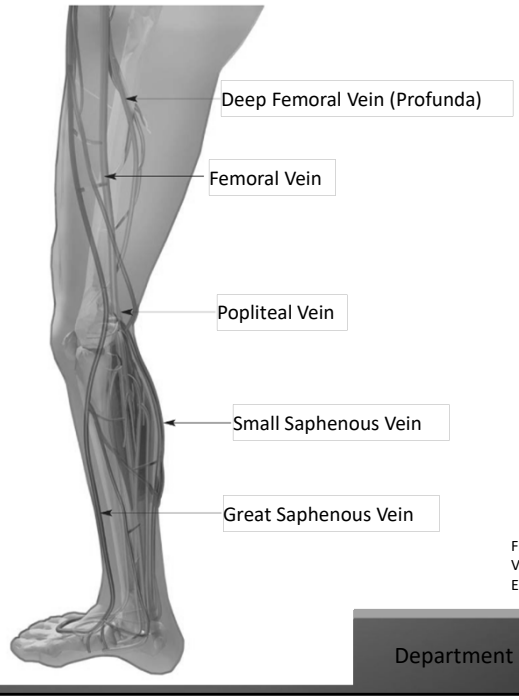
Deep Venous Anatomy



From: Fundamentals of Phlebology: Venous Disease for Clinicians (2nd Edition)

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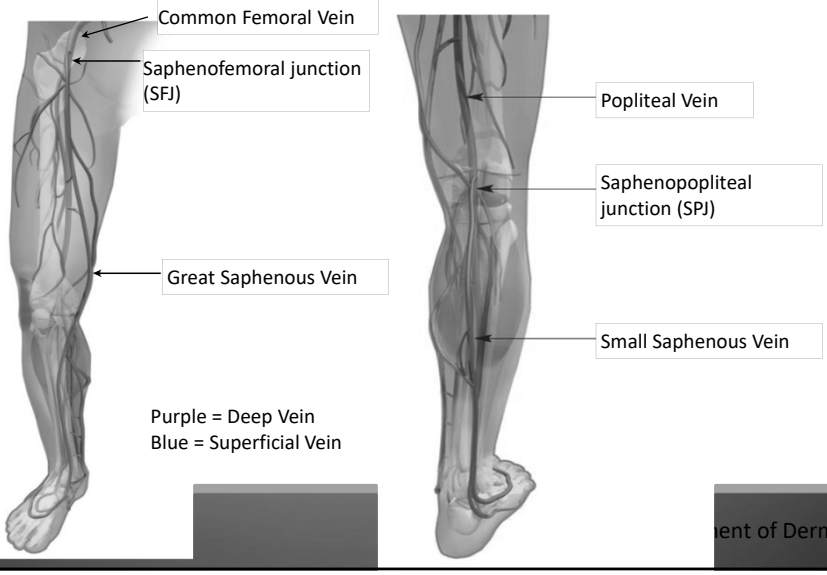
Superficial Venous Anatomy

GSV

SSV



From: Fundamentals of Phlebology: Venous Disease for Clinicians (2nd Edition)

Purple = Deep Vein
Blue = Superficial Vein

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Varicose Veins – etiology

Varicose veins occur when the veins returning blood from the legs function improperly.

The valves, designed to prevent reflux, malfunction and thus allow backflow of blood down the legs.

Varicose Veins – etiology

The refluxing blood overfills and distends the superficial veins under the skin.

This process results in the bulging varicose veins that we see so often.

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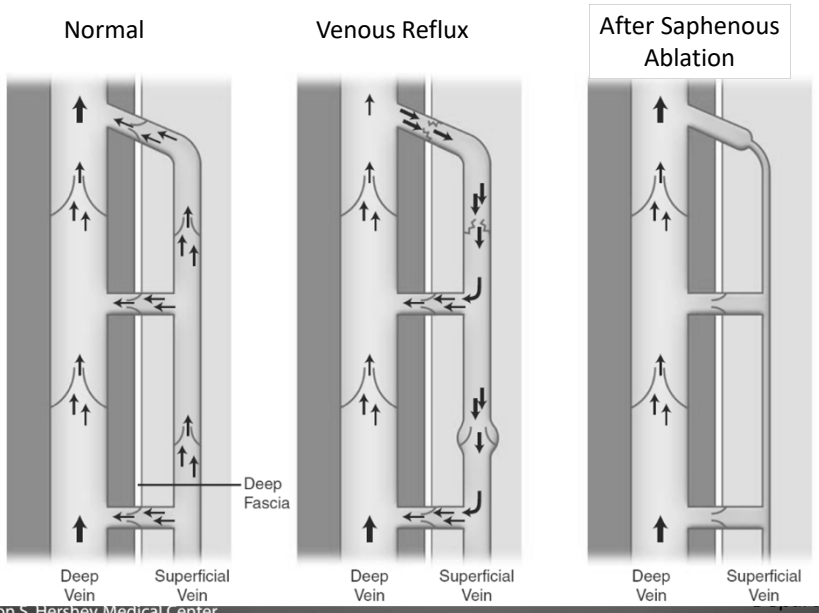
Pathophysiology of Reflux



Symptoms of Venous Insufficiency and Varicose Veins

- Heaviness
- Achiness
- Swelling, stasis dermatitis
- Throbbing
- Itching

Symptoms improve with exercise and elevation

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Sequelae of More Advanced Chronic Venous Insufficiency

- Thrombosis
- Bleeding varix
- Stasis dermatitis
- Lipodermatosclerosis
- Ulcerations

Who Gets Venous Disease?

- Risk Factors
  - Age
  - Genetic
    - 70% have a positive family history
  - Obesity
  - Pregnancy
  - Female
  - Occupation with prolonged standing

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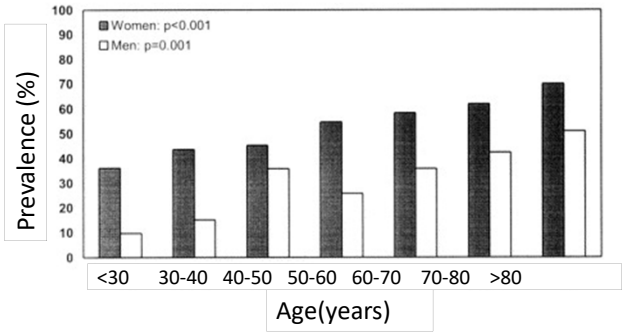
Risk Factors

Varicose Veins as a Function of Age

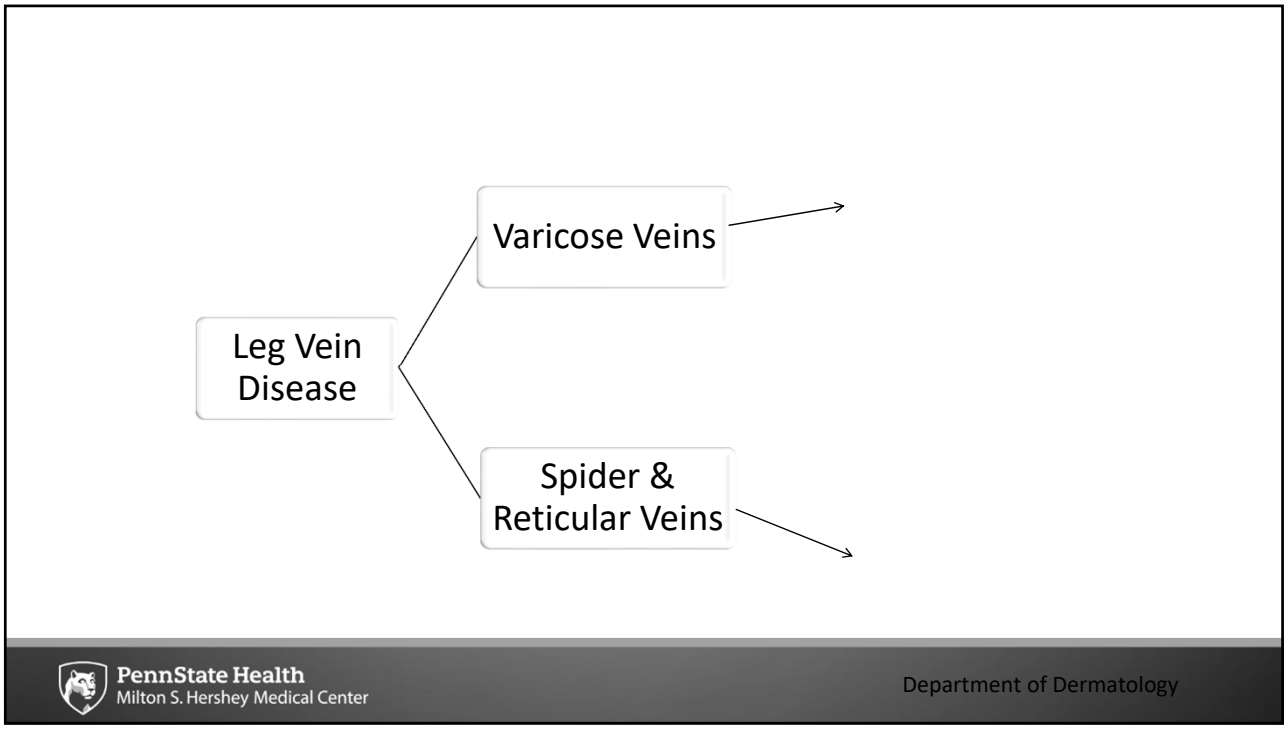


Carpentier et al. Prevalence, risk factors, and clinical patterns of chronic venous disorders of lower limbs: A population-based study in France. J Vasc Surg 2004;40:650-9

Risk Factors

- **Age**
- **Genetic**
  - One parent affected → Males=25%, Females=62%[1]
  - Both parents affected → Risk=90%
- Female
- Pregnancy
- Obesity
- Occupation with prolonged standing

1. Cornu-Thenard et al. Importance of the familial factor in varicose disease: Clinical study of 134 families. J Dermatol Surg Oncol, 20: 318–326



An Important Dichotomy

Spider Veins and Reticular Veins

- Spider veins (telangiectasias) (1-2 mm)
- Reticular veins
  - Subcutaneous blue veins
  - 2-4 mm
- Minimally symptomatic
- Treatment is “cosmetic”

Varicose Veins

- ≥5 mm
- Frequently symptomatic
- Underlying source of venous reflux
- Treatment is “medically necessary”

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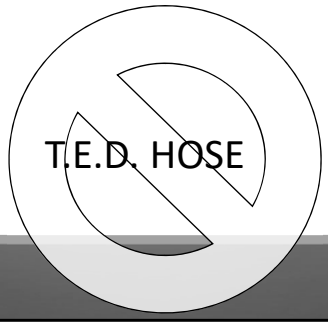
Conservative Measures

- Exercise
- Leg elevation
- Graduated compression stockings
  - 20-30 mm Hg, knee-high stockings



Prescribing Graduated Compression Stockings

- Measure ankle, calf, thigh for proper fit
- Disproportionate legs require custom stockings
- Medical supply stores *may* have stocking fitters
  - *May* file for insurance reimbursement
  - Appointment often necessary
  - 1-2 weeks to acquire stockings

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Local Vendors of Medical Strength (20mmHg - 30mmHg) Compression Stockings*

Good Samaritan Hospital (GSH) Home Medical (Palmyra)
901 East Main Street
Palmyra, PA 17078
(717) 838-7511 Fax (717) 838-9468
Instructions: Call for appointment to be measured (any of the employees can measure). If they have suitable ones in stock, that's fine. Otherwise, they will have to order special, and it takes about two weeks.

Good Samaritan Hospital (GSH) Home Medical (Lebanon)
301 Schneider Drive
Lebanon, P A 17046
(717) 272-2057 Fax (717) 272-0796
Instructions: Call for appointment to be measured (ask for Dorie). If they have suitable ones in stock, that's fine. Otherwise, they will have to order special, and it takes 5-7 working days.

Good Samaritan Hospital (GSH) Home Medical (Lebanon)
301 Schneider Drive
Lebanon, P A 17046
(717) 272-2057 Fax (717) 272-0796
Instructions: Call for appointment to be measured (ask for Dorie). If they have suitable ones in stock, that's fine. Otherwise, they will have to order special, and it takes 5-7 working days.

The Hershey Pharmacy
731 Cherry Drive
Hershey, PA 17033
(717) 534-1300 Fax (717) 534-1696
NOTE: The Hershey Pharmacy does not file the paperwork through insurance companies but the other vendors on the list will do so. Medicare is one insurer that does not pay for compression stockings.

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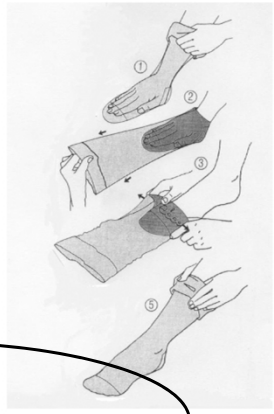
Compression Stocking Application and Tips

Always put on your stockings first thing in the morning, *before any swelling sets in*! The leg should be completely dry

1) Put your hand inside the stocking foot.
2) Hold the stocking top in your other hand and pull down turning the stocking inside-out, stopping at the heel.
3) Remove your hand from inside, leaving the stocking foot inside. Stretch stocking sideways at the heel and slide your foot into the stocking foot and heel. *Be sure your heel is in the center of stocking heel.*
4) Make sure heel and toe are properly aligned. *Toes should not be cramped.* There should be some "poofiness" at the toes.
5) Grasping the top of the stocking, pull over the ankle-continuing up the leg. Adjust and straighten the stocking as you work up the leg.
6) Smooth the stocking, removing wrinkles over the instep and around the ankle.



Additional Tips:

- **Do not turn down the top of knee length or thigh length stockings.**
- **The top of knee high stockings should be two finger breadths below the knee crease.** If they seem too long, please return them to the store or call our clinic for more instructions.
- Standard yellow rubber kitchen gloves can be helpful in gripping the stockings and preventing runs from long nails.
- If your stockings tend to slide down during the day, then you can try taping them up with medical tape or purchasing a body adhesive product such as "It Stays" from www.Ameswalker.com. Similar products may be available at your local medical supply store.

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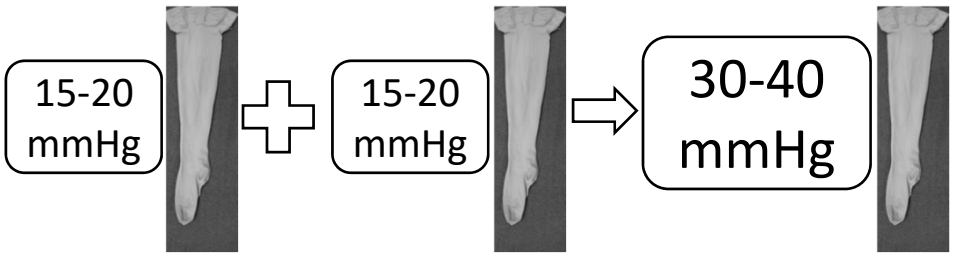
- Application of a second pair of stockings doubles compression



Stocking Compliance Tips

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Patients with active ulcerations are best managed with compression wraps

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    - **Sclerotherapy**
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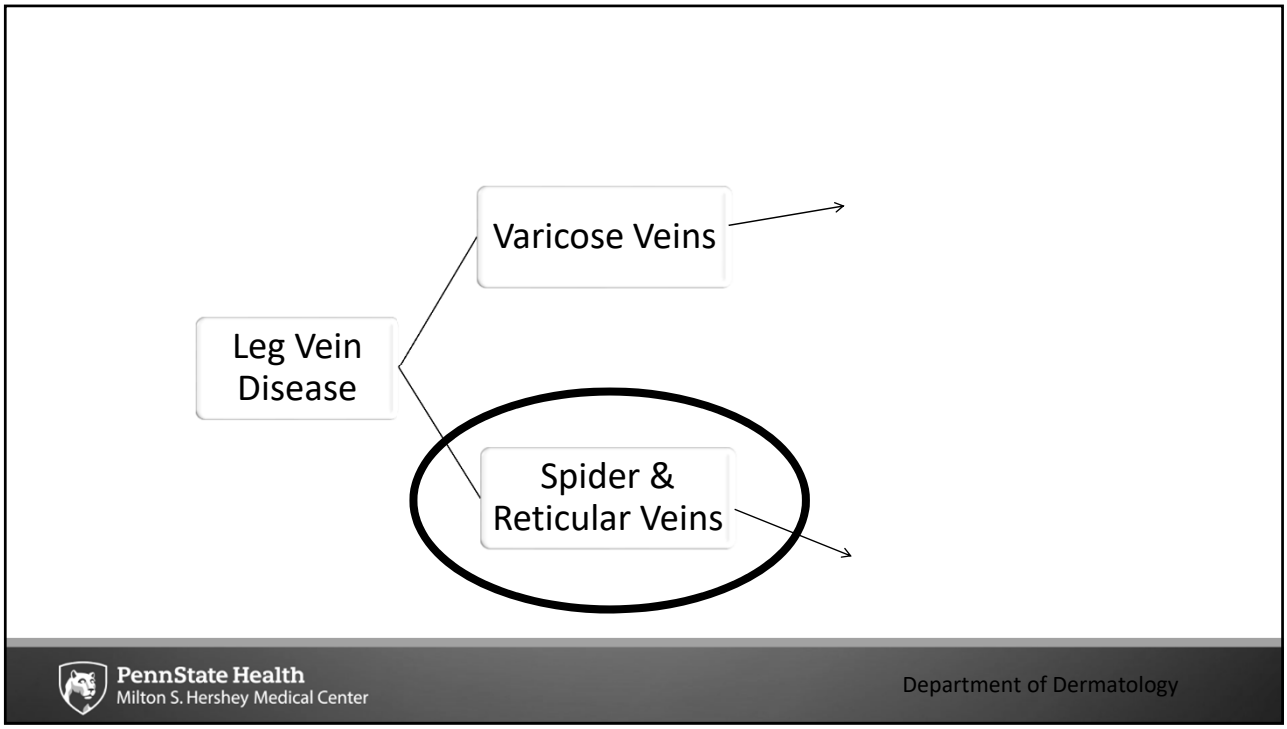

When to send for vascular studies?

- **B** ulging varicosities
- **E** dema, stasis dermatitis
- **D**VT
- **P** rior sclero (unsuccessful)
- **A**nkle telangiectases
- **N**ature (Family history)
- **S** ymptoms

Corona Phlebectactica
=GSV reflux

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What study should you order?

- Venous duplex exam for reflux
- This study includes a complete examination for infrainguinal DVT
- It can miss iliac vein or IVC obstruction so if your index of suspicion is high, consider pelvic duplex

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Visual Sclerotherapy

First-line treatment for spider and reticular leg veins

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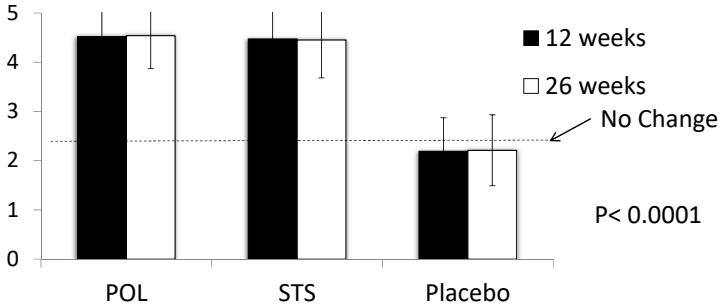
Sclerosing Agents

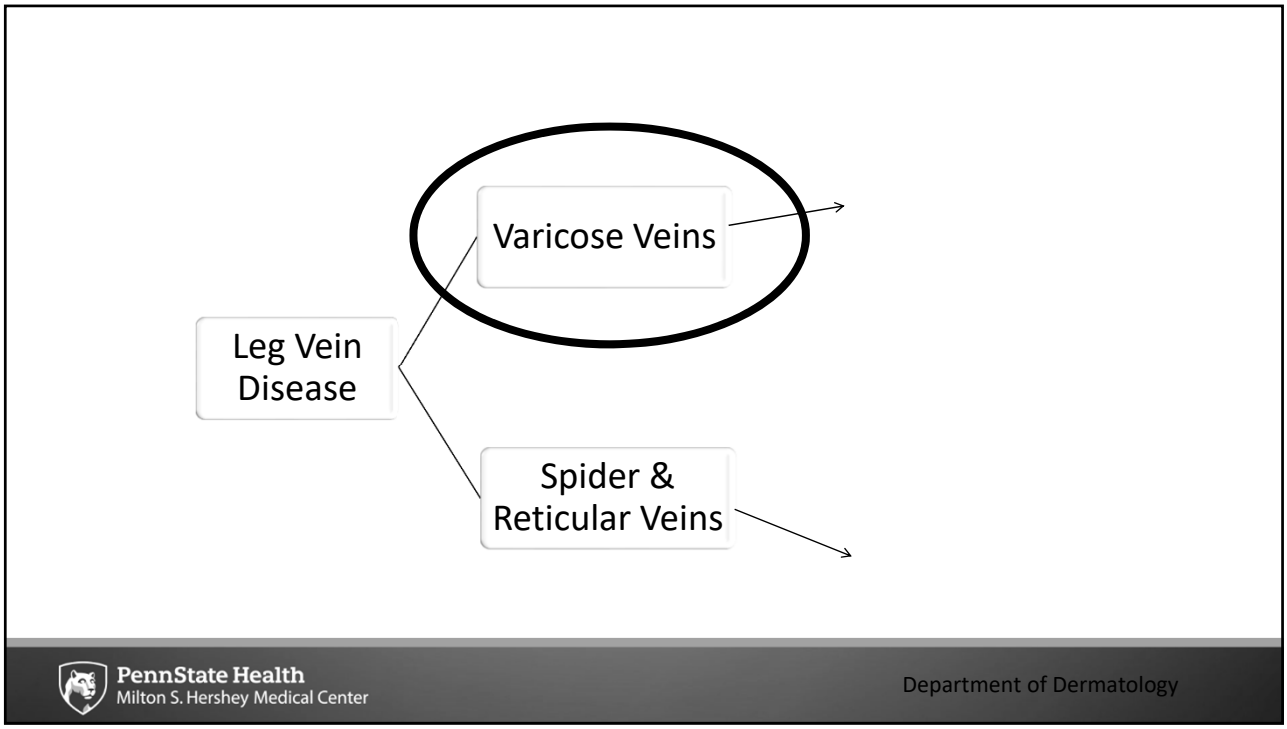
Hypertonic Saline

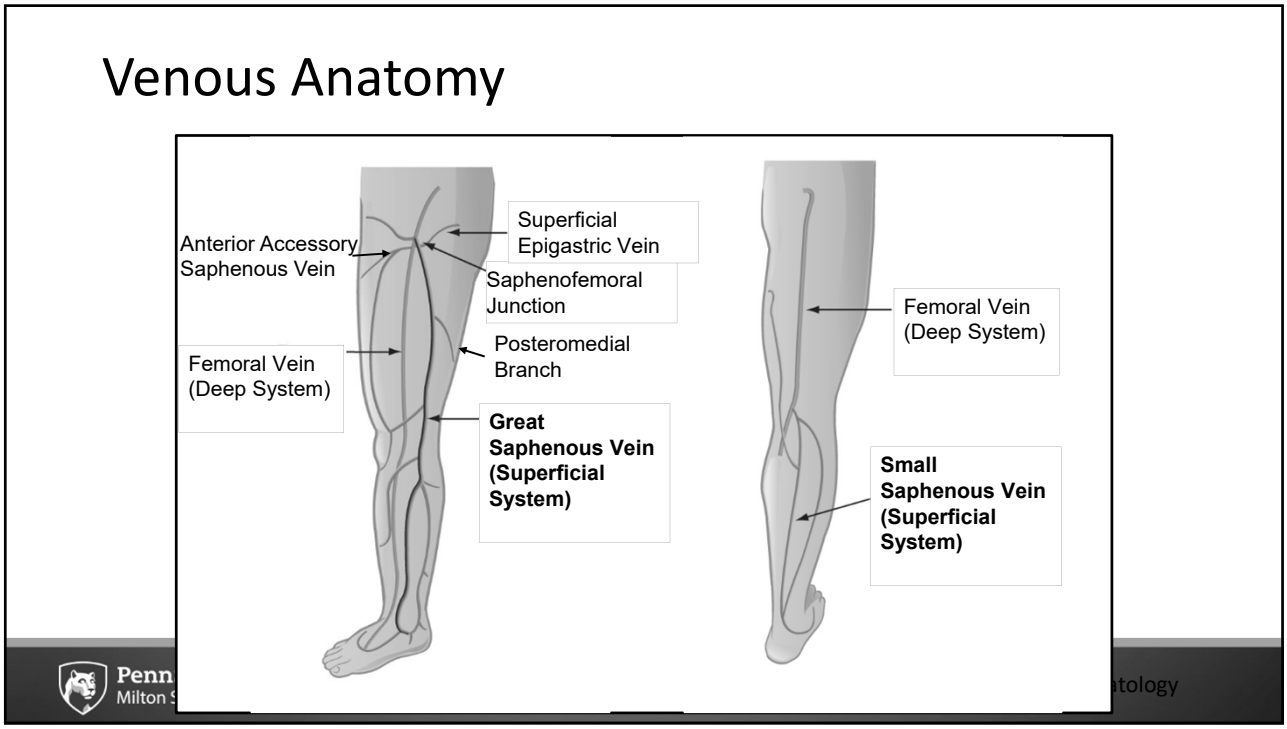
Sclerotherapy

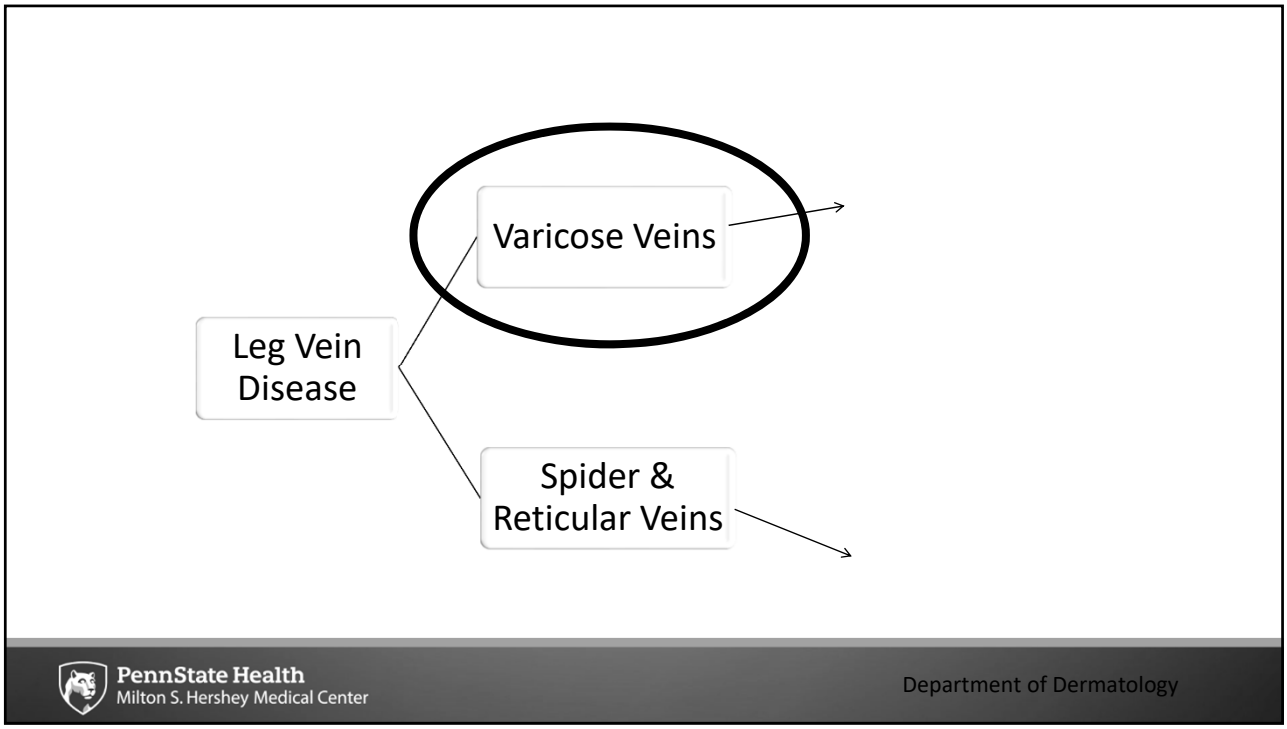
Rabe E et al. **Sclerotherapy** of telangiectases and reticular veins: a double-blind, randomized, comparative clinical trial of polidocanol, sodium tetradecyl sulphate and isotonic saline. Phlebology 2010;25:124–131.

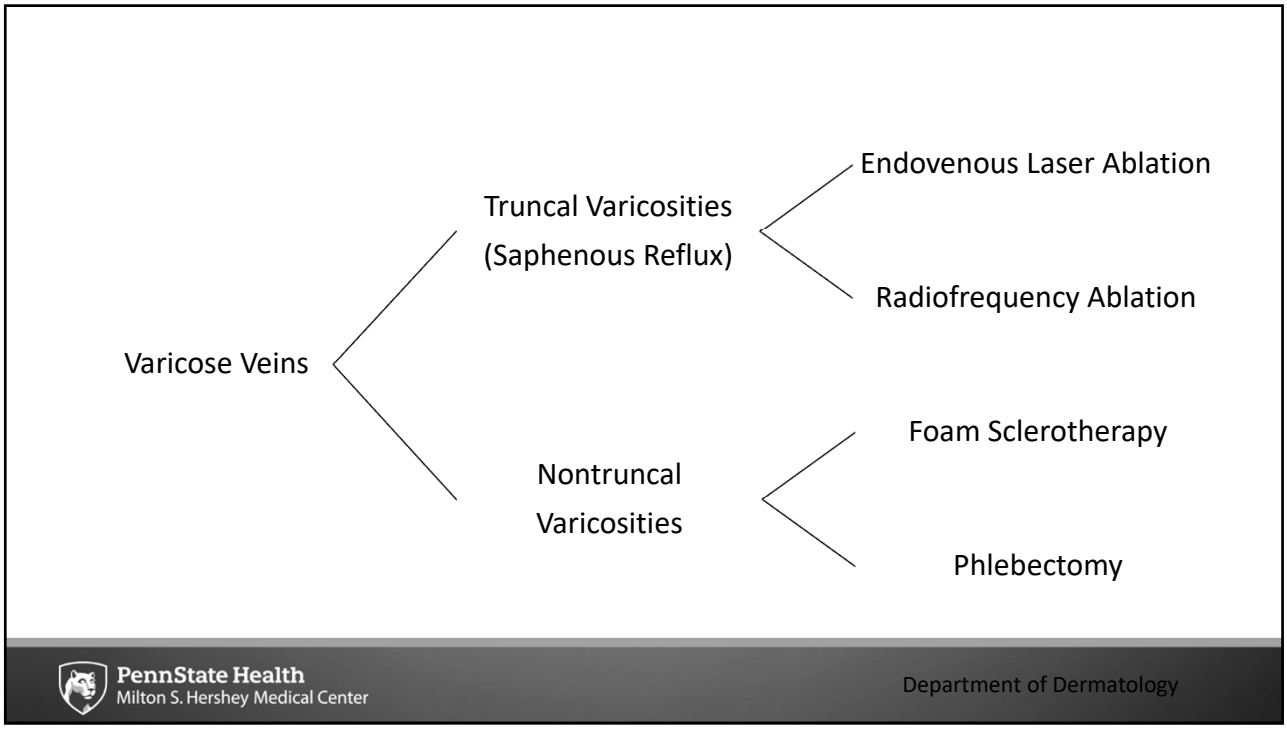


Treatment success rate for POL was 95% and for STS 91% at week 26









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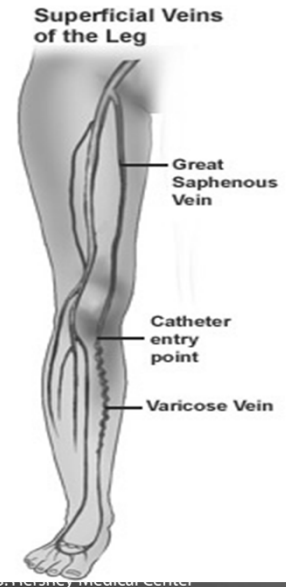
Surgical Vein Stripping

Advantages of Endothermal Ablation



- Replaced Ligation and Stripping
- In office procedure
- Tumescent anesthesia
  - Permits ambulation immediately after surgery
- Minimal incisions
- Can be on anticoagulants
- Low risks
- Quick Recovery

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Ambulatory Phlebectomy

- Address saphenous reflux first
- Indications
  - Any palpable or visible varicosity
  - Most appropriate for bulging varicosities ≥ 4 mm

Management of Venous Ulcers

EVRA Trial: Gohel M et al. A Randomized Trial of Early Endovenous Ablation in Venous Ulceration. **NEJM** 2018; 378:2105-2114.

- Multicenter RCT of 450 patients
  - Control: High quality compression wraps
  - Treatment: Early intervention with saphenous ablation and UGFS to complement high grade compression
- Results:
  - Ulcers healed more rapidly in the intervention group (56 days vs. 82 days; hazard ratio, 1.42; P=0.001)
  - Intervention group had significantly longer ulcer-free time and suffered fewer recurrences

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S/p multilayer compression wraps, GSV EVLA, and UGFS

Venous ulcer at presentation

Conclusions

- The burden of disease from varicose veins is large with a detrimental impact on quality of life
- Initiate conservative measures in most patients with symptoms
- Sclerotherapy alone is a safe and appropriate approach for a large subset of patients
  - This modality can be incorporated into most dermatology practices
- Safe, minimally invasive techniques are available for your patients with more advanced venous disease

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