2019 MID-ATLANTIC
CONFERENCE

9th ANNUAL CURRENT CONCEPTS IN

VASCULAR THERAPIES

2019

Hilton Virginia Beach Oceanfront
Virginia Beach, Virginia

MAY 2-4

2019 MID-ATLANTIC
CONFERENCE

9th ANNUAL CURRENT CONCEPTS IN
VASCULAR THERAPIES

2019

Treatment of Reticular and Spider Veins in 2019

Venous Disease

- Bleeding
- Pain
- Thrombosis
- Swelling
- Venous ulcers

Spider Veins

- Also called telangectasias
- Very common
- Some claim they are the #1 cosmetic concern for women in the US
- Also happen in men
- Can affect self-confidence

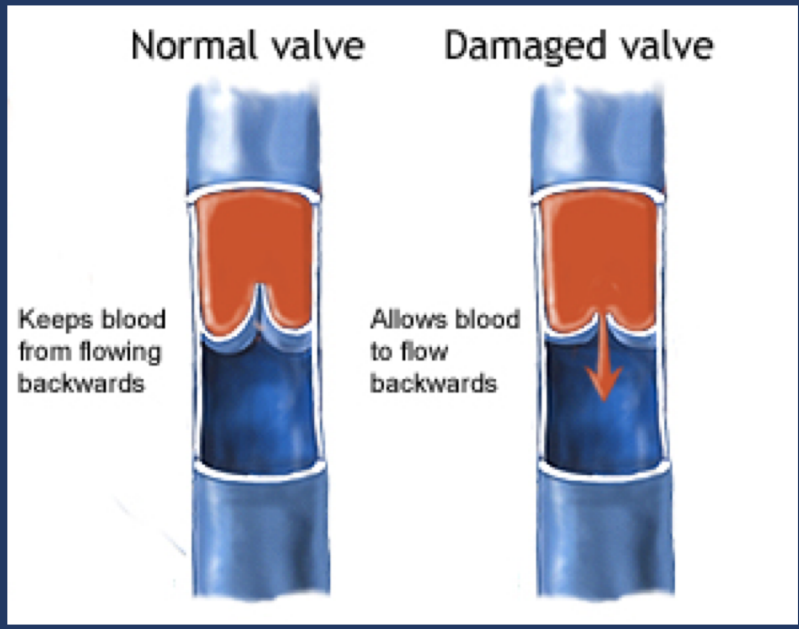
The good the bad the ugly

Predisposing Factors

- Family history (strongest factor)
- Age
- Prolonged sitting or standing
- Obesity
- Lack of activity
- Local trauma (sun exposure or skin damage)
- Pregnancy
- Some hereditary and systemic conditions (CREST, lupus, alcoholism, etc)

Etiology

- Mimics varicose veins
  - Valvular incompetence
  - Venous hypertension



Spider Vein Treatment

- Sclerotherapy & Surface laser
  - Low risk
  - High potential benefit
- Surface laser
  - Brief comment
  - Spider veins on the face
  - Hyperpigmentation treatment post sclerotherapy

Spider Vein Treatment

- Good history and physical exam
- Clinical, Etiology, Anatomy, and Pathophysiology score (CEAP) score
- Identify concomitant varicose veins or chronic venous insufficiency
- Significant symptoms: edema, pain, heavy/achy/tired legs recommend PVL prior

The care of patients with varicose veins and associated chronic venous diseases: Clinical practice guidelines of the Society for Vascular Surgery and the American Venous Forum

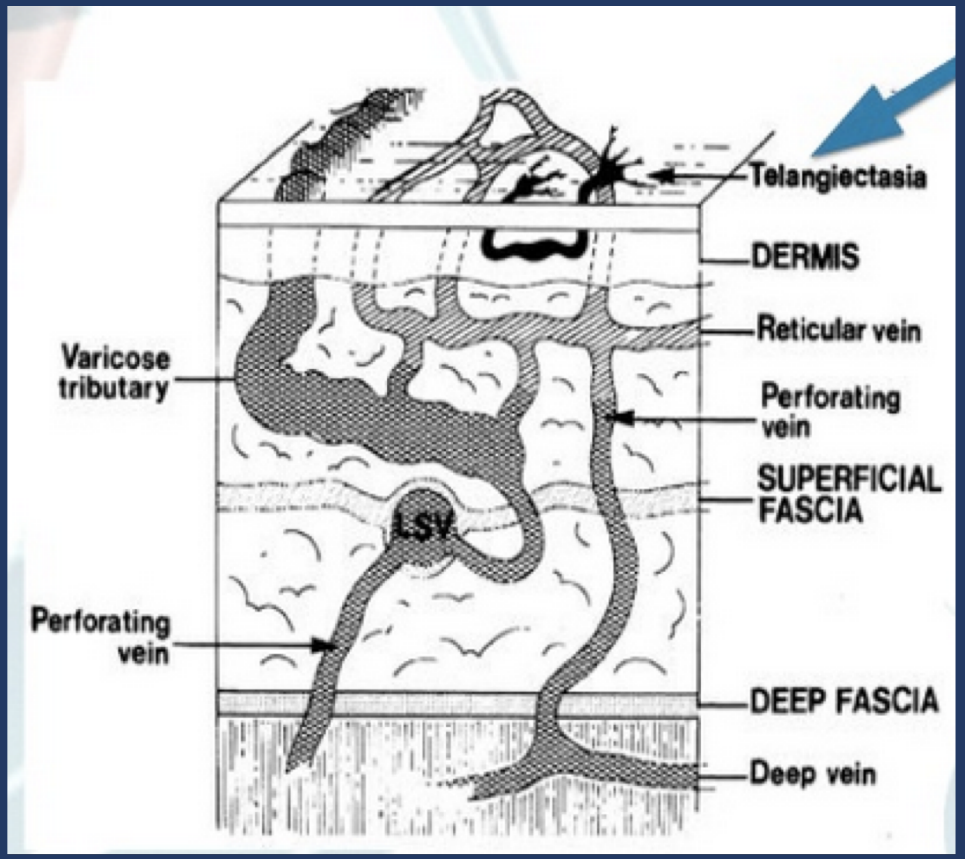
Peter Gloviczki, MD,[a] Anthony J. Comerota, MD,[b] Michael C. Dalsing, MD,[c] Bo G. Eklof, MD,[d] David L. Gillespie, MD,[e] Monika L. Gloviczki, MD, PhD,[f] Joann M. Lohr, MD,[g] Robert B. McLafferty, MD,[h] Mark H. Meissner, MD,[i] M. Hassan Murad, MD, MPH,[j] Frank T. Padberg, MD,[k] Peter J. Pappas, MD,[k] Marc A. Passman, MD,[l] Joseph D. Raffetto, MD,[m] Michael A. Vasquez, MD, RVT,[n] and Thomas W. Wakefield, MD,[o] *Rochester, Minn; Tolea* (J Vasc Surg *apolis, Ind; Helsingborg, Sweden; Rochester, NY; Cincinnati, Ohio; Springfield, Ill; Seattle, Wash; Newark, NJ; Birmingham, Ala; West Roxbury, Mass; North Tonawanda, NY; and Ann Arbor, Mich*

(J Vasc Surg 2011;53:2S-48S.)

- Recommendation 12.1: We recommend liquid or foam sclerotherapy of telangiectasia, reticular vein and varicose veins.
  - Grade 1 (strong)
  - Level of evidence B (moderate)

Spectrum

- Spider veins (Telangiectasias)
- Reticular Veins
- Varicose veins

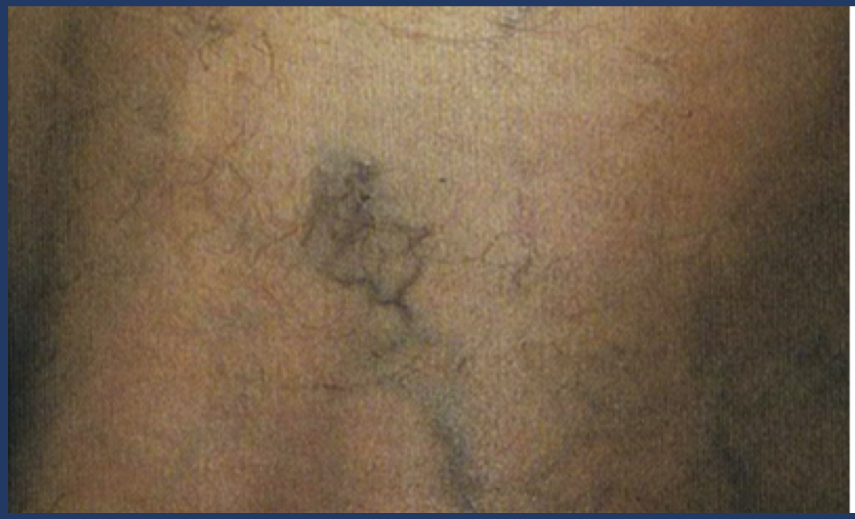


Spider Veins (Telangiectasias)

- < 1mm dilated veins filled with blood that can be seen on the skin surface
- Resemble tree branches with short, jagged lines
- Differ in appearance ranging from pink, red to bluish purple
- Milder form of varicose veins
- @10-25% of the general adult population

Reticular Veins

- 1-3mm dilated veins that appear in areas such as the legs and the face
- Typically smaller than varicose veins but larger than spider veins and appear flatter and less twisted
- When associated with spider veins, they are called “feeder veins”
- Can have symptoms of local tenderness, burning and/or itching



Cosmetic Sclerotherapy

- Intravascular injection of a chemical agent to cause endothelial damage and subsequent vascular occlusion of the target vessel
- In office procedure
- Informed consent
- Warm, quiet, comfortable environment
- Good lighting (vein light or magnification)
- Test injection
- Prep skin with alcohol

Goldman M, ed. Sclerotherapy: Treatment of Varicose and Telangiectatic Leg Veins. St Louis, MO: Mosby Year Book; 1995.

Cosmetic Sclerotherapy

- Small needles with small syringes (30/32 gauge with 2.5cc syringes)
- Bending the needle, bevel up, can help with cannulating
- SLOW, LOW PRESSURE INJECTION
- See disappear then refill
- Massage, if larger vessel immediate pressure with cotton ball/tape
- Post procedure compression +/- creams (Dermaka or hydroquinone cream)

Types of Sclerosants

- Hyperosmolar
  - Mechanism of action: cellular dehydration in both blood components and the cell wall
  - Examples: Hypertonic saline 23%, 75% hypertonic glucose/dextrose, Sclerodex (25% glucose, 10% hyoertonic saline)
  - Hypoallergenic
  - Unwanted effects: hemolysis and pain

Dietzek CL. Perspec Vasc Surg and Endov SurgTherapy, 2007.

Types of Sclerosants

- Detergents
  - Endothelial damage by multiple mechanisms
    - Decrease cell surface tension
    - Interfers with the lipids of cell surface
    - Extraction of cell surface proteins
  - Examples: STS (sodium tetradecyl sulfate), Polidocanol
  - Greater tissue necrosis index

Dietzek CL. Perspec Vasc Surg and Endov SurgTherapy, 2007.

Types of Sclerosants

- Chemical
  - Produces a direct corrosive effect
  - Produces immediate effect on chemical bonds of cell wall
  - Example: Glycerin Chrome (NOT AVAILABLE IN US)
  - Pain and pigmentation

Dietzek CL. Perspec Vasc Surg and Endov SurgTherapy, 2007.

Types of Sclerosants

- Foam (mixing polidocinal or STS with CO2)
  - Displaces blood
  - Better endothelial contact
  - Use less liquid (cheaper)
  - Can be used with reticular veins

Dietzek CL. Perspec Vasc Surg and Endov SurgTherapy, 2007.

Type of Sclerosing Agents

Table I. Agents

Agent	Drug class	Vein size, mm	Percentage	Pros	Cons
Glycerin	Osmotic	<1	72	No matting No ulceration No necrosis	Difficult to obtain in the United States Ineffective in larger veins Contact sensitivity Rare: hematuria Urethral colic
Hypertonic saline	Osmotic	<1 1-3	11.7-15 11.7-15	No allergies	Pain Muscle cramping Ulceration/necrosis Hyperpigmentation
Polidocanol	Detergent	<1 1-3	0.25-0.5 0.5-1	FDA approved (Asclera) Rare ulceration No skin necrosis	Allergy Telangiectatic matting Hyperpigmentation
Sodium tetradecyl sulfate	Detergent	<1 1-3	0.25-0.5 0.5-1	Less telangiectatic matting	Hyperpigmentation Ulceration/necrosis Allergies Cannot be used in asthmatics

FDA, Food and Drug Administration.

J Vasc Surg: Venous and Lym Dis 2017;5:437-45.

Big Complication: Ulceration

- Based on the rabbit study theory, vessel size, sclerosant volume, viscosity and strength when injected intravenously play a major role
- Ulcer is caused by arteriole occlusion due venous capillary reflux (liquid going from venulae to arteriole)
- Low pressure, low volume, less concentrated injections prevent ulcerations
- High viscosity scleroscants (dextrose 75%) least risk of necrosis, but also least effective

Other Adverse Reactions

- Allergic reaction
- Vasovagal reaction
- Hyperpigmentation (more likely to occur with osmotic agents, increased vessel diamter, higher concentrations, lack of postop compression, post treatment sun exposure, and history of hyperpigmentation
- Matting (fine red telangectasias) flairs – usually self resolving
- Thrombotic events very rare
- Phlebitis

Izzo M, Mariani F, Binaghi F, Amitrano M. Postsclerotherapy hyperpigmentation: incidence, clinical features and therapy. Phlebology 1995:550-1.

Sclerosants: A Comparative Review

David M. Duffy, MD*†

Dermatol Surg 2010;36:1010–1025

BACKGROUND Sclerotherapy is popular for the treatment of lower extremity telangiectasias and varicose and reticular veins. Although a large number of sclerosants are commonly employed, there are few data that directly compare their advantages and drawbacks.

OBJECTIVES To analyze and present the differences between sclerosants that make them more or less suitable agents in specific clinical applications.

MATERIALS AND METHODS A systemic review of published medical literature that compares and contrasts different classes of sclerosants is presented.

RESULTS There is no perfect sclerosant that is complication free and 100% effective. The ability to match the sclerosant to the clinical problem being approached makes the availability of more Food and Drug Administration–approved sclerosants appealing.

CONCLUSION Modern sclerosants that have been subjected to rigorous experimental and clinical trials will provide even more efficacious and safer patient treatments.

David M. Duffy, MD, received a grant from Bioform for support of this article.

STS and Polidocanol

- Both polidocanol (asclera) and STS (sotradecol) improved appearance of veins

Rabe E, et al Phlebology, 2010

- Both polidocanol and STS have few unwanted side effects

Rao J, et al. Derm Surg, 2005 Goldman MP. Derm Surg, 2002

- Polidocanol fewest adverse reactions and greatest patient comfort
  - Less pain, ulcerations, allergic reactions, and pigmentation

Mechanism of action of sclerotherapy, In: Goldman MP, Bergan JJ, Guex JJ. Sclerotherapy, 2007

Polidocanol (Asclera)

- Agent of choice at our center
- Available as 0.5% and 1% (which can be diluted further)
- Found to be successful in 95% of patient at 12 and 16 weeks
- Reduced pain, decreased ulcerations, almost no skin necrosis risk
- Disadvantagaes: allergic reactions, matting and hyperpigmentation
- Maximum recommended dose <10mL

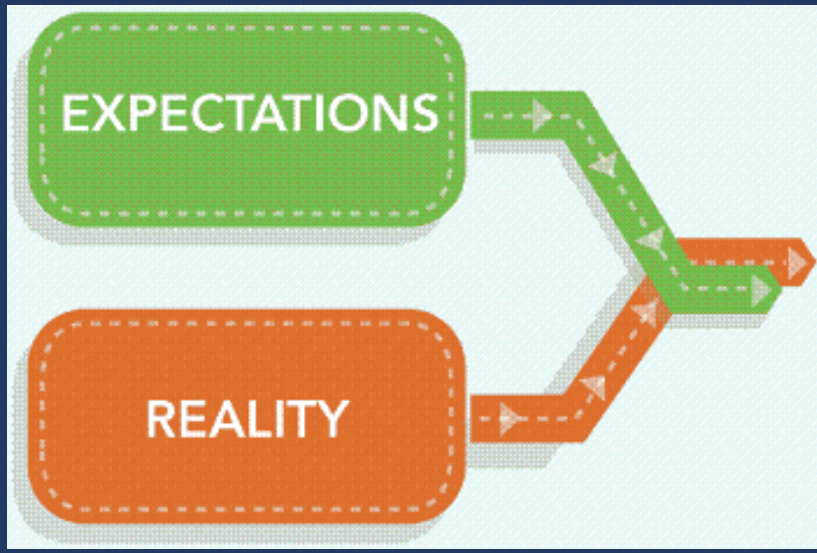
Schwartz L, Maxwell H. Sclerotherapy for lower limb telangiectasias. Cochrane Database Syst Rev 2011:CD008826.

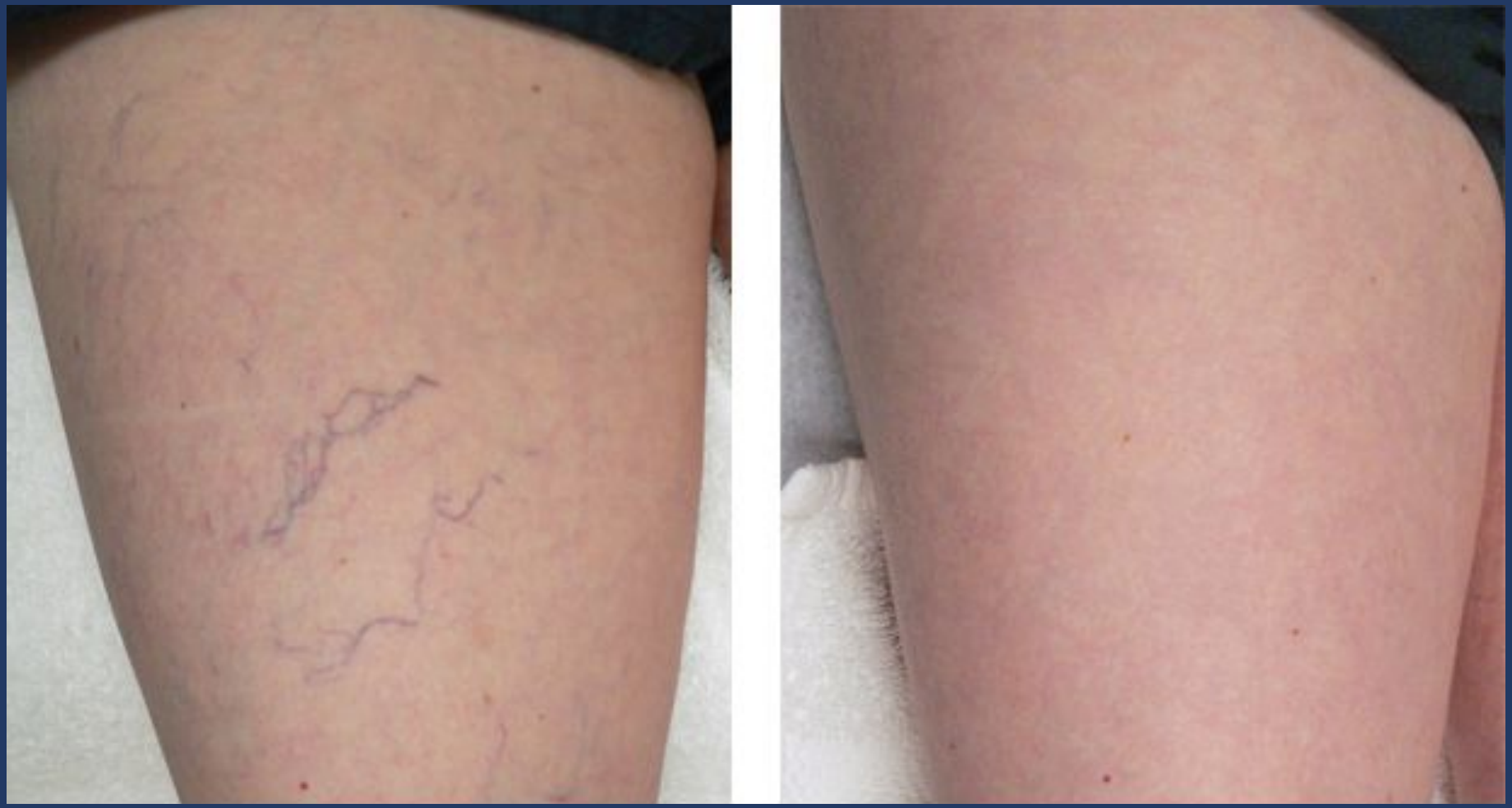
STS (sotradecol)

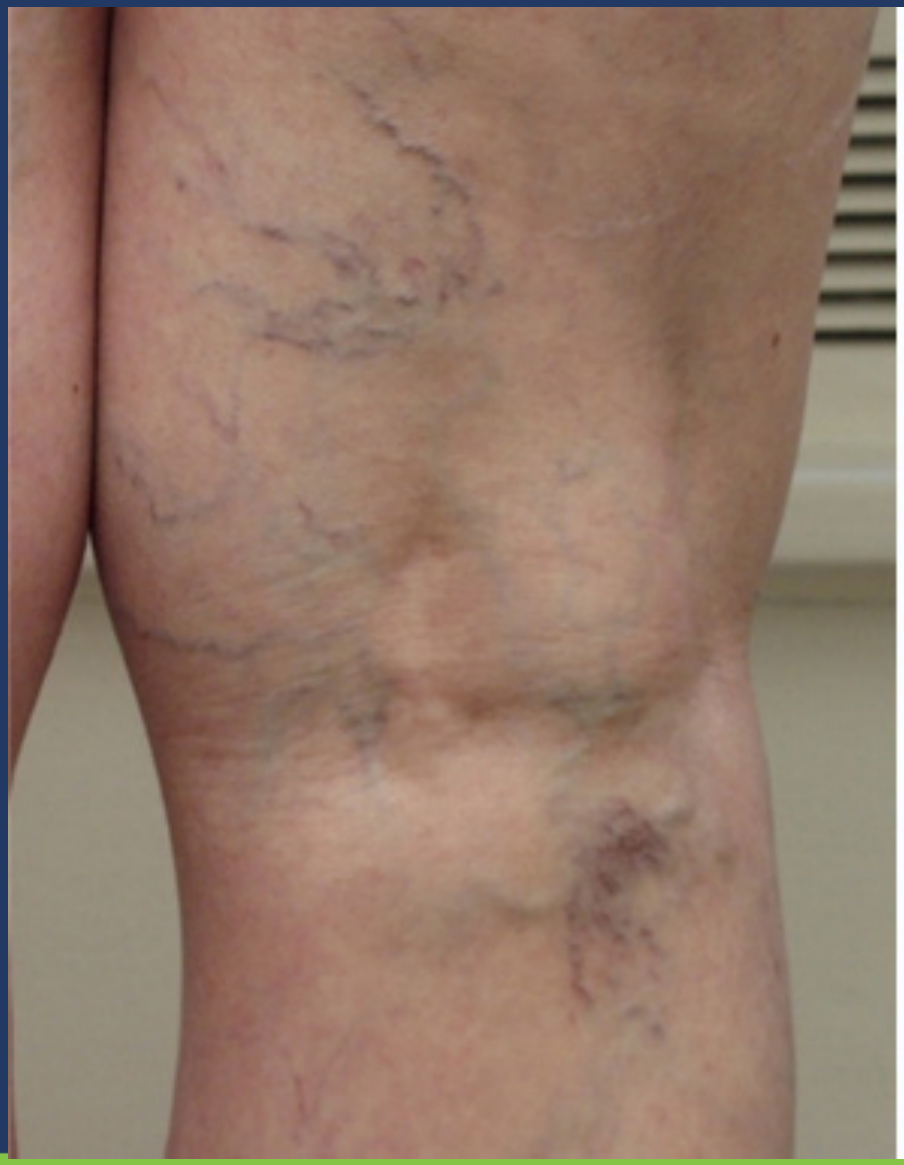
- Used in concentrations of 0.25% and 5% but comes in 1% and 3% concentrations that have to be diluted
- Less matting
- Disadvantages: hyperpigmentation, allergic reactions, increased ulceration and necrosis if injected outside vessel

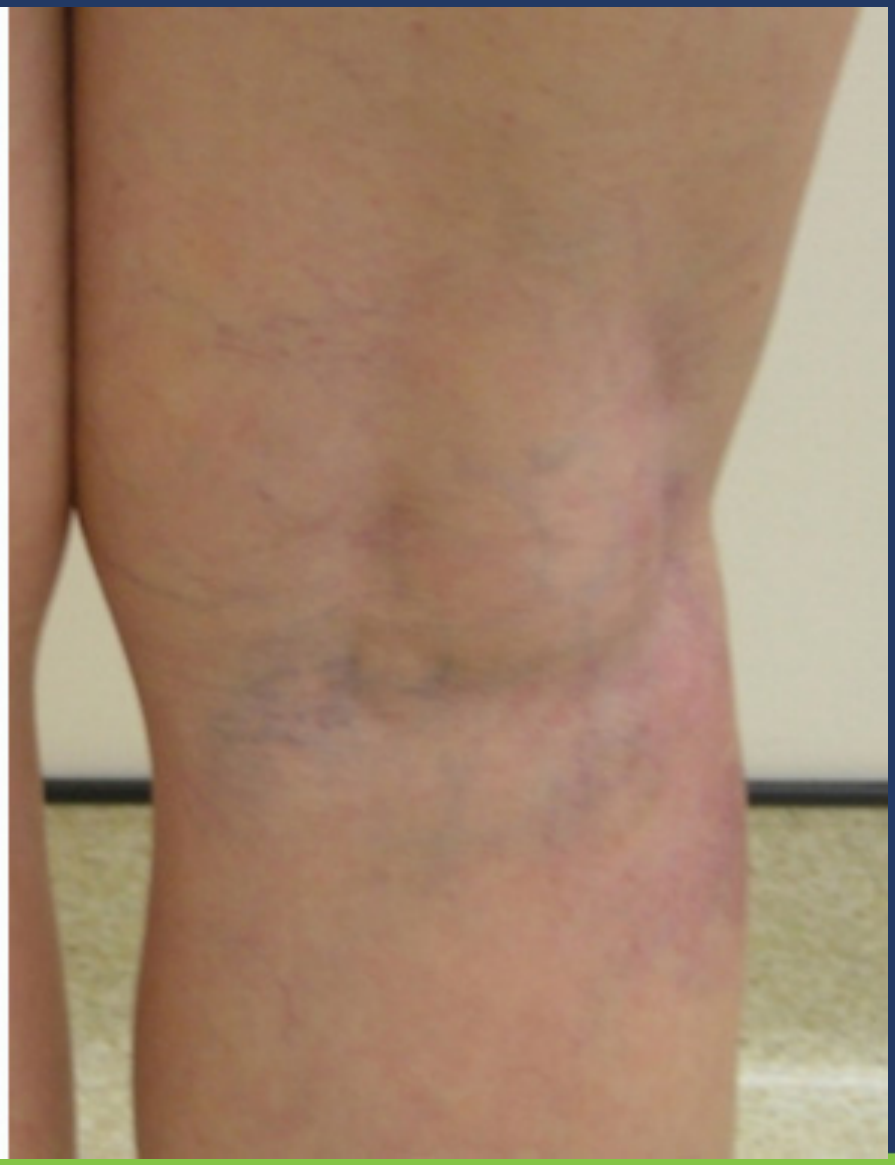
Manage Expectations

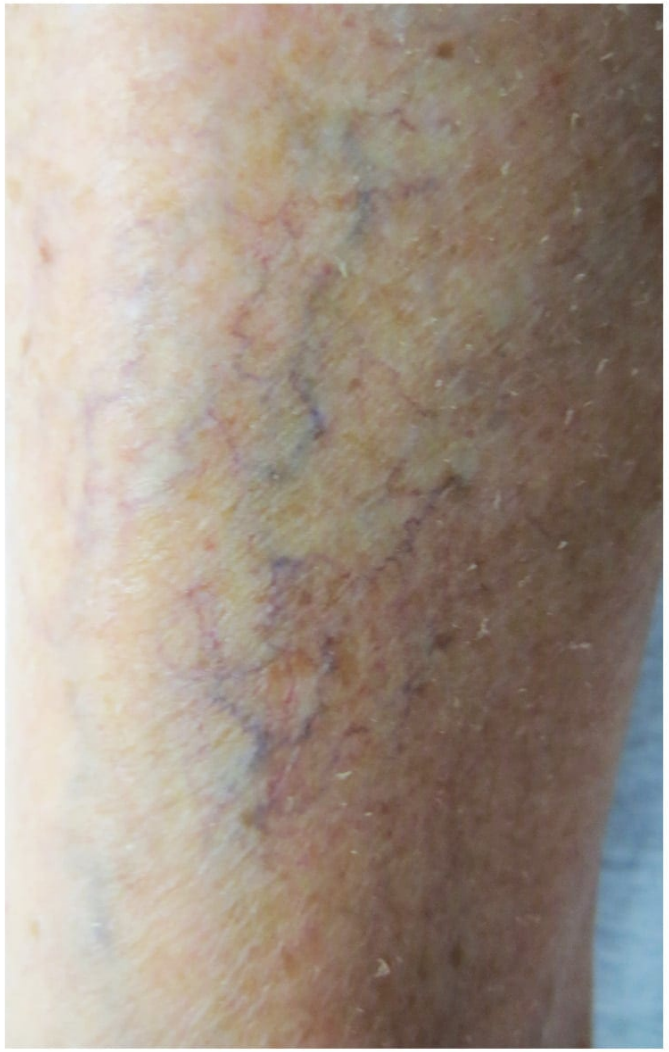
- Cost
- Final results take time
- Color changes (worse/better)
- Repeat injections (6-8wks)
- Potential adverse outcomes and complications
- Can recur
- Improve appearance, not eliminate every visible vein











Conclusion

- Choose the right case (ultrasound, examination)
- Pressure on the plunger should suit the sclerosant viscosity in order to avoid reflux from venulae to arteriole
- Low volume and multiple punctures - Use liquid for telangiectasia, can use foam for reticular veins
- Use low concentrations and progress as needed
- Manage expectations
- First: do not harm, then treat