



Foam sclerotherapy : the safety issue

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Type of sclerotherapy

Detergent

- Polidocanol ***
- Sodium tetradecyl sulfate
- Sodium morrhuate
- Ethanolamine

Hypertonic solution

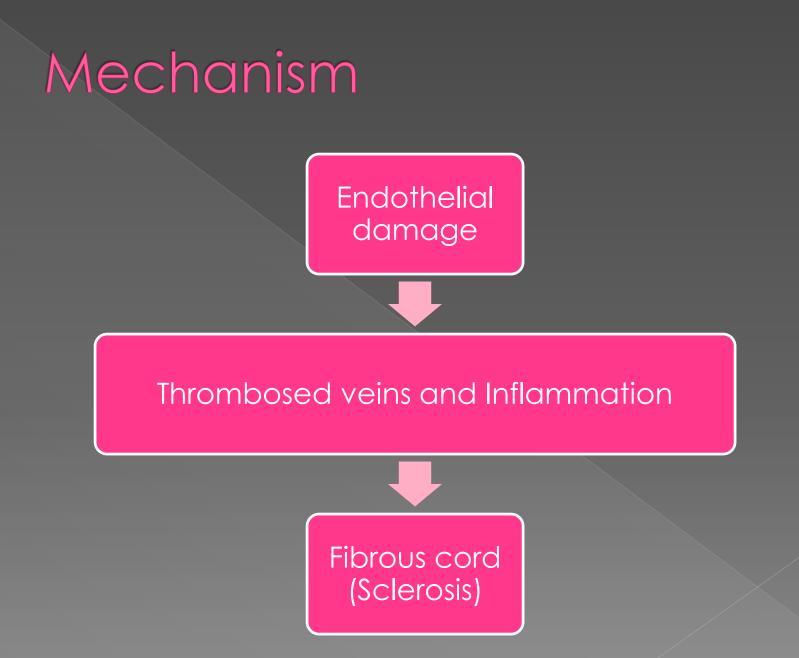
- Hypertonic saline *
- Hypertonic dextrose

Chemical irritant

- Chromated glycerin
- Sodium salicylate
- Polyiodinated iodine

Available in Thailand FDA approved drug





Green, David. "Mechanism of action of sclerotherapy." Seminars in dermatology. Vol. 12. No. 2. 1993.

Foam sclerotherapy



Treated veins

Treated veins	
Telangiectasia	38.2 %
reticular veins	32.5 %
GSV trunk	14.8 %
SSV trunk	4.5 %
Main tributaries	11.3 %
Perforating veins	2.4 %

Guex, Jean Jerome, et al. "The French Polidocanol Study on Long-Term Side Effects: A Survey Covering 3,357 Patient Years." *Dermatologic Surgery* 36 (2010): 993-1003.

What is your drug : air ratio?

A. 1:1
B. 1:2
C. 1:3
D. 1:4
E. 1:5

Coleridge Smith, P. "Sclerotherapy and foam sclerotherapy for varicose veins." Phlebology 24.6 (2009): 260-269.

What is your drug : air ratio?

1:4
Use within 60-90 sec
Small bubble size < 250 µm
Stability

Coleridge Smith, P. "Sclerotherapy and foam sclerotherapy for varicose veins." Phlebology 24.6 (2009): 260-269.

Proper concentration

Vein size	Foam concentration
Diameter < 4 mm	0.5 %
Diameter 4 or < 6 mm	1 %
Diameter 6 or < 8 mm	2 %
Diameter 8 mm or more	3 %

Hamel-Desnos C. Echo-doppler per procédure: sclérothérapie à la mousse. In Guex JJ, Hamel-Desnos C, eds. Ultrasons et Phlébologie. Editions Phlébologiques Françaises-Paris; 2016:109-121

Proper foam volume

Olume ≤ 10 ml/session
GSV 8-10 ml
SSV 4-8 ml
Elevating leg during treatment

Asciutto, Giuseppe, and Bengt Lindblad. "Catheter-directed foam sclerotherapy treatment of saphenous vein incompetence." Vasa 41.120 (2012): e4.

Compression bandage/stocking

Telangiectasia

- > Bandage for 1 day
- Stocking 15-20 mmHg for 2-3 wk
- Reticular veins
 - > Bandage for 1 day
 - Stocking 20-30 mmHg for 2-3 wk
- Truncal veins
 - Bandage for 1 wk
 - Stocking 30-40 mmHg for 2-3 wk

Weiss, Margaret A., et al. "Consensus for sclerotherapy." Dermatologic Surgery 40.12 (2014): 1309-1318.

Adverse events (AE)

Local AE

- Skin
 hyperpigmentation
- Telangiectic matting
- Superficial thrombophlebitis
- > Skin necrosis
- Arterial injury

• Systemic AE

- Stroke or TIA
- > Visual disturbances
- Venous thromboembolism
- > Allergic Reaction

Skin hyperpigmentation

- > Appearing at 1-2 mo posttreatment
- > Incidence 10-30 %
- > 70% resolve within 6 mo
- > 99% resolve within 1 yr

Goldman MP, Sadick NS, Weiss RA: Cutaneous necrosis, telangiectatic matting, and hyperpigmentation following sclerotherapy. Etiology, prevention, and treatment Dermatol Surg 1995; 21: 19–29; quiz 31–32.



Telangiectic matting

- > Neo-vascularization
- > Appearing at 1-1.5 mo posttreatment
- > Incidence 15-20 %
- Look for untreated proximal vein reflux



Reina, Lourdes. "How to manage complications after sclerotherapy." *Small saphenous* vein interventional treatment 24.3 (2017): 130-143.

Superficial thrombophlebitis

- > After treatment of large veins
- > Appearing at 1-2 wk posttreatment
- > Incidence 4 7.5 %
- Look for concomitant DVT



https://www.trufflesveinspecialists.com/what-is-vein-disease/phlebitis/

Skin necrosis

- > Appearing at 3-4 wk posttreatment
- > Incidence 0.2 %
- > Injection into dermal arteriole
- > Veno-arterial reflex vasospasm

Reina, Lourdes. "How to manage complications after sclerotherapy." *Small saphenous* vein interventional treatment 24.3 (2017): 130-143.



Reina, Lourdes. "How to manage complications after sclerotherapy." Small saphenous vein interventional treatment 24.3 (2017): 130-143.

Inadvertent intra-arterial injection

- Incidence Rare
- > Dangerous sites
 - Posterior medial malleolar region
 - Perforator veins
 - SFJ or SPJ

Yiannakopoulou, Eugenia. "Safety concerns for sclerotherapy of telangiectases, reticular and varicose veins." *Pharmacology* 98.1-2 (2016): 62-69.

Stroke or TIA

- Incidence Vary rare
- > Appearing up to 3-5 days posttreatment
- Complete recovery
- Gas embolism or Clot embolism
- > Patent foramen ovale

Visual disturbances
 Incidence 0.1-3 %
 Probably dose-related
 Blurred vision or scotoma
 Resolve within 30 min

Guex, Jean-Jérôme, et al. "Immediate and midterm complications of sclerotherapy: report of a prospective multicenter registry of 12,173 sclerotherapy sessions." *Dermatologic surgery* 31.2 (2005): 123-128.

Venous thromboembolism

- > DVT
 - Incidence 1 %
 - Most cases asymptomatic
- > PE
 - Vary rare

Gillet, J. L., et al. "Side-effects and complications of foam sclerotherapy of the great and small saphenous veins: a controlled multicentre prospective study including 1025 patients." *Phlebology* 24.3 (2009): 131-138.

Anaphylactic shock
 Report 8 cases (1 death)
 Urticaria and abdominal pain are common

> Unpredictable

Yiannakopoulou, Eugenia. "Safety concerns for sclerotherapy of telangiectases, reticular and varicose veins." *Pharmacology* 98.1-2 (2016): 62-69.



Safety issue conclusion

Inform and consent Take picture before treatment Emergency drug trolley Proper concentration Proper volume • Low pressure injection Avoid extravasation Compression bandage/stocking