

# Foam sclerotherapy : the safety issue

**Termpong Reanpang, MD.**

Division of Vascular and Endovascular Surgery  
Department of Surgery, Faculty of Medicine  
Chiang Mai University





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# Type of sclerotherapy

## Detergent

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

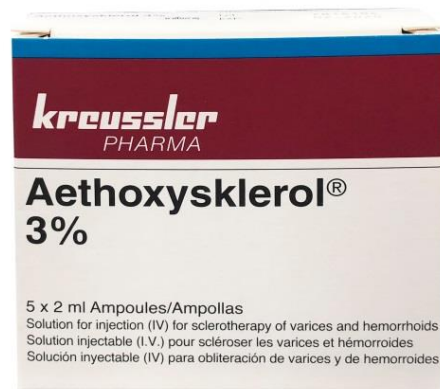
## Hypertonic solution

- Hypertonic saline \*
- Hypertonic dextrose

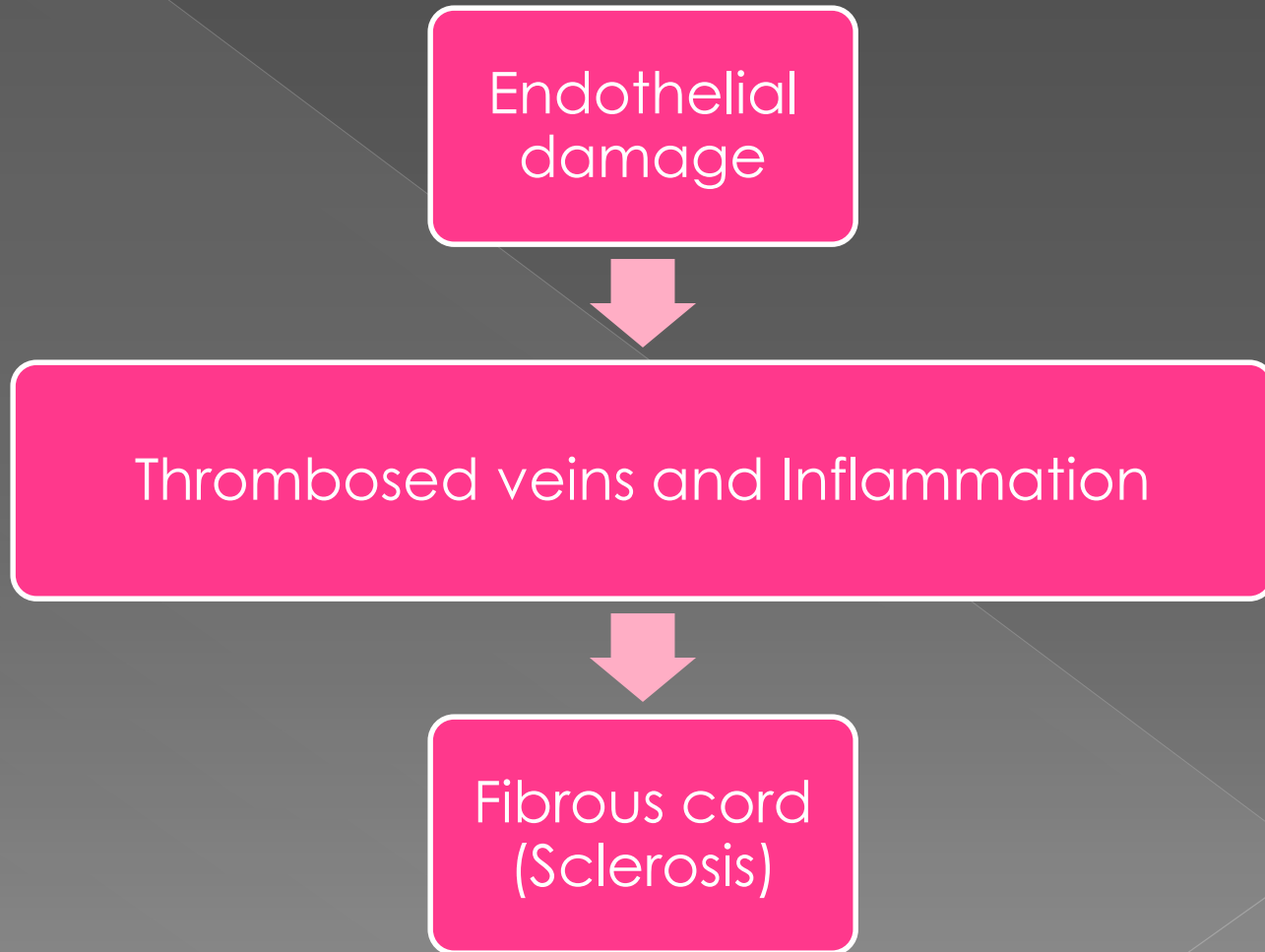
## Chemical irritant

- Chromated glycerin
- Sodium salicylate
- Polyiodinated iodine

# Available in Thailand FDA approved drug



# Mechanism





# Foam sclerotherapy



Tessari method

# 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 %  |

# What is your drug : air ratio?

A. 1:1

B. 1:2

C. 1:3

D. 1:4

E. 1:5



# What is your drug : air ratio?

- ⦿ 1:4
- ⦿ Use within 60-90 sec
- ⦿ Small bubble size < 250  $\mu\text{m}$
- ⦿ Stability

# 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 %                |

# Proper foam volume

- Volume  $\leq$  10 ml/session
- GSV 8-10 ml
- SSV 4-8 ml
- Elevating leg during treatment

# 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

# 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

# Local AE

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





# Local AE

- 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.

# Local AE

- 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/>

# Local AE

## ◉ 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.

# Local AE

- ◉ Inadvertent intra-arterial injection
  - > Incidence – Rare
  - > Dangerous sites
    - Posterior medial malleolar region
    - Perforator veins
    - SFJ or SPJ



# Systemic AE

## ● Stroke or TIA

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

# Systemic AE

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

# Systemic AE

## ● Venous thromboembolism

### > DVT

- Incidence 1 %
- Most cases – asymptomatic

### > PE

- Vary rare

# Systemic AE

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

# 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