

How To Avoid Complications From Sclerotherapy

Thursday, November 21, 2024
SESSION 70: SUPERFICIAL VEIN TREATMENT STRATEGIES V
 How To Avoid Complications From Sclerotherapy
 3:13 PM - 3:18 PM
 MD Jean-Luc GERARD
 Paris France

Disclosure

None for this presentation

COMPLICATIONS

- Thrombosis
- Necrosis
- Neurological complications

Thrombosis

The incidence of VTE : 0.51%:
 Open surgery : 0.54%
 Sclerotherapy : 0.19%
 Endovenous laser therapy (EVLIT): 0.47%
 Incidence of deep vein thrombosis after varicose vein surgery
 2004 Dec;91(12):1582-5. [A.M.van Rijn](#), [J.Chai](#)

Increase in the risk of DVT when ≥10 mL of foam was injected
 The incidence and characterization of deep vein thrombosis following
 ultrasound-guided foam sclerotherapy in 1000 legs with superficial venous reflux
 J Vasc Surg Venous Lymphat Disor 2013 [Sachin R Kulkarni](#)

Pharmacological thromboprophylaxis

Endovenous ablation

For high-risk patients undergoing we suggest pharmacological thromboprophylaxis. US guidelines

Sclerotherapy

Lowest rate of VTE(0,19%)
 Moreover it is not usual to do a thromboprophylaxis before or after

Doses and volume

Algorithm for treating saphenous vein with sclerotherapy

Vein size	Concentrations	
	Polidocanol foam	STS foam (Sodium tetradecyl sulfate)
∅ < 3 mm	0.25%	0,2 %
∅ < 4 mm	0.5%	0,2 to 0,5 %
∅ ≥ 4 and < 6 mm	1%	0,5 to 1%
∅ ≥ 6 and < 8 mm	2%	1%
∅ ≥ 8 mm	3%	3%

The maximum volume of foam per session is 10 mL.

Hamel-Denoux C. Echo-doppler per procédure: sclérothérapie à la mousse. In: Guex JJ, Hamel-Denoux C, eds. Ultrasons et Phlébologie.

Doses and volume
Algorithm for treating saphenous vein with sclerotherapy

Concentrations

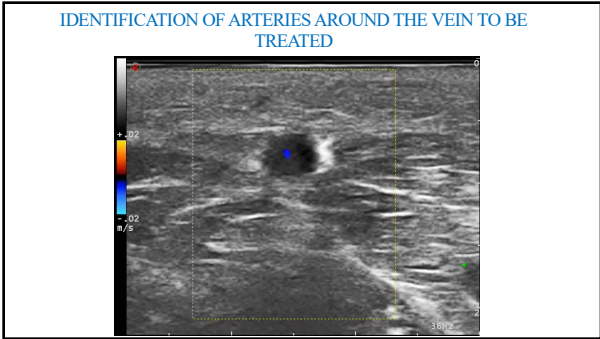
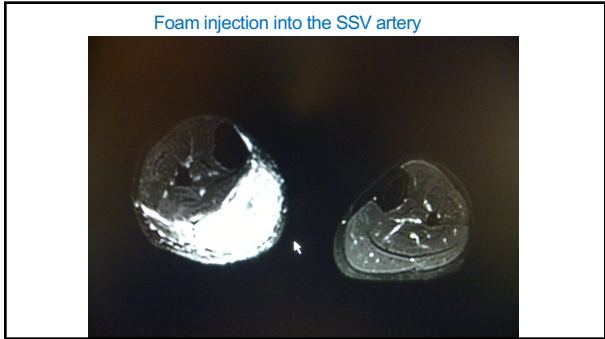
Vein size	Polidocanol foam	STS foam (Sodium tetradecyl sulfate)
$\varnothing < 3 \text{ mm}$	0.25%	0.2 %
$\varnothing < 4 \text{ mm}$	0.5%	0.2 to 0.5 %
$\varnothing \geq 4 \text{ and } < 6 \text{ mm}$	1%	0.5 to 1%
$\varnothing \geq 6 \text{ and } < 8 \text{ mm}$	2%	1%
$\varnothing \geq 8 \text{ mm}$	3%	3%

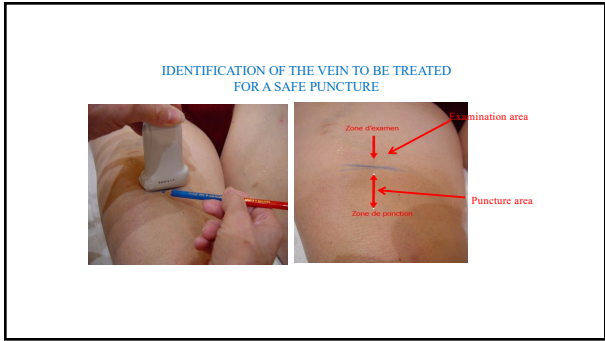
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NECROSIS

Mistakenly injecting the artery companion to the vein





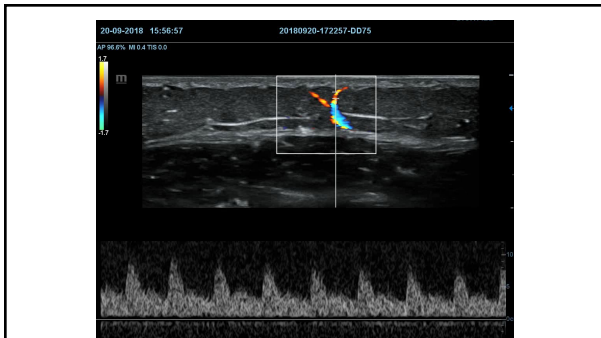
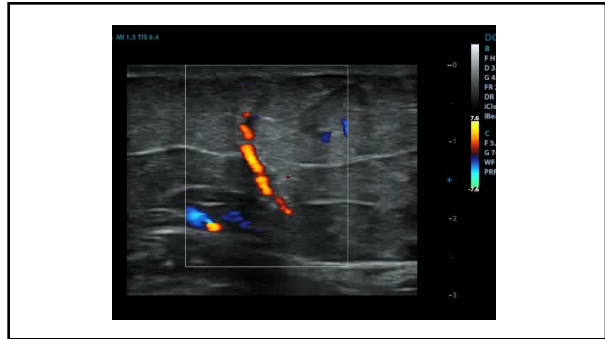
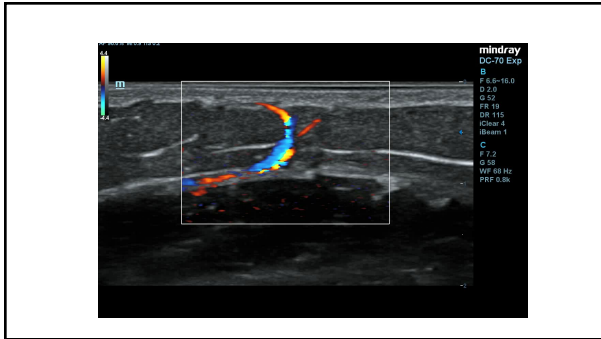
Standardized procedure UGFS

4 stages all done under Duplex imaging control:

- 1. Before injection (detection of possible nearby arteries)
- 2. Vein puncture + check needle position
- 3. Injection
- 4. Post-injection (control of filling of the vein by the foam)

Procedure must be entirely done under Duplex control





Neurological complications

Neurological complications of sclerotherapy for varicose veins
 Sarvananthan T, Shepherd AC, Willenberg T, Davies AH. J Vasc Surg. 2012

There were 12 case reports of CVA with confirmatory brain imaging and nine reports of TIA.

There were 97 (0.90%) reports of neurological events overall, including TIA, visual and speech disturbances, and 29 cases of reported migraine (0.27%).

Symptoms occurred at times ranging from minutes to several days following sclerotherapy.

Analysis of adverse events with sclerosants reported to the United States Food and Drug Administration .
Phlebology 2012 Jul;19(6):452-459.

Out of 3214 reactions

- Stroke 7
- TIA 3

Stroke and TIA 0,01%

- Headaches : 34
- Visual disturbances 8
- Migraine : 4

Headaches , Visual disturbances and migraines between 1% and 0,1%

Risk factors for neurologic complications

- Right-to-left shunts
- Historic of migaine
- Large volume of foam
- Use of physiological gas

LIMITS OF SCLEROTHERAPY

Randomized clinical trial comparing surgery, endovenous laser ablation and ultrasound-guided foam sclerotherapy for the treatment of great saphenous veins.
 M.Venermo BJS August 2016
Patency of GSV at 1 year
 214 patients were included (65 conventional surgery, 73 EVLA, 76 UGFS)

Type of intervention	Occluded %	Partially open %	Open %
SURG	97	3	0
EVLA	97	0	3
UGFS	51	29	19

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Patency of GSV at 1 year

UGFS	Occluded %	Partially open %	Open %
<6mm	≈75	≈8	≈17
6-8mm	≈50	≈35	≈15
≥9mm	≈37	≈30	≈33

RECANALISATION

Increased vein diameter was associated with recanalization.

- # CONCLUSION
- **Thrombosis** : very rare incidence; inject appropriate concentrations of sclerosant considering the vein size, respect volume foam less 10 cc
 - **Necrosis**: identify arteries by US , to inject in a safe zone
 - **Neurological complications** : avoid treating patient with known patent foramen ovale, respect volume foam: less 10 cc foam
 - **Relapse Recurrence**: 6mm could be the threshold for efficiency of foam sclerotherapy