

## How To Avoid Complications Of The Small Saphenous Vein

Thursday, November 21, 2024

MD Jean-Luc GERARD  
Paris France

[SESSION 72: SUPERFICIAL VEIN TREATMENT STRATEGIES VI](#)  
How To Avoid Complications Of The Small Saphenous Vein  
4:49 PM - 4:54 PM

## disclosure

None for this presentation

## Small saphenous vein (SSV) specificity

Its origin and path are constant, but its termination is very variable and even complex

Termination of SSV is at a variable level :

83% in modal junction

6% high connection

**11 % without SPJ**

Immediate proximity to nerves and arteries, its treatment is more delicate than for GSV.

## COMPLICATIONS

- Thrombosis
- Paresthesia (nerve injury)
- Necrosis
- Relapse Recurrence

## COMPLICATIONS

- If all techniques have the same complications
  - Thrombosis is common to all
- Each technique has its own complications
  - Paresthesia (nerve damage) is specific to thermal ablation or open surgery
  - Necrosis is specific to sclerotherapy

## THROMBOSIS

**The incidence of VTE : 0.51%:**

Open surgery : 0.54%

Sclerotherapy : 0.19%

Endovenous laser therapy (EVLT): 0.47%

Incidence of deep vein thrombosis after varicose vein surgery  
2004 Dec;91(12):1582-5. [A.M.van Riel, J.Chai.](#)

**Deep venous thrombosis was a rare complication : 0% to 1.2%**

Meta-analysis Boersma

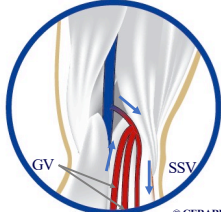
**Increase in the risk of DVT when ≥10 mL of foam was injected**

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](#)

**US GUIDELINES**  
Pharmacological thromboprophylaxis

For high-risk patients undergoing endovenous ablation we suggest pharmacological thromboprophylaxis. Grade 2 C

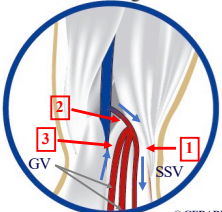
Connection with gastrocnemius veins



© GERARD

Where is for you the right position of the fiber (catheter) tip?  
*(only one proposition)*

Connection SSV with gastrocnemius veins (GV)



1. Below the GV  
 2. At the SPJ  
 3. Into the GV

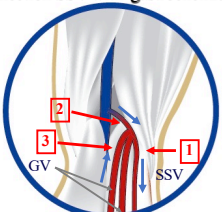
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Replies from experts

- Claudine Hamel Desnos :1
- Lowell Kabnick :1
- Thomas Proebstle : 1
- Marc Whiteley :1 – Below the GV – Safe and effective.

Where is for you the right position of the fiber (catheter) tip?  
*(only one proposition)*

Connection SSV with gastrocnemius veins (GV)



2. At the SPJ

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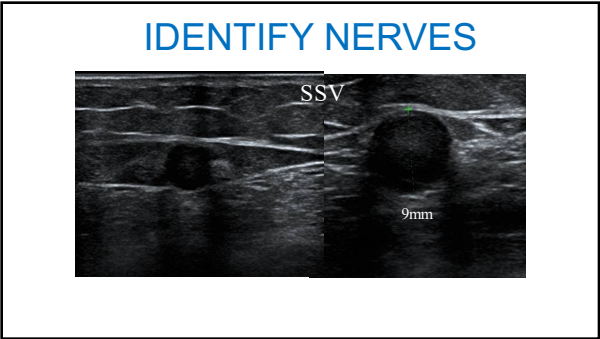
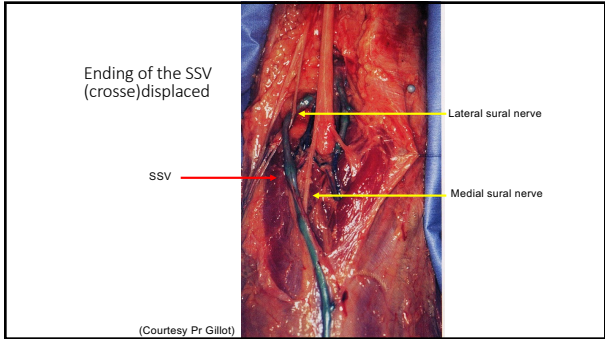
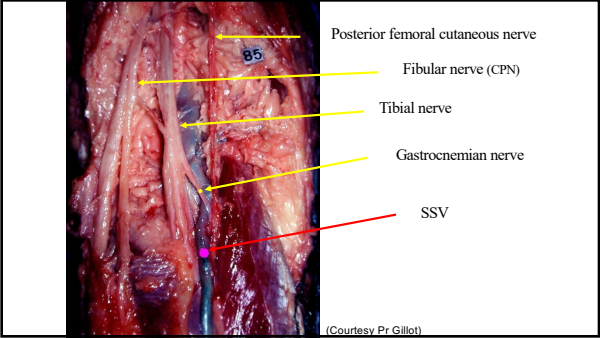
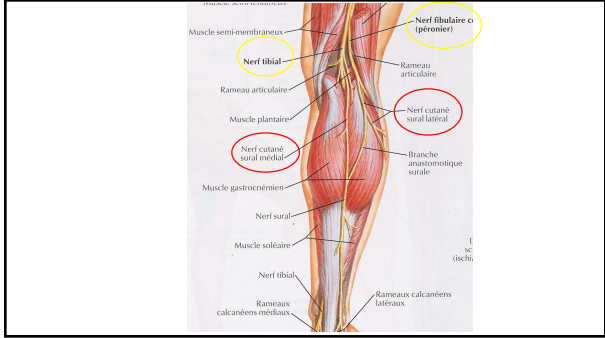
**PARESTHESIA RATES**  
*specific for thermal ablation*

- 15 specific studies on SSV by endovenous laser ablation
  - between 1,6% and 11%
  - on average 4%
- Nerve disorder
  - never motor lesion
  - exclusively sensory fibers

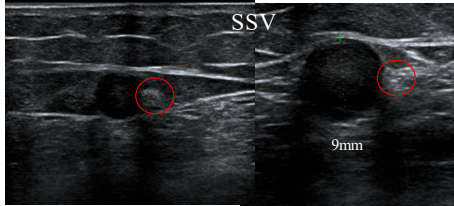
**Treatment Modalities for Small Saphenous Vein Insufficiency: Systematic Review and Meta-analysis**  
*J Endovasc Ther*, November 2015  
 Boersma Doele

Type of intervention	Number of patients	Occlusion rate %	Paresthesia
SURG	798	58.0% (40.% à 75%)	19.6%
EVLA	2950	98.5% ( 97.7% à 99.2%)	4.8%
RFA	386	97.1% ( 94.3% à 99.99%)	9.7%
UGFS	494	63.6% ( 95% à 47.1%)	
MOCA	50	94%	

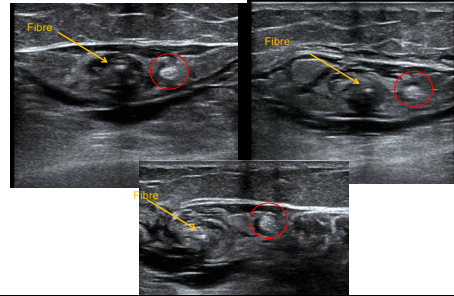
Which nerves ?  
 Where is the problem ?



## IDENTIFY NERVES

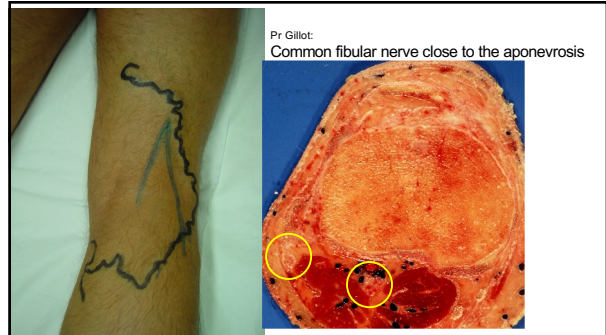


## Isolate the nerve by tumescent anesthesia



## ANESTHESIA

- Only local anesthesia (tumescent)
  - No or light sedation (patient be aware)
- Never general anesthesia
- Never spinal anesthesia



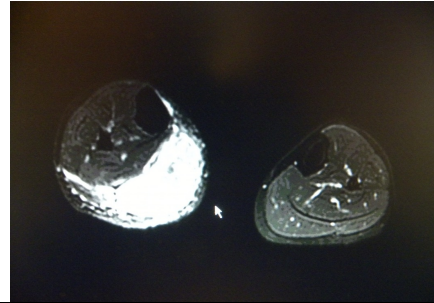
## NECROSIS

Mistakenly injecting the artery  
companion to the SSV

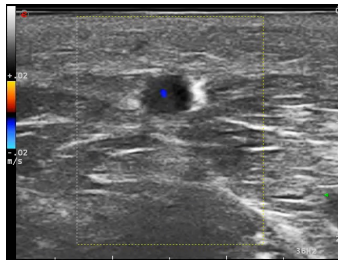
Necrosis after liquid sclerotherapy by colorless ultrasound



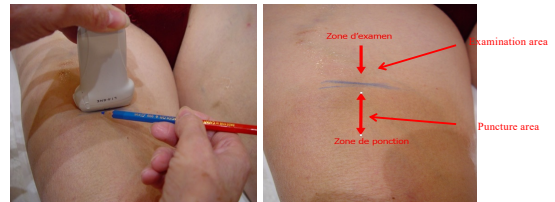
Injection of foam into the SSV's artery



### IDENTIFICATION ARTERIES AROUND OF THE VEIN TO BE TREATED



### IDENTIFICATION OF THE VEIN TO BE TREATED SAFE PUNCTURE



Pastel pencil delimits 2 zones, after ensuring the absence of small arteries in the area of puncture

### CONCLUSION

- Thrombosis : very rare incidence; respect volume foam less 10 cc foam ; respect gastrocnemian veins
- Paresthesia (nerve injury): identify nerves and isolate them with tumescent anesthesia
- Necrosis: identify arteries to inject in a safe zone