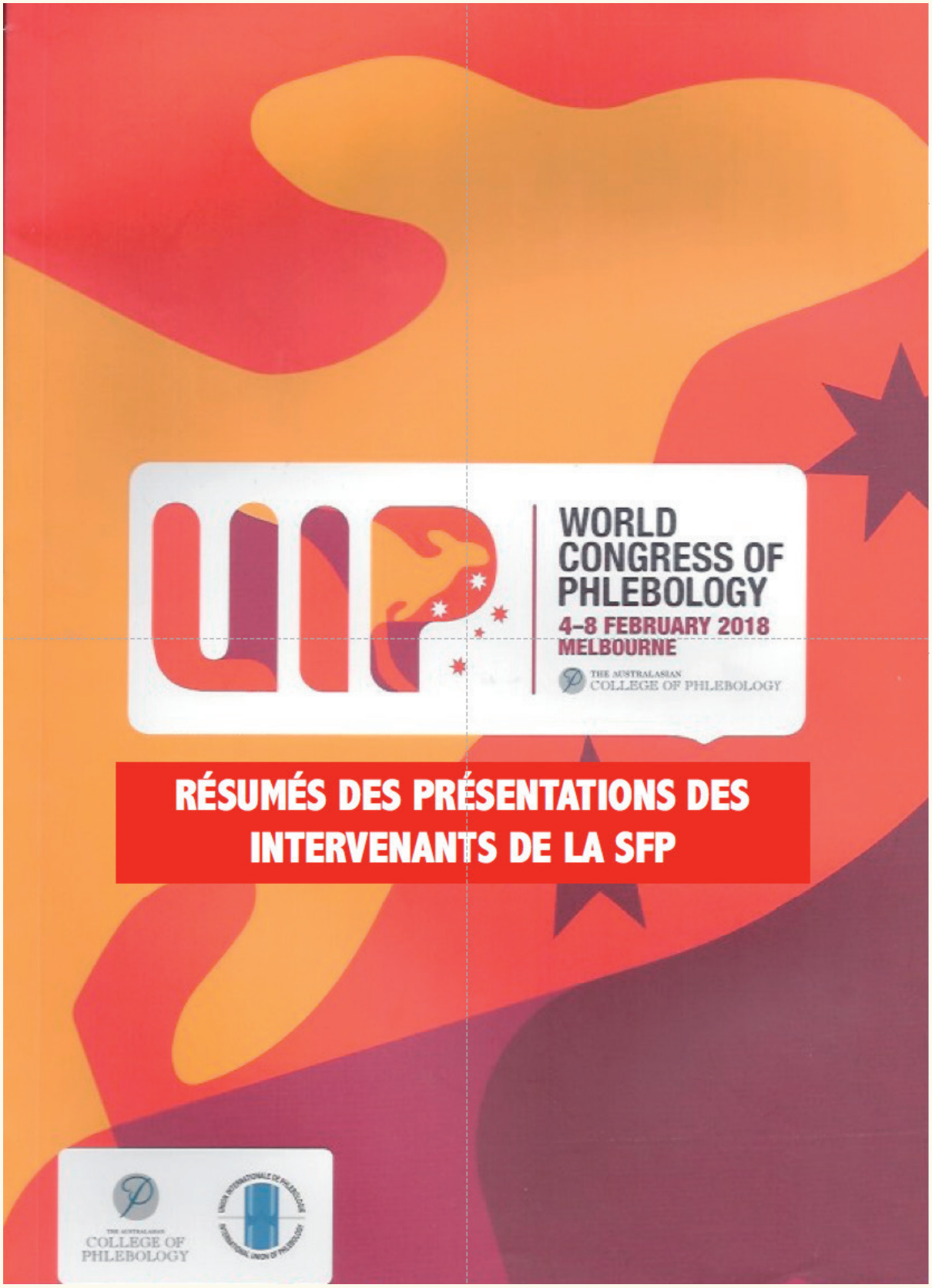
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# « FORUM OF THE FOUNDERS » INTERSOCIETAL SESSION

## RESULTS OF TREATMENTS OF RECURRENT VARICOSE VEINS, HISTORY-BASED REVIEW.

JEAN-JÉRÔME GUEX

**Introduction, aims**

"REVAS and PREVAIT" are the presence of Varicose veins in a limb previously treated. There is a difference with "recurrences" that include networks which were not considered at the time of the initial treatment. They also differ from "failure" which is specifically determined by the patient's dissatisfaction.

**Material and methods**

Looking back to the history of phlebological interventions and their failures since the 80's allows us to understand better the problem of recurrences since they do not all have their cause in the same phenomenon, do not appear at the same site, not for the same reason, and do not obey the same pathophysiological mechanisms.

The outbreak (in the 90s') of new assessment technologies (Duplex US) and of new therapeutic concepts regarding venous ablation and management of terminal valve incompetence at junctions, have brought useful information on the mechanisms. They have also been followed by an overall reduction of recurrences both in terms of frequency and severity.

The use of Patient reported Outcome Measurements (PROMs) like Quality of Life Measures (QoL) has allowed to verify a high level of satisfaction of patients at mid and even long term (5 years). New methods have dramatically improved the management of VV, and have also benefited to open surgery, which, when carried out according to protocols like those of ablations has demonstrated a satisfactory profile, comparable to that of other methods.

**Results**

Mid-term and long-term RCTs are currently available and demonstrate that since satisfaction or patients is generally observed, treatment of varicose veins, provided the technique is appropriately executed, is not synonym of failure anymore.

## SCLEROTHERAPY OF RECURRENT VARICOSE VEINS (STRATEGY AND TECHNIQUE) – THE FRENCH POINT OF VIEW.

C. HAMEL-DESNOS

**Keywords:** foam sclerotherapy, recurrent varicose veins.

**Introduction:**

The rate of recurrent varicose veins (RVVs) is between 13 and 65% according to the literature; these are often classified on the basis of the type of procedure that was originally performed on them, the anatomical and ultrasound features, the site of the RVVs, the etiopathogenesis, etc.

According to international recommendations, treatment of RVVs should be based essentially on foam sclerotherapy (FS).

**Objective:**

To determine the major criteria for the tactics to be adopted and technique to be used in FS in RVVs, in terms of efficacy and safety.

Methods: Reviewing the research literature and the international recommendations concerning sclerotherapy in RVVs, and sharing the French experience.

**Results:**

It is essential first to perform a good Duplex ultrasound (DUS) examination of the whole varicose vein network, before any injection is done. In RVVs, the DUS examination often starts from the clinically visible varicose veins, making it possible to "return up to the source" of the reflux in the area in question.

As for the "common" varicose veins, injections are done first at the most important reflux points and those at the highest point. US guidance of the injection is essential assuming this is technically possible.

The most suitable injection technique appears to be direct puncture-injection with a needle, a very versatile method that makes it possible to gain easier access to the often complex sites subject to recurrence, especially at the top of the thigh (the lymph nodes and pudendal varicose veins) and in the popliteal fossa.

The concentrations used are identical to those used for treating the original varicose veins. The volumes injected may be much larger, however, due to the frequently very sinuous configuration of the RVVs, resulting in a larger endovenous volume to be filled. A post-injection spasm does not always occur, since the wall of the vein is often not as well endowed with smooth muscle cells, especially in neovasculogenesis.

In the literature, the results of treating the original varicose veins with FS and the RVVs appear to be identical, but no randomised controlled trial (RCT) has ever been performed.

Compared to surgery and thermal ablation, FS offers clearly superior versatility and can easily be repeated if needed. Furthermore, when compared with surgery, it is much less invasive and has a lower comorbidity.

**Conclusion:**

FS is the first line treatment for RVVs. FS for RVVs varies little from the procedure performed on the original varicose vein; the role of the DUS remains essential, the tactics and techniques employed in the FS procedure are more-or-less identical and the results appear to be equivalent. Sclerotherapy of RVVs nevertheless requires a high level of training and greater experience

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# ORAL PRESENTATIONS

## ADVANTAGES OF FOAM FOR C1.

C. HAMEL-DESNOS, P. DESNOS

**Keywords:** C1, sclerotherapy, ultrasound-guided foam sclerotherapy.

According to the European guidelines, foam sclerotherapy (FS) is a valid option for reticular veins and telangiectases (C1 of CEAP clinical classification).

The advantages found for FS of C1 are those encountered for C2: better efficacy, less sclerosant, limited injections and fewer sessions, foam well visible in the vein by the naked eye or by ultrasound.

Insufficient or no treatment of the underlying reflux of telangiectases is the cause of matting.

Consequently, the pre-treatment assessment should include a clinical examination as well as an ultrasound imaging examination.

Thanks to the improvement of ultrasound probe technology, it is now possible to use ultrasound guidance for sclerotherapy of small veins, even if the diameter is only 1 mm, when those veins are not well visible under the skin (depth $>$ 2 mm).

Then an immediate ultrasound control shows the distribution of the foam in the C1, since the foam is echoic.

Finally, FS can be used for C1 in the same way as for any type of varicose vein, but so far there is no evidence of the superiority of the foam on the liquid for C1, in the literature.

Since the foam is stronger than the liquid, concentrations must be adapted to prevent inflammation and matting.

FS is suspected of causing more visual disturbances for C1 than for C2, but analysis of the studies fails to confirm this hypothesis.

In conclusion, it is logical to think that, in the coming years, FS for C1 will continue to develop, but RCTs are still missing.

## OPTIMISATION OF SCLEROTHERAPY AND THERMAL ABLATION TECHNIQUES TO REDUCE THE RISK OF PIGMENTATION.

C. HAMEL-DESNOS, P. DESNOS

**Keywords:** hyperpigmentation, ultrasound-guided foam sclerotherapy, thermal ablation.

The hyperpigmentation after sclerotherapy or thermal ablation (TA) of varicose veins is a benign side effect, often transient, whose rate of occurrence is very variable in the literature, but which can create dissatisfaction of the patient.

The pathophysiology of this phenomenon is not completely known, but this would be secondary to the inflammatory process of the treated vein causing wall permeability. Combined with blood stasis, this permeability promotes the passage of red blood cells in the nearby tissue.

Secondly, there is a production of hemosiderin and then a ferric brown pigment is located in the dermis, causing stimulation of epidermal melanocytes.

To prevent excessive inflammation, a pre-treatment assessment including a clinical and ultrasound examination is of paramount importance to avoid omitting an underlying reflux; then the right dose at the right place must be applied.

We have seen in our clinical experience that not only an overdose but also an underdose can cause an excessive inflammatory reaction.

For sclerotherapy the top-down technique (French school) seems to cause less inflammation than other techniques and concentrations are adapted to the diameter of the venous segment.

For TA the correct energy must be applied (optimal LEED- Linear-Endovenous-Energy- Density could be 80 Joules/cm for Endovenous-Laser-Ablation).

**Conclusion:**

Hyperpigmentation after endovenous treatments is a complex phenomenon for which, even if it is not the only criterion, the quality of the gesture plays an important role.
The respect of the good practices and the use of the right dose will help to limit the risk of pigmentation.

## TECHNICAL COMPARISON OF VARIOUS SCLEROTHERAPY METHODS.

C. HAMEL-DESNOS, P. DESNOS

**Keywords**: sclerotherapy, direct puncture with needle technique, French school.

Thanks to Pravaz who invented the hollow needle in 1851, the first sclerotherapy method was the direct puncture with a needle.
In 1928, Tournay elaborated the top-down technique (French school) which consists in treating firstly the highest or largest leakage points.

The injections are fractionated and staged and no compression is applied. The tributary varices are only injected at a later time, if necessary.

In the same period, with the 2 distal techniques by Sigg and Fegan compression was systematically applied because inflammation was much more frequent; both have currently been abandoned.

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Nowadays, the Top-Down technique is the reference (European guidelines). However, some variants exist.

In the English technique, short cannulas are placed along the thigh and sometimes the leg, and then the foam is injected from place to place starting from the most proximal cannula.

Another variant is the use of a long catheter, with or without tumescent infusion around the vein.

The tip of the catheter is placed just below the saphenofemoral junction and then slowly withdrawn during injection of the foam.

Another method, which is not really consistent with the top-down technique, is to place a short cannula in the knee area and inject all the foam from this site.

The "classical French technique" seems to be simpler and faster than the others and no compression is necessary. However, this requires more training and experience.

So far, regarding the literature, there is no evidence that any of the techniques leads to better results compared with others.

## PHLEBOLOGY: TO BE OR NOT TO BE A SPECIALTY (IN EUROPE)?

JEAN-JÉRÔME GUEX, FABRIZIO MARIANI, CLAUDINE HAMEL-DESNOS, OSCAR MALETI

Phlebology is not a worldwide recognized specialty, sometimes it may be a subspecialty, or a University diploma under the auspices of an actual specialty (vascular surgery, Dermatology, Vascular Medicine).

**However, Phlebolology does exist, but it faces a number of challenges:**

- It has a specialized field of competency which is of much interest for official specialties too.
- The number of venous patients increases because population is aging.
- New technologies challenge classical ones.
- New technologies are released and widely used before recommendations are published.
- Training in new technologies is mostly carried out by the industry.
- There is a need for quality control of training and knowledge.

**The "Union Internationale des Médecines Spécialistes" (UEMS):**

- UEMES is an EU official body based in Brussels which have created in 2015 a **Multidisciplinary Joint Committee on Phlebology** (**MJCPh**) to deal with these issues.
- The first tasks of the **MJCPh** was to analyze the current status of phlebology,
- Then to create a **European Board of Phlebology (EBPh)** able to certify proficiency in Phlebology.
- The idea was not to offer a specialty diploma in Phlebology since, according to the rules, the specialty can't exist yet in Europe. But to offer a **Competency diploma in Phlebology (CDP)** (complete cursus) or a **Competency Diploma in Phlebology Procedure (CDPP)** (procedure by procedure).
- **CDP and CDPP** will be offered to MD with or without specialty, but with differences in the cursus of the competency.
- **The European Training Requirements (ETR)** have been voted by the UEMS General council in October 2017 and are now an official certification.

## INVESTIGATION ON TRUNK DIAMETERS OF THE GREAT SAPHENOUS VEINS IN DAILY PRACTICE OF PHLEBOLOGY IN FRANCE (DIAGRAVES STUDY BY THE FRENCH SOCIETY OF PHLEBOLOGY).

CLAUDINE HAMEL-DESNOS*, JEAN-LUC GILLET, MICHEL LAUSECKER, BERTRAND CHAUZAT, JEAN-LUC GERARD, CHRISTIAN DANIEL, SÉBASTIEN GRACIA, LUC MORAGLIA, MATTHIEU JOSNIN, FABRICE ABBADIE, FRANÇOIS-ANDRÉ ALLAERT.

**Keywords:** GSVs diameters, evaluation, foam sclerotherapy.

**Introduction/ Objectives:**

Regarding the literature, failure of foam sclerotherapy seems to be more frequent if the diameter of the treated vein is ≥ 6 mm.

The objective of this study was to evaluate the distribution of the GSVs diameters in daily practice of phlebology in France.

**Methods:**

Thirty-five French phlebology centres were involved in this observational prospective study conducted by the French Society of Phlebology.

The inclusion criteria were: Cos to C6 from CEAP clinical classfication in patients with venous symptoms and/or signs of chronic venous disorders and without any previous treatment of at least 1 of the GSVs.

The patients completed a venous symptoms questionnaire.

The GVS diameters were measured at mid-thigh level (standing position); refluxes were considered pathological if ≥ 0.5 sec.

**Results:**

1245 patients were included (77% female, mean age 52, mean BMI 25); 69% of the patients had venous symptoms.

Predominant CEAP classes were C1 (35%) and C2 (38%).

No reflux of the GSV has been detected in 62% of all patients (mean diameter: 3.7 mm).

In case of reflux (38% of cases), mean diameter was 5.6mm and distribution for this group was: 62% ≤ 6mm, 30% between 6 and 8 mm and 8% 8 mm.

**Conclusions:** In daily practice of phlebology in France, more than 60% of the patients have competent GSVs.

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## RANDOMISED CONTROLLED STUDY OF THE EFFICACY OF ENDOVENOUS LASER TREATMENT (1470 NM) VERSUS ULTRASOUND-GUIDED POLIDOCANOL FOAM SCLEROTHERAPY IN SMALL SAPHENOUS VEIN INCOMPETENCE: ONE-YEAR FOLLOW-UP RESULTS.

C. HAMEL-DESNOS., F. ABBADIE., B. CHAUZAT., A. DIARD., JL. GERARD, S. GRACIA., M. JOSNIN., L. MORAGLIA., P. OUVRY, O. PICHOT., S. SKOPINSKI, C. STIRNEMAN, FA. ALLAERT.

**Objective:**
During 3 years, to compare the evolution of the reflux ≥ 0.5 s and closure rate of the small saphenous vein (SSV), the venous clinical severity score (VCSS) and the quality of life (QOL) of the patients (CIVIC-14) into two groups of randomized patients: one group being treated on Do by endovenous laser (EVL) and the other by ultrasound-guided foam sclerotherapy (USGFS).

**Method:**
Open randomised prospective clinical trial on two parallel arms. Inclusion criteria: SSV incompetence (trunk reflux ≥ 0.5 sec), CEAP C2 to C6.

Evaluation criteria: venous Duplex-scan assessment, VCSS, CIVIC-14; visits on Do, M6, M12, M24 and M36.

**Results:**
The study covers 144 patients among whom 70 were treated by EVL and 74 by USGFS.

Both groups were homogenous (75% female, mean age 58), with equivalent mean trunk diameters (6 mm at mid-calf) and a majority of C2s (51%).

- At M6, rate of reflux ≥ 0.5 sec was 4% in EVL-group *vs* 21% in USGFS-group (p ≤ 0.01)
- At M12, 3% *vs* 33% (p ≤ 0.001) respectively.
- A total venous occlusion was observed in 94% for EVL-group
- vs 72% for USGFS-group (p ≤ 0.01) at M6
- and in 97% vs 62 % (p ≤ 0.001) at M12 with equivalent length of occlusion (20 and 23 cm).
- At M6, 75% were asymptomatic in EVL-group
- and at M12, 72% in USGFS-group (p: NS) and this rate increases to 86% and 83 % (p: NS).
- The VCSS was highly improved (p ≤ 0.001) in both groups, with no difference between them from 6.7 at Do, to 1.4 at M12 in the EVL-group, vs 5.9 to 1.7, in the USGFS-group.

The benefit was gained between Do and M6 and is maintained between M6 and M12.

It was the same for the QOL: 21.4 to 4 in the EVL-group vs 20.9 to 7.4 in the USGFS-group.

**Conclusion:**
The reflux is more frequent in the USGFS-group at M6 and M12 and the closure rate is lower than in the EVL-group.
By cons, the rate of asymptomatic patients, the VCSS and the QOL are significantly and similarly improved in both groups.

## EARLY DETECTION OF VENOUS MICROANGIOPATHY BY SKIN CAPILLAROSCOPY.

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**Background:**
Venous microangiopathy is a central pathophysiological event in the development of the cutaneous complications of chronic venous insufficiency (CVI).
We investigated the potential of capillaroscopy for the early detection of CVI in patients with Chronic Venous Disorders (CVD).

**Methods:**
Capillaroscopy pictures (magnification X50, CapXview®) were systematically taken from the medial and lateral malleoli of both legs in a series of patients following a spa treatment course for CVI (CEAP "C" class 3 or more in at least one leg).
Those pictures were subsequently blindly analyzed, with measurement of the capillary den-sity, and the diameters of the capillary loops and dermal papillae and analyzed according to the CEAP «C» classes.

**Results:**
Twenty-one patients participated: 11 women and 10 men, mean age 70.6+/-6.9 years, 12 of whom had a history of DVT.
The CEAP "C" classes of the 42 examined legs were Co-C2: N.=17; C3: N.=10; C4: N.=9 and C5: N.=6.
The analysis of capillaroscopy parameters showed a reduction in capillary density (P≤0.001), an increase in capillary di-ameter (P≤0.01) and an increase in papillary diameter (P≤0.001) with increasing CEAP "C" classes.
For all three parameters, changes were more important at the medial malleolus.

**Conclusions:**
These results confirm the importance and early occurrence of the venous cutaneous microangiopathy in CVI patients. Evaluation of the prognostic value of these findings requires further follow-up studies.

## ANNUAL PREVALENCE OF MORTALITY AND EARLY RE-HOSPITALIZATIONS OF VENOUS THROMBO-EMBOLIC DISEASES IN ALL FRENCH PUBLIC AND PRIVATE HOSPITALS.

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**Background:**
To evaluate the annual prevalence of mortality and early hospital re-admissions (before 3 months) of venous thromboembolic diseases (VTE), deep vein thrombosis (DVT) and pulmonary embolism (PE) in all French public and private hospital

**Methods:**
The statistics are issued from the national databases transmit-ted and validated by all private and public hospitals (OLS). Hospital stays were studied over the period from April 2010 to September 2011 so as to have (1) a three-month (90-day) hindsight before the start of

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the study period (July 2010) in order to avoid to consider early re-hos-pitalization as an initial stay and (2) a follow-up of 3 months after the end of the study period (June 2011) in order to be able to detect possible re-admissions of VTEs occurring during the last quarter of follow-up.

**Results:**
The results cover 170 764 hospital stays for PE or DVT in France from July 2010 to June 2011. The mortality rate during the initial stay is 6.92% for all the VTE, 4.69% for DVT without PE and 9.11% for PEs with or without DVT. The early re-hospitalizations rate is 7,94% for all the VTE, 7,92% for DVT without PE and 7,96% for PEs with or without DVT

**Conclusions:**
This high prevalence of early re-hospitalization of VTE is questioning the effectiveness the medical follow-up that they have in ambulatory care after hospitalizations and the necessity to implement actions to better educate the patient and to raise the awareness of the general practitioners due to an increasing lack of angiologists.

## ENDOVENOUS THERMAL ABLATION AND HYPNOSIS.

**MATTHIEU JOSNIN**
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**Background:**
When performing endovenous thermal ablation of great saphenous veins, the average pain was 4.6±1.8 (ranging from 0 to 10) in a previous study (only local tumescent anesthesia had been proposed as recommended in Europe).
We reassessed this pain in a series of patients for whom hypnosis was proposed in addition to tumescent anesthesia.

**Methods:**
Non-consecutive monocentric observationnal study.
The patient had to be voluntary.
The usual protocol was applied for the end-ovenous thermal treatment. We asked the patient to evaluate his pain at the end of the procedure.
All patients were treated with endovenous thermal ablation of the great saphenous vein.
A hypnotic induction was performed at the operating room followed by maintenance of the hyp-notic state during all the procedure.
A preoperative visit was carried out to explain to the patient the technique used (Ericksonian hypnosis).

**Results:**
10 patients were included.
The 10 patients did not report any pain (0/10).
When the endovenous thermal ablation was completed, the patient came out of his hypnotic state. Patients all reported to have had sensations which they described as discomfort, but not pain.
Hypnotic trans has often been considered comfortable.

**Conclusions:**
This study on a small number of patients who were all adherent, shows that hypnosis can be a considerable contribution in our therapeutic field and this fabulous tool should be better taught to the whole medical community which often doubts its effectiveness.

## SMALL DIAMETER RECANALIZATION OF THE GREAT SAPHENOUS VEIN AFTER ULTRASOUND-GUIDED SCLEROTHERAPY: ONE AND TWO-YEAR FOLLOW-UP.

JEAN-LUC GILLET, MICHEL LAUSECKER, CLAUDINE HAMEL-DESNOS, CHRISTIAN DANIEL, FRANÇOIS-ANDRE ALLAERT.

**Background:** Duplex ultrasound examination performed on patients previously treated for great saphenous vein (GSV) incompetence using ultrasound-guided foam sclerotherapy (UGFS) may identify small diameter recanalizations. What are their significance and outcome? The objective was to assess the anatomical outcome of small-diameter (≤ 3 mm) above-knee GSV recanalization.

**Methods:**
Patients treated by UGFS for GSV incompetence (from 1 to 10 years) and presenting a recanalization of the GSV trunk with a diameter ≤ 3 mm were enrolled in a prospective study.
The primary outcome was the diameter of the recanalized GSV trunk (15 cm below the SFJ).
The secondary outcome was the identification of factors that might affect GSV recanalization.
Patients were scheduled for a yearly follow-up assessment for the subsequent five years.

**Results:**
**Inclusion:** 110 patients treated 4.1 ± 2.6 years ago
C1:71% 87%: Asymptomatic
Average VCSS: 1.6 ± 1.3
Average diameter: 1.9 ± 0.5 mm

**One-year follow-up.** Variation of the diameter from the inclusion:
Average diameter: 1.9±0.6mm P=0.04
Reduced/identical: 63%
Increased 0.1-0.5mm: 24%
Increased ⟩0.5mm: 13%

**Two-year follow-up.** From the inclusion:
Average diameter 2.1±0.8mm P ≤ 0.01
Reduced/identical: 52%
Increased 0.1-0.5 mm: 30%
Increased ≥ 0.5 mm: 18%
No risk factors for progression were identified.
No clinical changes were reported.

**Conclusions:**
It is common to observe small-diameter recanalizations of the GSV trunk in patients who had been treated by UGFS several years previously. Most of them are C1 and asymptomatic patients. At one and two-year follow-ups, no increase of the recanalization diam-eter was observed in more than 50% of patients.
Small recanalization should not always be considered as a failure of treatment and there is a need to question the requirement for retreating the GSV trunk once a small diameter recanalization has been identified.

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## TREATMENT OF SUPERFICIAL VEIN THROMBOSIS: UPDATE AND CURRENT RECOMMENDATIONS.

JEAN-LUC GILLE

**Background:**

Superficial Vein Thrombosis (SVTs) were for a long time considered to be a benign disease.

Recent studies have shown their potential seriousness. A concomitant deep vein thrombosis (DVT) was identified in 25 to 30% of patients at presentation, and a pulmonary embolism in 4 to 7% of patients. Subsequent VTEs were reported in 3 to 20% of patients.

Management has changed. Until recently, although numerous anticoagulant strategies had been tested, none had clearly demonstrated its clinical benefit. Recently, The Calisto study has validated a protocol based on fondaparinux 2.5 mg daily for 45 days, leading to update the recom-mendations.

Our objective is to present the rational and update of the management of SVT of the legs and the current recommendations and guidelines.

**Methods:** All patients with SVT should have bilateral duplex scanning:

– To assert the diagnosis of SVT;
– To determine the precise location and extent of the SVT;
– To diagnose or rule out the presence of DVT (25-30%).

(Level of evidence: high)

**Treatment:** On the basis of the data of the literature and in agreement with the last ACCP recommendations and the conclusions of the Cochrane review, it is logical to recommend, in patients with symptomatic SVT of at least 5 cm in length, the use of a prophylactic dose of fondaparinux or LMWH for 45 days over no anticoagulation (Grade 2B). Wherever the cost of treatment with fondaparinux is acceptable, we suggest fondaparinux 2.5 mg daily over a prophylactic dose of LMWH (Grade 2C).

**Conclusions:** However, the recommendations and guidelines are of a low grade. Some questions remain in the management of SVT. Some risk factors for subsequent development of VTE have been identified but further research is needed to clearly define subgroups of patients with a higher incidence of VTE after SVT.

## CONTROLLED ULTRASOUND-GUIDED TUMESCENT ANAESTHESIA IN ENDOVENOUS LASER THERAPY: COMPARATIVE STUDY OF AN ORIGINAL TECHNIQUE WITH DIRECTED HYDRO-SEPARATION APPROACH.

SAMMI ZERROUK[1,2], FRANCIS DECKER[2], FREDERIC VIN[1], ALBERT-CLAUDE BENHAMOU[1]

1. SORBONNE-UNIVERSITY UPMC PARIS VI, PARIS, 2. SAINTAVASCULAR, METZ

**Background:**

One of the most widely used modern techniques is Endovenous Laser Ablation (EVLA).

There is no consensus in the literature neither on the technique, nor on the optimal volume of Tumescent Anaesthesia (TA) used in EVLA.

We aimed to define and assess a new technique of tumescent infiltration and evaluate its influence on peri-operative pain and on the volume of TA.

**Methods:**

A prospective comparative study was performed to assess the short-term efficacy and safety of an original technique of tumescence.

102 patients with duplex confirmed Great Saphenous Vein insufficiency were treated unilaterally with EVLA (1470).

The patients were divided in two groups:

Group A patients applied Classical Tumescent Anaesthesia (CTA) with multiple injections in perivenous space.

Group B patients had the Controlled Ultrasound-Guided Tumescent Anaesthe-sia (CUGTA).

Pain on application of TA during ablation measured using Visual Analogue Scale (VAS) and volume of tumescent was compared in both groups.

**Results:**

Linear transducer is placed perpendicularly (transverse) to venous axe.

With saphenous vein centrally positioned, the transducer is rotated 45° inverse clockwise.

Next, skin is punctured with needle in plane view always in short axe of the vein in tangential incidence.

The first injection is started after reaching the outer limit of the vein wall in or-der to obtain a rapid hydrocompression; then the needle is intentionally advanced in targeted tissues with a hydro-separation approach to adjas-centes structures.

There were no significant differences between groups with respect to age and gender.

A statistically significant decrease in pain sensation was reported in Group B (P=0,0003).

Group B used statistically significant less volume of tumescent liquid than Group A (0,0001) and lower number of punctures.

The initial occlusion rate was 100% in both groups.

No significant difference was found between the groups in terms of ecchymosis score.

Skin burn did not occur. All patients returned to daily activity within three days.

**Conclusions:**

With appropriate training, the Controlled Ultrasound Guided Tumescent Anaesthesia (CUGTA) is safe and effective means of reducing peri-operative pain and volume of tumescent anaesthesia (TA).

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## FOAM *VERSUS* LIQUID IN SCLEROTHERAPY FOR TELANGIECTASIA: REVIEW OF LITERATURE AND NEW PERSPECTIVE OF A RANDOMIZED CLINICAL TRIAL

**MATTHIEU JOSNIN[1], CLAUDINE HAMEL-DESNOS[1], LAURENCE ALLOUCHE[1], BERTRAND CHAUZAT[1], PIERRE COMBES[1], CHRISTIAN DANIEL [1], THIERRY DUTARTRE[1], FANNIE FORGUES[1], MICHEL LAUSECKER[1], LUC MORAGLIA[1], NICOLAS NEAUME[1], PIERRE OU-VRY[1], JEROME SAYS[1], VALERIE TRIPEY[1], JEAN-LUC GILLET[1], JEAN-JEROME GUEX[1], FRANÇOIS-ANDRE ALLAERT[2]**

1. French Society of Phlebology (SFP), Paris; 2. Medical Evaluation Chair ESC Dijon & Cen Biotech, Dijon, France

**Background:**

In the sclerotherapy for varicose veins, particularly for the great saphenous vein, the superiority of foam compared to liquid has been established based on numerous studies. However, the use of foam to treat telangiectasia is more controversial. We conducted a bibliographic search on the studies comparing liquid to foam in the C1 (CEAP clinical class) with the objective of evaluating the evidence of the possible superiority of foam in this indication, and then as second objective, to propose if necessary a relevant randomized controlled study protocol. The two sclerosing agents which can be used in the form of foam and marketed in France are polidocanol (POL) or Lauromacrogol 400 and sodium tetradecyl sulphate (TDS).

**Methods:**

We conducted our research on the Cochrane Database of Systematic Reviews, complemented by a research in various databases (Pub Med, Cochrane Library, Science Direct, INIST, Web of Science) and a manual search of abstracts from scientific conventions and of unrefer-enced journals in the databases.

**Results:**

Only one randomized study was found in this indication, a very few other non-randomized studies were published. Several important bi-ases were regularly found. Faced with our "poor" research findings, we have established a multicentric randomized controlled trial comparing the liquid form and the foam form for POL and TDS in the treatment of telangiectasia.

This will be a 4-arm study: 2 liquid arms (one with TDS, the other with POL) and two foam arms (same as TDS and POL), under the auspices of the SFP. The primary endpoint will be efficacy on scanned photos. 400 patients are expected to be included, 100 in each arm. 15 investiga-tors from the SFP have been recruited. This study is set to start shortly.

**Conclusions:** Our research findings have confirmed that the studies comparing foam and liquid in the sclerotherapy of telangiectasia are rare. The SFP proposes an extensive randomized multicentric study in this indication.

## PAIN ASSESSMENT DURING RADIO FREQUENCY OR LASER THERMAL ABLATION OF THE GREAT SAPHENOUS VEIN: A PROSPECTIVE MULTICENTER STUDY.

**SEBASTIEN GRACIA[1], FABRICE ABBADIE[2], MATTHIEU JOSNIN[3], PIERRE COMBES[4], BERTRAND CHAUZAT[5]**

1. Clinique de l'Atlantique, La Rochelle; 2. Centre Hospitalier de Vichy, Vichy; 3. Clinique Saint-Charles, La Roche sur Yon; 4. Clinique Aguiléra, Biarritz; [5]Clinique Pasteur, Bergerac, France.

**Background:**

We aim to evaluate the level of pain de-scribed by patients during the local tumescent anesthesia when we prac-tice a thermal endovenous ablation of the great saphenous vein. We tried to focus on causes influencing this pain.

**Methods:**

Prospective multicenter study.
We asked all consec-utive patients treated for a great saphenous vein with thermal ablation between the 1st of June 2014 and the 15th of October 2014 to indicate the level of pain they felt at three different times during the local tumescent anesthesia (near the sapheno-femoral junction, in the middle of the thigh and at the medial side of the knee).
All patients were treated for an endovenous thermal ablation of the great saphenous vein.

**Results:**

The mean pain was 4.6±1.8 (range 0-10) for 96 consecutive patients.

Almost 17% patients described a major pain (numeric scale between 7 and 10).

Long procedures are associated with a higher level of pain (more than 30 minutes).

Moreover, when the anesthesia is done in the medial side of the knee, the pain is significantly higher as well.

The level of satisfaction does not vary regardless the level of pain.

**Conclusions:**

Even if the majority of these procedures could be realized successfully under local tumescent anesthesia only, we must find, nonetheless, anesthesia solutions for those who experience more pain.

## THERMAL ABLATION OF SAPHENOUS VEINS: WAYS TO MAKE THE PROCEDURE LESS PAINFUL.

**SEBASTIEN GRACIA[1], FABRICE ABBADIE[2], BERTRAND CHAUZAT[3], PIERRE COMBES[4], MATTHIEU JOSNIN[5]**

1. Clinique de l'Atlantique, Puilboreau; 2. Centre Hospitalier, Vichy; 3. Clinique Pasteur, Bergerac; 4. Clinique Aguilera, Biarritz; 5. Clinique Saint Charles, La Roche sur Yon, France.

**Background:**

Nowadays, the gold-standard of treatment of saphenous has changed.

Thermal ablation (radiofrequency and laser) has become the treatment of reference.

In most cases, local tumescent anesthesia alone is sufficient.

It is really a new manner to treat patients because with traditional surgery patients were under general or epidural anesthesia.

In contrast, local anesthesia may make people anxious because of the unfamiliar hospital environment.
Furthermore, they may experience pain because of the punctures during tumescent anesthesia.
Consequently, we have to find procedures to lower stress and pain.

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**Methods:**

We reviewed in the literature procedures which have been already evaluated.

**Results:**

Less desirable procedures: general and epidural anesthesia (no feed-back from patients).

Assessed but non-efficient procedures: Lidocaïne-prilocaïne cream, various temperatures of solution (warm or cold), miscellaneous anesthetic products (bupivacaïne and ropivacaïne).

Not assessed yet but appealing: hypnosis. Assessed and efficient: create a soothing ambiance (dim light, low voice, calming music, relaxing vid-eos, breathing technics, selective vocabulary); gate control; appropri-ate needle; laughing gas (nitrous oyde); buffering solution with sodium bicarbonate.

**Conclusions:** In conclusion, the best way to lower pain and stress is probably a mix of the assessed and efficient methods adapted to each patient.

# VIDEO PRESENTATIONS: HOW I DO IT?

## ULTRASOUND-GUIDED FOAM SCLEROTHERAPY WITH NEEDLE.

CLAUDINE HAMEL-DESNOS, PHILIPPE DESNOS

French Society of Phlebology (Société Française de Phlébologie), Paris, France

**Background:**

Historically, ultrasound guided foam sclerotherapy (UGFS) using direct needle puncture-injection (DNPI) is the reference technique.

However, it requires a specific training and skills.

**Methods:**

The objective is to provide tips, rules and tricks, to perform or optimize this technique.

The photos and videos will show how the authors do this technique.

Some aspects will be developed: how the syringe and the probe are held, how to handle the syringe with one hand and how to coordinate both hands, how to act in a two-dimensional space, how to optimize the probe position, how to imagine the ultrasound beam...

**Conclusions:**

This presentation could help to share experience and practice on the field of UGFS and enhance safety and efficacy of this technique.

## THROMBECTOMY FOLLOWED BY A FOAM INJECTION, AFTER SAPHENOUS VEIN THERMAL ABLATION.

CLAUDINE HAMEL-DESNOS*, PHILIPPE DESNOS

**Keywords:** foam sclerotherapy, pigmentation, Thermal ablation, thrombectomy

**Introduction:** Thrombectomies of the GSV can be performed after thermal ablation even though they are less frequent than thrombectomies of varicose veins after sclerotherapy.

They could reduce the risk of cutaneous hyperpigmentation.

**Procedure Details:**

The objectives of this presentation are to show:

- How the authors perform a thrombectomy of a GSV under ultrasound (US) guidance
- The possibility of injecting foam in the GSV after the removal of blood.

The presentation will develop the different steps of a thrombectomy done under US guidance: criteria of decision to perform it and when, how to choose the site of puncture, how to choose the needle and how to guide it in the vein ...

Then the video will show the injection of foam following the thrombectomy. Finally, the presentation will show the patient's lower limb at a further visit at 2 month-follow-up.

**Conclusion:**

This presentation could help to share experience and practice on the field of thrombectomy of varicose veins done under US guidance after thermal ablation. It also raises the question of the relevance of a foam injection after the removal of the blood.

**Disclosure of Interest:** None Declared.

## INTEREST OF ULTRASOUND AND FOAM FOR SCLEROTHERAPY OF TELANGIECTASES.

CLAUDINE HAMEL-DESNOS*, PHILIPPE DESNOS

**Keywords:** C1, Ultrasound guided foam sclerotherapy.

**Introduction:**

As we know, in many cases, insufficient or no treatment of the underlying reflux of telangiectases (part of C1 of CEAP clinical classification) is the cause of matting.

**Procedure Details:**

The objective of this presentation is to demonstrate the benefit of ultrasound and foam in sclerotherapy of telangiectases, especially for those located in the medial part of the lower limb.

- This presentation shows a clinical case with telangiectases located on the medial part of the knee and of the leg.

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– An ultrasound examination reveals that the sources that feed these telangiectases are a segmental reflux of the GSV trunk and its tributary.
– Then the refluxing veins are injected with foam sclerosant from top to bottom (GSV trunk first, tributary vein secondarily) under ultrasound guidance by direct puncture-injection with needle.
– An immediate ultrasound control shows the distribution of the foam in the target veins and in the telangiectases, since the foam is echoic like a contrast agent.
– Concomitantly, the telangiectases become paler and there is no need to inject them directly during this sclerotherapy session.

**Conclusion:**

This video shows that the benefits of ultrasound and foam in the C1 sclerotherapy treatment are similar to those observed and admitted for all varicose veins: identification of the sources of reflux, relevant and safe injection sites, limited injections, adequate doses and efficiency gain. It is logical to think that, in the coming years, their use will be more frequent even in this indication.

**Disclosure of Interest:** None Declared

## A PAINLESS SELDINGER TECHNIQUE.

SEBASTIEN GRACIA

French Society of Phlebology, La Rochelle, France.

**key words:** Seldinger – pain- thermal ablation- saphenous vein.

During a thermal ablation, we need to create an access to the saphenous vein to allow the insertion of the radiofrequency catheter or the laser fiber.

This is called the Seldinger technique. Also, it is not very painful, we could still improve the level of patient's comfort further. Customarily, we use an anesthetic solution buffered with bicarbonate.

First, we make a little injection with a 25 Gauge needle to the place we want to puncture the saphenous vein.

Then, we puncture the vein under DUS. In the needle, we insert the guide. The needle is pulled back.

Before putting in the introducer and the dilator we inject an anesthetic solution along the guide with a 21 Gauge needle of 50 mm in length.

This will create a protective anesthetic cover around the vein and will make the insertion of the introducer painless.

## ULTRA SOUND GUIDED SCLEROTHERAPY OF DISTAL PERFORATING VEIN MUST AVOID INJECTION INTO PERFORATING ARTERY AND THEIR SUPERFICIAL ANASTOMOSIS THE INTER-PERFORATING ARTERY.

SAMMI ZERROUK

Sorbonne-University UPMC Paris VI, Paris, France.

**Background:**

The sclerotherapy of pathologic perforating vein is fea-sible and advantageous method in certain situations, provided that one recognizes the good indications and considers the safety of the patient.

This preliminary procedure necessitates a precise anatomical knowledge of the structures that one examines, and a gradual learning of therapeutic procedures. Two anatomical structures must be known: the Perforating Artery PA and the Inter-Perforating Artery IPA in order to avoid the skin necrosis.

**Methods:**

We will present an Ultra Sound Guided Sclerotherapy UGS of tibial posterior perforating vein PV in patient with a venous active ulcer.

Firstable, marking the tibial posterior PV by color flow duplex scanning immediately before the procedure.

The limb is prepared with an antiseptic solution.

Ultra Sound US is used to guide the needle under direct vision control.

The needle is placed parallel to the long axis of the probe.

The remote and cautious injection is performed at the top of the perforating channel in a tangential incidence.

Then the venous blood is aspirated without resistance from the vein.

Care is taken to avoid injecting into adjacents arteries: the Perforating Artery PA that consistently run parallel with the PV and their superficial anastomosis the Inter perforating Artery IPA witch run perpendicular to distal PV.

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## SCLEROTHERAPY OF RETICULAR VEINS AND TELANGIECTASIA WITH SCLEROSING AGENTS IN FOAM FORM.

MATTHIEU JOSNIN
Vascular Medicine Unit, Saint Charles Clinic, La Roche sur Yon, France

**Background:**

According to the clinical class of the CEAP classification (clinical, etiological, anatomical and pathophysiological), patients with reticular veins and telangiectasia are classified C1.

Sclerotherapy is considered superior to laser treatment in this indication and has a high grade of recommendation for C1 (grade 1A, European guidelines for sclerotherapy in chronic venous disorders).

As a result, for the treatment of the C1, in contrast to the recommendations of sclerotherapy for all other varicose veins, liquid sclerotherapy is still considered to be the method of choice (grade 1A), with foam sclerotherapy as an additional option (grade 2B).

The two sclerosing agents which can be used in the form of foam and marketed in France are polidocanol (POL) or Lauromacrogol 400 and sodium tetradecyl sulphate (TDS).

**Methods:**

This video is about the use of these two sclerosing agents in the foam form in the treatment of reticular veins and telangiectasia.

The first part of the video is about how to prepare the sclerosing agents (dose, dilution...), and then the video shows some short examples of treatment of reticular veins and telangiectasia with the foam form.

## ULTRASOUND GUIDED FOAM SCLEROTHERAPY OF THE ANTERIOR ACCESSORY GREAT SAPHENOUS VEIN.

PIERRE OUVRY
Cabinet Medical, Dieppe, France

**Background:**

Foam-guided sclerotherapy is one of the most widely used techniques in the treatment of anterior accessory great saphenous vein.
This technique is very effective in suppressing reflux, but has the reputation of exposing to a risk of pigmentation.

**Methods:**

The video describes the technique by direct needle puncture, which is fast, safe and effective. It is possible to reduce the risk of pigmentation in the thigh.

## A PAINLESS SELDINGER TECHNIQUE

SEBASTIEN GRACIA
Clinique de l'Atlantique, Puilboreau, France

**Background:**

During a thermal ablation, we need to create an access to the saphenous vein to allow the insertion of the radiofrequency catheter or the laser fiber.
This is called the Seldinger technique.
Also, it is not very painful, we could still improve the level of patient's comfort further.

**Methods:**

Customarily, we use an anesthetic solution buffered with bicarbonate.

First, we make a little injection with a 25 Gauge needle to the place we want to puncture the saphenous vein.
Then, we puncture the vein under DUS.

In the needle, we insert the guide.
The needle is pulled back.

Before putting in the introducer and the dilator we inject an anesthetic solution along the guide with a 21 Gauge needle of 50 mm in length.

This will create a protective anesthetic cover around the vein and will make the insertion of the introducer painless.

## THE HYDRO-SEPARATION APPROACH OF SURAL NERVE WITH CONTROLLED ULTRASOUND-GUIDED TUMESCENT ANAESTHESIA IN END-OVENOUS LASER THERAPY OF SMALL SAPHENOUS VEIN.

SAMMI ZERROUK
Sorbonne-University UPMC Paris VI, Paris, France

**Background:**

Thermal Endovenous treatment is a minimally invasive technique for ablation of the small saphenous vein (SSV).
The goal of this technique is to obtain a permanent closure of SSV and to avoid complications like nerve injury.

The sural nerve runs in proximity to SSV in the third distal of calf sometimes in close contact in the saphenous compart-ment. Besides the technical mastery, the tumescent volume needs to be controlled especially in certain patients with renal or cardiac insufficiency.

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**Methods:**

***Step 1:***

Anaesthesic solution is injected first intra-dermally with small bleb in the repaired mark using a 30-gauge needle at regular intervals of 5 cm.

***Step 2:***

Linear transducer is placed perpendicularly (transverse) to venous axe. With saphenous vein centrally positioned, the transducer is rotated 45° inverse clockwise.

***Step 3:***

Skin is punctured with 22-gauge needle in plane view always in short axe of the vein in tangential incidence.

The first injection is started after reaching the outer limit of the vein wall in order to obtain a rapid hydro-compression then the needle is intentionally advanced in targeted tissues betwenn SSV and nerve.

The aim is to favor a hydroseparation of sural nerve by small pulses injections.

## CLINICAL CASES PRESENTATIONS
## HOW I TREAT THE VEIN OF GIACOMINI BY ENDOVENOUS LASER?

NEAUME NICOLAS
Société Française de Phlébologie, Toulouse, France

**Background:**

The safety and effectiveness of endovenous laser treat-ment for varicose veins are evaluated for approximately fifteen years.
The thigh extension branch, also known as the vein of Giacomini in many patients, may also contribute to venous pathology.

Until now, a video about endovenous laser treatment of the Giacomini vein has not been reported.

**Methods:**

EVLA (1470 nm diode laser-radial fibre) was performed un-der local tumescent anesthesia.

The refluxing vein of Giacomini was entered under ultrasound guidance.

Tumescent anesthesia was administred under ultrasound guidance

The fiber was pulled back continuously at a rate corresponding to 80 J/ cm (power setting 11 w)

Endovenous laser ablation with a 1470-nm wavelength is an effective and safe procedure for treating an incompetent vein of Giacomini.

## THROMBOSIS AND HAEMOSTASIS: A COMPLEX DIAGNOSIS PATHWAY.

CHRISTIAN DANIEL., SEBASTIEN GRACIA

**Keywords:** clinical case, plantar venous thrombosis.

**Introduction:**

A plantar thrombosis is believed to be rare, and is therefore far too rarely considered. The clinical picture is misleading, since the circumstances that trigger the condition are often complicated and appear to point to osteo-articular aetiology.

**Case Details:**

Mrs. Angelique G, aged 48, had no history of thrombo-embolism, but underwent a shoulder surgery. Consequently, she had to stay hospitalized for 3 weeks lying down.

Upon discharge, she felt a sharp pain in the back of her right foot. The foot then swelled up and she was unable to use it. An emergency Doppler ultrasound proved negative. Biological exams were not conclusive or not done. The Wells score confirmed a low probability of thrombosis, so investigations were stopped and she was treated with anti-inflammatories. Unfortunately, after 2 days the foot pain increased and the patient could not stand up.

An appointment with a rheumatologist was scheduled but it was no conclusive. Bone X-rays proved normal but the MRI results stated: “images of the sub-cutaneous soft tissue of the instep appear inflamed”.

A second Ultrasound was done by a vascular practitioner. A plantar venous thrombosis was found (“total occlusion of two plantar veins with a 10-cm extension a posterior tibial vein”). The treatment was quite simple with fondaparinux and class 3 compression stockings. The pain lessened and she was able to use the foot in a few days. No more thrombosis after 5 days when we checked with ultrasound.

Was there any reason for this thrombosis? Probably at least one. When we asked more the patient, she told because she was tall, her plantar area touched continuously the foot end of the bed doing a permanent compression of the plantar sole.The literature has been surveyed, stressing the basic reasons for the treatment, which remains non-consensual.

**Conclusions:**

Plantar venous thrombosis is a little-known disease and therefore rarely researched. Consequently, it is often under-diagnosed while it is quite simple to confirm the diagnosis. In case of foot pain, think of plantar venous thrombosis. Ultrasound is the « Gold standard » to confirm the diagnosis. It enables confirming the diagnosis if it is done:

By an experienced vascular practitioner who knows anatomy of the plantar sole. Completely (foot, calf and thigh) to confirm or not if there is a thrombotic extension through the back tibial veins. The extension of the thrombosis should change the treatment’s time. In addition, it is inexpensive, available and not painful for the patient.

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## A CASE OF VARICOSE RECURRENCE BY A POPLITEAL FOSSA PERFORATING VEIN, AFTER CHEMICAL ABLATION OF THE SMALL SAPHENOUS VEIN.

LUC MORAGLIA [1, 2]

1. VASCULAR MEDICINE UNIT, CENTRE HOSPITALIER UNIVERSITAIRE DE SAINT ANDRE, BORDEAUX; 2. SOCIETE FRANÇAISE DE PHLEBOLOGIE, PARIS, FRANCE

**Background:**
High ligation of small saphenous vein (SSV) multiplies by 5 the risk of pathological perforator of the popliteal fossa (PFP). Moreover, in one quarter of cases of recurrences after high ligation and stripping of the SSV, one finds pathological PFP.

Thermal and chemical endovenous ablations are replacing traditional surgery in the treatment of SSV insufficiency. This clinical case shows a significant varicose recurrence, occurring quite rapidly after effective chemical ablation of SSV.

A 53-year-old woman was treated in December 2015 for SSV insufficiency (trunk diameter 7 mm). At the 10-days control there is an occlusion of the SSV over 15 cm in length.

In July 2016, there was a small, medial, supra-fascial recurrence, which seems to be a tributary of the junction.

In January 2017, the tributary is 4 mm and the reflux is actually fed by a lateral PFP (accompanying artery); the patient is reviewed for the treatment on April, 13$^{d}$ and the perforator reaches 6 mm diameter and tributaries even more extensive.

A foam sclerotherapy treatment is performed and the control on May, 15$^{th}$ finds a good occlusion of the perforator and tributaries.

**Conclusions:**
The frequency of recurrences through an anterior acces-sory Great Saphenous Vein (GSV) after endovenous ablation (EA) of GSV is now recognized.
Although hemodynamic conditions are not quite identical (junctional recurrences for GSV, non-junctional recur-rences here), it seems that PFP recurrences may be expected, more or less early, after effective EA of SSV; suppression of superficial drainage coinciding with the abnormal hemodynamic forces in the popliteal fossa result in adaptive dilatation of perforator and development of pathologi-cal reflux and varicose recurrence.
Treatment by foam sclerotherapy seems effective

# POSTER SESSION

## THERMAL ABLATION OF SAPHENOUS VEINS: WAYS TO MAKE THE PROCEDURE LESS PAINFUL.

**SEBASTIEN GRACIA**

French society of phlebology, la Rochelle, France.

**Key words:** saphenous vein, thermal ablation, decrease pain.

Nowadays, the gold-standard of treatment of saphenous has changed. Thermal ablation (radiofrequency and laser) has become the treatment of reference. In most cases, local tumescent anesthesia alone is sufficient.

It is really a new manner to treat patients because with traditional surgery patients were under general or epidural anesthesia.

In contrast, local anesthesia may make people anxious because of the unfamiliar hospital environment. Furthermore, they may experience pain because of the punctures during tumescent anesthesia.

Consequently, we have to find procedures to lower stress and pain.

We reviewed in the literature procedures which have been already evaluated.

- Less desirable procedures:
  - General and epidural anesthesia (no feed-back from patients).
- Assessed but non-efficient procedures:
  - Lidocaïne-prilocaïne cream,
  - Various temperatures of solution (warm or cold),
  - Miscellaneous anesthetic products (bupivacaïne and ropivacaïne).
- Not assessed yet but appealing:
  - Hypnosis.
- Assessed and efficient:
  - Create a soothing ambiance (dim light, low voice, calming music, relaxing videos, breathing technics, selective vocabulary),
  - Gate control,
  - Appropriate needle,
  - Laughing gas (nitrous oyde),
  - Buffering solution with sodium bicarbonate.

**In conclusion**, the best way to lower pain and stress is probably a mix of the assessed and efficient methods adapted to each patient.