A stylized illustration of a tree with a brown trunk and branches, and a dense canopy of green leaves. The leaves are rendered in a flat, geometric style. The background is a light, pale blue gradient.

“Go For The Feeder Vein”

Kasuo Miyake, MD, PhD
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9	8	7
6	5	4
3	2	1

Venous Score 9-1

A practical table to help treatment choice and outcome follow-up

INTRODUCTION

Phlebology takes great benefit from careful semiotics to achieve good diagnostic resolution. Subsidiary exams came to improve such resolution.

Diagnostic accuracy demonstrated two situations in which semiotics was blind or misleading: presence of invisible feeder veins and saphenous reflux.

This clear doubt stressed the need for a decision tree before starting treatments. A table was conceived to comprehend such decision tree.

OBJECTIVE

To describe the 9-1 venous scoring to organize patients (mainly CEAP 0 to 3) on a treatment oriented table.

METHOD(s)

A 9 cell table was devised and fashioned in 3 rows x 3 columns, implying the following 2 main questions:

Question 1- on the horizontal rows: which kind of varicose veins does the patient have (with or without reflux on saphenous veins), if any?

Question 2- on the vertical columns: which kind of telangiectasias does the patient have (with or without feeder veins connected), if any?

Cells were numbered from 9 to 1 as to label 9 the highest clinical severity and to label 1 the normalcy.

Patients are clinically diagnosed and given a score as determined by this table. When returning for treatment sessions, each patient is re-evaluated and re-scored.

DISCUSSION

Patients in our practice are mainly women, aged between 17 and 60 years, brought in by cosmetic concerns about varicose veins on legs and reticular veins in the face. Patients presenting chronic ulcers are most rare.

We noted that these vessels are distributed mainly as varicose veins or/and telangiectasias.

Both situations can present themselves solely and independently, as they may also be combined to other conditions:

- Varicose veins may derive from reflux from the deep system (evaluated/quantified by ultrasound and photo-pletismography).
- Telangiectasias may be connected to a feeder vein (evaluated by clinical examination, tests and the V-V).

DISCUSSING Question 1

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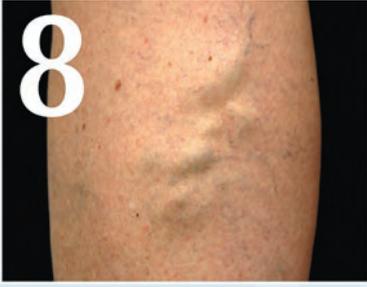
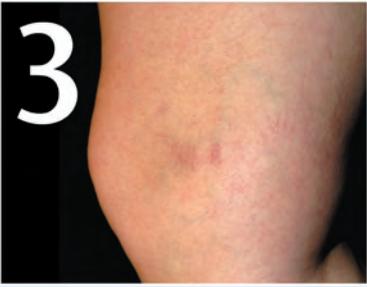
DISCUSSING Question 2

Regarding telangiectasias, determining the presence of the feeder vein is key to improve treatment outcome. This places the patient on the first column or on the second column.



Figure 1 - Wide telangiectasia that did not respond to surgery due to misdiagnosis (GSV reflux went unnoticed). Finding and removing all remaining feeder veins later on allowed successful treatment.

This stresses the need of thorough evaluation and accurate diagnosis prior to treatment planning.

	Telangiectasias WITH Feeder veins	Telangiectasias	NO Telangiectasias
Varicose veins AND Reflux on the saphenous vein(s) and/or perforant(s)	9 	8 	7 
Varicose veins	6 	5 	4 
NO Varicose veins	3 	2 	1 

There are 3 ways to determine the presence of feeder vein(s) ref maffei novo:

- plain visualization;
- decompression test;
- treatment failure (by inference).

THE HIGHLIGHTS

To make sense out of chaos, the patient in Figure 1 is visually scored 2 upon referral, for the complaint of a wide telangiectasia. Quick semiotics show refilling after compression, raising the score to 3. The VeinViewer demonstrates the presence of the hidden reticular (varicose) vein feeding it, then scoring 6. The patient is then duplex-scanned to actually find reflux to the GSV. Oh, my god! The score was 9 since the beginning!

CONSIDERATIONS ABOUT CEAP

This scoring is not meant to substitute CEAP. CEAP is a faithful indicator of the venous context. It is the

widest, most common classification for varicose veins, but does not consider the presence of feeder veins. Score 9-1 is more adequate for treatments with cosmetic concern.

Regarding the many possible CEAP combinations, there are a multitude of CEAP “labels” that fit under the same “9-1 scores”. And to have such patients treated, the idea of assessment is in theory just the same for all of those – but then results may be inconsistent and/or disappointing.

We have been using Score 9-1 since September 2006. Considering the tools we use in our daily practice (CLaCS and surgery), we were able to see a clear grouping of patients to undergo each method:

- first line (9, 8 and 7) needs a more invasive treatment;
- second line (6, 5 and 4) and score 3 respond very well to CLaCS;
- score 2 respond well any kind of sclerotherapy. Unfortunately, Score 6 is by far the most common.

CONCLUSION(s)

The “Venous score 9-1” helped us to choose treatment and follow patients up. It also stressed the paramount roles of clinic examination, ultrasound and VeinViewer mapping. By valorizing the importance of ultrasound and the search for feeder veins prior to sclerotherapy, we were able to understand that former conclusions that the method applied was not effective were actually false.

Nowadays the cited diagnostic methods are used in all patients prior to treatment.

The validation of this table as an alternative classification is the next study to be done.

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CLaCS Guided By VeinViewer

Effective combination to treat telangiectasias and small varicose veins by laser, injection sclerotherapy, skin cooling and digital vein mapping

INTRODUCTION

Treatment techniques for vascular lesions receive additions every year. Be it through the discovery of new substances/materials to perform the therapy, or the development of new laser devices, and even by sophisticating formerly well-known techniques.

A wide range of possible interventions covers the treatment of telangiectasias, feeder veins and reticular veins, with very satisfactory results, offering the phlebologist a multitude of options. This work describes one of these modalities and points out its benefits.

Despite the broad gamut of options, the election of agents took into consideration the literature about complications. Agents that had any description of anaphylactic reactions (shock or death) were discarded. No literature data was found to discard dextrose and laser.



Figure 1 - These three devices combined allowed successful treatment of resilient telangiectasias (VeinViewer - Luminetx, Harmony - Almalasers, Cryo6 - Zimmer). They are the tools to perform the CLaCS.



Figure 2 - The green image is the real time projection onto the skin of processed digital image previously captured by an infrared camera. This device maps veins down to 8mm deep. The VV embodies the concept of “augmented reality”: the combination of real-world and computer generated data.

OBJECTIVE

To describe how CLaCS (Cryo-Laser followed by Cryo-Sclerotherapy) guided by the VeinViewer (V-V) is a safe method providing fulfilling results, based on a 3-year experience.

METHOD(s)

CLaCS session starts with full photographic documentation, and/or filming (Figure 1).

In a first pass, feeder and reticular veins are spotted with the V-V and treated as follows: 1064nm Nd:YAG, 6mm spot size, 60msec pulse duration and 120 to 150J/cm² (Figure 2). The veins receive at least one shot at each linear 5mm.

On a second pass the pulse duration is shortened to 40msec, telangiectasias are treated. Feeder and reticular veins (that appear still open under the V-V) receive a second pass.

Session size is between 50 and 350 laser shots. The number of shots is calculated by the amount of veins in a given area. After the laser session (5 to 20min) all treated veins are re-mapped with the V-V.

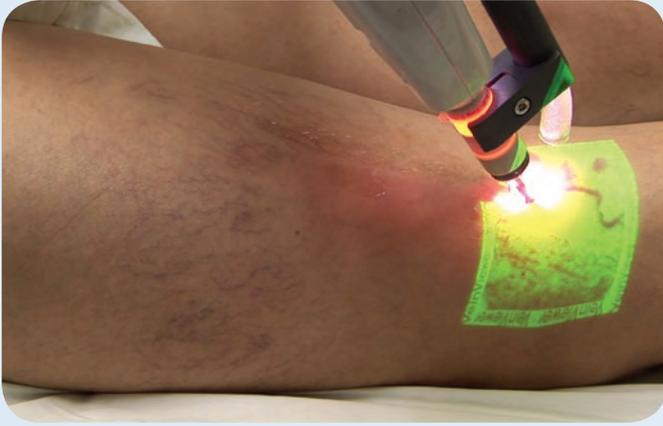


Figure 3 - CLaCS session begins with feeder vein (FV) detection by the V-V. FV are initially treated with laser. On a second laser pass, telangiectasias are treated and resilient FV receive extra shots. Laser session comprehends about 150-250 shots. All the procedure is done under skin cooling to numb the skin: Cryo-Laser (CLa)



Figure 4 - The second part is the Cryo-Sclerotherapy (CS). Once again the V-V is applied, but then segments where the vein is less contracted are spotted (see arrow). Dextrose 75% or 70% (available in the US) is injected in to those segments and telangiectasias. The “allergic and embolism safe” sclerosant gets trapped in the vessel segments, in a boosting laser effect.

Non-collapsed segments receive injections of Dextrose 75% (Figure 3). Punctures are dressed with adhesive tapes with 3mm diameter cotton balls (Figure 4).

All applications (laser and dextrose) are performed under the Cryo6™ (Zimmer, Germany) airflow for pre, parallel and post-cooling of skin and needle to numb the skin. The Cryo6 is a machine developed for cold physical therapy sessions. It blows cold air (down to -20°C) in various scalable speeds (1 to 9). It is very simple to manipulate and all the pointers that touch the patient’s skin are sterile. Cold airflow for this study is set between 5 and 9.

The interval between sessions is generally 2 weeks. Exceptionally, it may come to 1 week if the focus is speed of removal, or go up to 4 weeks if the focus is cost-benefit.

RESULT(s)

- Index of treatment startup on first consultation increased 35%;
- Successful treatment of more than 200 patients with feeder veins that had former indications of detergent sclerotherapy or phlebectomy (Figure 5);
- Reduction in 26% of the mean number of sessions with the use of the V-V: 3.17 instead of 4.29 (without the V-V);
- Patient’s satisfaction increased;
- Compliance to the premise of “no anaphylactic com-

plication risk”;

- No complications as ulcers, frostbite, skin burns or dischromias;
- Rise on referrals by 20%.

CONCLUSION

CLaCS is a safe and effective method to which the VeinViewer improves the outcome.

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Figure 5 - After three years of employing the VeinViewer showed that almost all telangiectasias have one or more invisible-to-the-naked-eye feeder vein. Those veins are too shallow for ultrasound detection. CLaCS guided by the V-V allows better outcome and less pain. Patient referrals increased after that.

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Practical Way To Compare And Document Outcome On Leg Vein Lesions Treatment

An adaptive ceiling assembly for quick standardized documentation of leg veins with subjects lying down

INTRODUCTION

Digital photography facilitated medical documentation. The use of digital cameras has become more and more popular in recent years for documenting pretreatment conditions, treatment outcomes, and imaging studies.

The most popular way to evaluate outcome on phlebology procedures is to compare before and after photos. This demands a way to repeat photos in the same position and light conditions.

Mandatory photo documentation also provides proof of service and helps on, if not avoids, eventual lawsuits.

So, accurate photographic documentation has become essential for phlebologists, both for clinical and scientific purposes.

Nevertheless, obtaining standardized and consistent digital images of telangiectasias and reticular veins on leg vein lesions is particularly challenging. It takes several minutes of a first time consultation.

OBJECTIVE

To Describe the method employed in our practice, as a way to do fast and easy to reproduce pre/post therapeutic photos.

METHOD(s)

A recently developed system (IntelliStudio – Canfield) developed for dermatologic and plastic surgery photo documentation was adapted to phlebology. This picture system bears a digital camera and three surrounding flash lamps. It is mounted on two vertical tracks that allow sliding.

In this particular assembly, the whole composition was mounted hanging from the ceiling, parallel to the ground.

Patient is photographed on four basic positions: dorsal, ventral and laterals.

The camera is controlled by software that authenticates the picture and allows pre-treatment photo “ghosting” to facilitate a post-treatment photo positioning (Mirror). This software is also directly linked to the patient’s EMR (Nextech).



Figure 1 - The original IntelliStudio by Canfield was developed for close-ups and body photo documentation with the subject sitting/standing up.

Note that for “ropy” veins the standard IntelliStudio can be used.

RESULTS and CONCLUSIONS

We have been using this system since January 2008, saving time and improving accuracy.

Advantages:

- Full documentation is done in about 2 minutes, increasing staff productivity
- Zoom and high resolution allows rich visualization of fine detail
- Easy reproducibility in a difficult part of the body (legs)



Figure 2 - The ceiling mounted IntelliStudio registers telangiectasias and reticular veins with the patient laying down. No tripod is need and the positioning is standardized.

- Convenient data access for storage, backup and transference
- Allows precise positioning with the Mirror software (“ghost effect”) for treatment phase comparison and evolution
- Patient data is automatically transferred to the NexTech software (EMR system)
- The ceiling mounted IntelliStudio sets a standard for pictorial documentation

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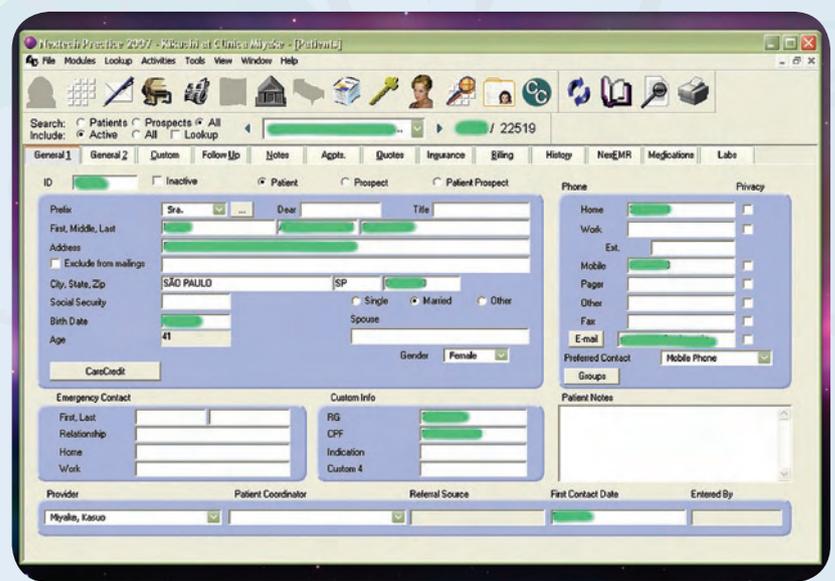


Figure 3 - The Nextech software layout manages all patient data, pictures included.



Figure 4 - The ceiling assembly allows quick photo documentation before treatment in a fixed position, demonstrating venous formations. Picturing is wired to Nextech's EMR software skipping manual data transfer (avoiding memory card swapping).



Figure 5 - The system's software loads the previous picture, applying a "ghost effect" for dynamic positioning. The previous picture parameters are also loaded for faithful approximation. The late picture in the same position (registry) enables excellent comparison and treatment evaluation. Result after one CLaCS session, 2 weeks after.



Figure 6 - VeinViewer digital image showing reticular veins before treatment.

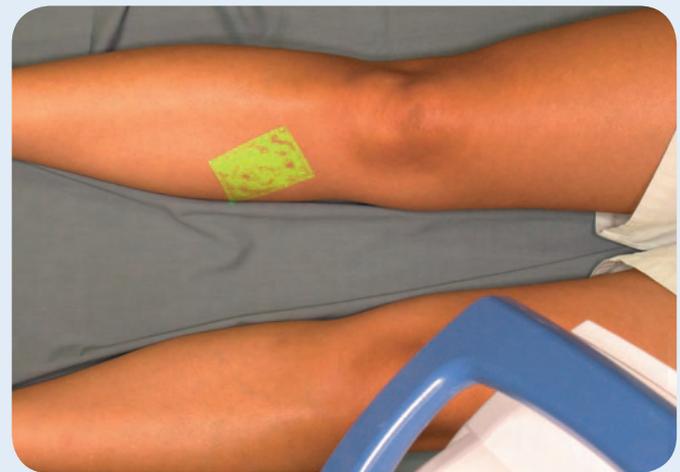


Figure 7 - Result after one CLaCS session, 2 weeks after.

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The Branch Feeds the Leaves

This booklet is the compilation of the 3 posters displayed in the 22nd international Annual Meeting of the American College of Phlebology by Clinica Miyake, Brazil.

Video presentations by the same authors from other International Meetings can be seen on YouTube under the links:

- USA, Kissimmee - American Society for Laser in Medicine and Surgery Annual Meeting 2008

Role of VeinViewer on Guiding Laser to Treat Feeder Veins

http://www.youtube.com/watch?v=tj6_FZHS8x0

- Japan, Kyoto - Union International de Phlébologie 2007

5 Tips on How to Treat Telangiectasias

<http://www.youtube.com/watch?v=Heuc9sHADul>

- USA, Dallas - American Society for Laser in Medicine and Surgery Annual Meeting 2007

VeinViewer: technology on varicose veins treatment

http://www.youtube.com/watch?v=PWnl_Kuetag

The case that figures in this booklet

<http://br.youtube.com/watch?v=iwCT8SaKnWU>

(www.youtube.com - search for keywords: veinviewer, miyake)

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