Improved Sclerotherapy by Transillumination

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The Idea behind

Spider veins
Standard technique
former „state of the art”
The Idea behind

Spider veins – reticular veins
Standard technique
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Spider veins – reticular veins

**Feeder vein**

- Visualized by Transillumination
About the System
Veinlite LEDX - portable with LED’s

Inner diameter: 30,7mm
opening for access: 16,5mm

10,2 x 6,5 x 2,1 cm
**Veinlite LEDX®**

**higher luminosity and brightness, higher contrast**

32 LED

- 24 orange
- 8 red

**Coloured diodes are switchable separately or combined**

**superficial veins**

- 605 nm

**deeper veins**

- 660 nm

**darker skin**

- Rechargeable battery (Lithium-Ion)
Beam angle $\approx 45^\circ$
Side-Transillumination

- Subcutaneous veins appear clearly visible
- Deeper veins are visualized
- Virtual light source
- Bright light source
- Viewer

2-dimensional image on the surface
→ based on experience
3-dimensional image
For visualisation of all intra/subcutaneous venous structures, esp. Feeder Veins

also mind:
jammed veins all around and below an ulcer
Infection Control During Sclerotherapy

N. Mullani et al., ACP 2010

never ungloved
„3 step procedure“

1. „Find“ Easy and precise detection of veins, spider veins and reticular veins down to 1 cm depth (>1 cm: ultrasound guided punkture)

✓ for liquid and micro/foam sclerotherapy* (bubbles are very well seen)

2. Push down to compress blood-flow with the C-shaped ring

3. Pull back to stretch skin = makes vein puncture easier

(→ taboret, tambour frame)
- Punction and Obliteration of the „trunk“ („very point method“)
- **control of optimal amount of sclerosant fluid**
  (Äthoxysklerol ≡ Polidocanol ≡ Lauromacrogol 400)
- guide the fluid or the bubbles through the vein
- Patient can rest in supine position
  (gently to cardiovascular system; take advantage of local effect = higher and longer lasting concentration on site ⇒ longer interaction with vessel intima)

- By the way: direction of blood flow can be determined by **wiping out** and can be used for diagnostic purposes
Important notice

- Light should be dimmed down to benefit from higher contrast

Illuminance: 40 – 80 lx
Further Applications

Prior to Operations
(in particular for Mini-Phlebectomy with Várady-Hooks)

Mapping of veins prior to operation with legs positioned exactly as it will be after skin prepped and legs draped

→ faster
→ accurate position for incision (veins shift cm’s from upright standing to lie)
Advantages following sclerotherapy

• (Technique „sewing machine“) Occasionally blood becomes trapped in treated veins: painful, annoying, discomforting to patients and → causes skin discoloration (hyperpigmentation)

• Veinlite guides your way to trapped blood
• stabilized through the ring
• Stab puncture with 18 gauge needle (1,2mm), blood lancet or microscalpell
• Evacuate („blackberry jam“)
→ avoid discoloration
Every venous structure can be visualized e.g.:

- i.v. lines (see video on YouTube and homepage)
  - Tourniquet-free injection
- Visualise veins prior to estetic intervention/plastic surgery to avoid perforation and cause hematomas
- Difficult on-site procedures (first aid, pediatric, paramedics, oncology, ...)
- Congenital Vascular Malformations (neonates, infants)
- To establish a differential diagnosis: hematomas, foreign bodies
- and ...
Precaution:

Over-treatment

- concentration %
- the amount which is needed ml „Quantum satis“
- inject slowly ν
- low pressure p
- fractional / intermittent ~
Surface illumination

Notice: all pictures without any postprocessing!
Incident light

Transillumination-technique
Sklerotherapie mit dem Veinlite System

Incident light
Sklerotherapie mit dem Veinlite System

with transillumination much higher contrast
Transillumination with white light

Transillumination with orange light / LED
Multiple unsuccessful sclerotherapies by several doctors, due to **Transillumination** the feeder vein becomes visible.
Consequent Benefits

- **exact localisation of vein puncture** → „where“
- **optimum amount of fluid** → „how much“ *

- **Patient Satisfaction** and excellent **Patient Care**
  → **Doctor’s Satisfaction** → „happy to go to work every day“
- better „**Compliance**“ according to this principle: „**WYSIWYG**“
- Patient understands circulation
- Patient understands the logic principle („rationale“)
  - behind treating reticular veins
  - simplifies education and clarification (re-calling)
  - easier to explain treatment target (operation / sclerotherapy)

- **Hand-held device**

*Attention: „blanching“ of the skin (→ skin necrosis)
Randomized Clinical Trials

Randomized Clinical Trials Show That Veinlite® Is Better Than AccuVein® and VeinViewer® for Venous Access

Randomized Clinical Trials are the gold standard for assessing how a device compares to standard of care (current method of vein access). Several clinical trials have now been done to assess whether vein finder devices help improve vein access in children and adults. These devices include the Veinlite®, AccuVein®, VeinViewer® and VeinLuminator™. The results show that the Veinlite® clearly improves vein access in children, while near infrared devices, such as AccuVein® and VeinViewer®, are NO better than standard of care. A full abstract of the publication can be obtained from the National Library of Medicine or from the web site www.pubmed.gov.
Veinlite® transillumination in the pediatric emergency department: a therapeutic interventional trial.\textsuperscript{(10)}

A randomized clinical trial was carried out in 240 patients with hard to find vein in a pediatric emergency department

**RESULTS** – The study showed that Veinlite® improved cannulation success rate within two attempts in comparison to standard care.
„Gold Standard“ for Visualizing of Veins and to Improve considerably the Success rate of Sclerotherapy
Greetings from Salzburg
Further Information and Videos find at:

veinlite.com