Varicose veins surgery in case of open ulcers

International school of venous surgery

D. Creton - Nancy
# Frequency of superficial venous insufficiency in ulcers

<table>
<thead>
<tr>
<th>Study</th>
<th>Sample Size</th>
<th>SVI alone</th>
<th>SVI mixte</th>
</tr>
</thead>
<tbody>
<tr>
<td>WRIGHT 1988</td>
<td>300</td>
<td>97%</td>
<td></td>
</tr>
<tr>
<td>HANRAHAN 1991</td>
<td>95</td>
<td>17%</td>
<td>50%</td>
</tr>
<tr>
<td>NELZEN 1991</td>
<td>332</td>
<td>47%</td>
<td>41%</td>
</tr>
<tr>
<td>DARKE 1992</td>
<td>232</td>
<td>39%</td>
<td></td>
</tr>
<tr>
<td>SHAMI 1993</td>
<td>79</td>
<td>53%</td>
<td>32%</td>
</tr>
</tbody>
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<tr>
<th>Study</th>
<th>Sample Size</th>
<th>SVI alone</th>
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<tbody>
<tr>
<td>Van RIJ 1994</td>
<td>120</td>
<td>40%</td>
<td>33%</td>
</tr>
<tr>
<td>LABROPOULOS 1995</td>
<td>112</td>
<td>23%</td>
<td>61%</td>
</tr>
<tr>
<td>BERGAN 1997</td>
<td>58</td>
<td>17%</td>
<td>29%</td>
</tr>
<tr>
<td>SCRIVEN 1997</td>
<td>95</td>
<td>57%</td>
<td>32%</td>
</tr>
<tr>
<td>YAMAKI 1998</td>
<td>164</td>
<td>39%</td>
<td>85%</td>
</tr>
</tbody>
</table>

- 1492 ulcers
- 78% SVI with other types
- 37% SVI unique cause
Insufficiency of the GSV is more frequently involved in ulcers than SSV.

<table>
<thead>
<tr>
<th></th>
<th>GSV</th>
<th>SSV</th>
<th>GSV + SSV</th>
</tr>
</thead>
<tbody>
<tr>
<td>255 SVI without ulcer</td>
<td>48%</td>
<td>33%</td>
<td>19%</td>
</tr>
<tr>
<td>94 SVI with ulcer</td>
<td>61%</td>
<td>8%</td>
<td>30%</td>
</tr>
</tbody>
</table>

\[ p < 0.001 \]

**Length of incompetence of the GSV and ulcers**

<table>
<thead>
<tr>
<th></th>
<th>CRETON</th>
<th>LABROPOULOS</th>
<th>HANRAHAN</th>
<th>YAMAKI</th>
</tr>
</thead>
<tbody>
<tr>
<td>n</td>
<td>274</td>
<td>86</td>
<td>73</td>
<td>164</td>
</tr>
<tr>
<td>Short</td>
<td>200</td>
<td>9</td>
<td>6</td>
<td>82</td>
</tr>
<tr>
<td>Long</td>
<td>74</td>
<td>77</td>
<td>67</td>
<td>80</td>
</tr>
<tr>
<td>Normal</td>
<td>Ulcer</td>
<td>Ulcer</td>
<td>Ulcer</td>
<td>Ulcer</td>
</tr>
</tbody>
</table>

\[ p < 0.001 \]

Long incompetence of the GSV (groin-ankle) is more significantly associated with ulcers than short incompetence (groin-bellow knee).

Creton D. *Phlebology* 1997;12:118-9
No Ulcer

Insufficiency from groin to ankle

10%

Ulcer

Insufficiency from groin to ankle

70%
The reflux seems to be quantitatively larger…

4 times fewer leaflets

\[ p < .05 \]

Ulcers are in relation with the severity of chronic venous disease.

All types of venous insufficiency add their own reflux to increase the risk of ulcer.

<table>
<thead>
<tr>
<th>Condition</th>
<th>Reflux Type</th>
</tr>
</thead>
<tbody>
<tr>
<td>Long reflux of the GSV is more dangerous than short reflux on GSV</td>
<td>the SVS</td>
</tr>
<tr>
<td>Insufficiency of the GSV</td>
<td>GSV or SSV only</td>
</tr>
<tr>
<td>Insufficiency of both GSV/SSV</td>
<td>GSV only</td>
</tr>
<tr>
<td>Insufficiency of GSV+Perforators</td>
<td>GSV+Perforators</td>
</tr>
<tr>
<td>Insufficiency of GSV+Perforators+DVI</td>
<td></td>
</tr>
</tbody>
</table>

How quantify the venous reflux?

APG, Foot Venous Pressure
Leg volume measurement

APG

VFI
Venous Filling Index

VFT90
Venous filling time 90 s

Speed of re-filling the leg after standing up from the horizontal position
Foot venous pressure measurement

Heel-raising tip-toe exercise

Resting Venous Pressure (RVP)
Ambulatory Venous Pressure (AVP)

Measurement of RVP/AVP is one established quantitative means of testing the calf pump
Quantification of the reflux

VFI > 2 ml/s  90% [1]
VFI > 5 < 10 ml/s  45% [1]
VFI > 10 ml/s  60% [2]


Normal VFI
1-2 ml/s
Quantification of the reflux

AVP = 51 mmHg [1]
AVP ≈ 80 mmHg [2]
AVP = 80 mmHg [3]

Normal AVP = 20 mmHg

Heel-raising tip-toe exercise

Compression therapy is always mandatory (several months):

No elastic stocking:
- insufficient compression,
- dressing not easy

Bandage

Elastic stocking will be worn afterwards
(stabilisation of the disease)

General treatment
- Antibiotic, medicine are unnecessary

Wound dressing
- Local drugs, topical agents (Zinc, Hydrocolloid dressing)
- Ointments, creams if not allergenic
How to perform a preoperative dressing bandage?

1/ First wound dressing
2/ Non-adhesive dressing
3/ Layer of absorbent cotton wool
4/ Layer of standard crepe bandage
5/ Layer of cohesive bandage applied in a «figure of 8» configuration

Non elastic compression + Walking
Gel paste gauze boots (Unna)

Elastic bandage 40 mmHg
Cohesive non-elastic bandage applied in a « figure of 8 » configuration
Elastic bandage applied in a « figure of 8 » configuration

20 to 40 mmHg
Surgery of the GSV in case of ulcers

Long stripping of the GSV = 70%

Be careful:

Infectious risk

Neurologic complication is major (long stripping, calf)

Neurologic complication is increased because of the fibrosis [1]

Low incision is always under the ulcerations

But:

Straight stripper, Pin-stripper easier to direct

Invagination is often easy (strong and thick trunk)

Closure®, Laser is a good alternative

Surgery of the GSV in case of ulcers

1/ Compression / healing / normal surgery
   1 small ulcer

2/ Compression / normal surgery

3/ Compression / above knee surgery / healing / re-surgery
   Large ulcer
   Large, numerous ulcers
   Painful ulcers
   Major lipodermatosclerosis
After cicatrisation of the ulcer do not wait a long time before the operation:
Beware of the recurrences!
Never forget the compression!

Skin graft at the end of the sequential treatment

Rarely!
Results:

90% 100% healing

Isolated SVI + ulcer

- Flush ligation GSV 100% < 1 mois [1]
- Stripping GSV 84% < 3-4 mois [2]
- Stripping GSV 95% < 3-4 mois [3]

1/ SCRIVEN JM, Br J Surg 1998;85:781-4
2/ WRIGHT DDI, J Cardiovasc Surg 1987;28:5-99
Results:

SVI + Perforators

- 49 ulcers
  - Stripping only
  - Healing: 91%
  - 3.5 years

- 12 ulcers
  - Stripping only
  - AVP:
    - 13% → 31%

References:


Arguments supporting the reason for operated on «GSV and perforators» at different times (3 months)

Flush ligation

Stripping

Perforators ligation (SEPS)

SCRIVEN JM, et al.  
*Br J Surg* 1998;85:781-784

AKESSON H, et al.  
*Phlebology* 1990;5:113-123
Results:

SVI + Perforators + DVI

70% healing

Stripping + Perforators [1]
healing: 100%

Stripping + Perforators [2]
3.5 ans
76% time without ulcer

1/ PRADBERG FT, et al.
J Vasc Surg 1996;24:711-8

2/ AKESSON H.
Phlebology 1993;8:128-131
Results

Good calf pump function and compression are fundamental to maintain the result

AVP $< 60 \text{ mmHg}$

Predictive value of long ulcer free period

AKESSON H. *Phlebology* 1993;8:128-131
Conclusions

1. High compression is always mandatory BEFORE and after.
2. Stripping the GSV only is always very effective.
3. In cases of association GSV/Perforators: do the GSV and wait 3 months to re-evaluate the function of the perforators before SEPS