Early endoluminal treatment in venous ulceration

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Disclosure

Speaker name:
Markus Steinbauer

I have the following potential conflicts of interest to report:

☐ Consulting
☐ Employment in industry
☐ Stockholder of a healthcare company
☐ Owner of a healthcare company
  × Other(s): Medtronic, Optimed, Covidien

☐ I do not have any potential conflict of interest
Wounds need a surgeon, and not the fool of a physician!

Sir William Osler
1849-1919
Early endoluminal treatment in venous ulceration

Bonner Venenstudie 2003:

Chronic ulceration: 0,2 % of the german population ( > 70 years: 2,5%)

Costs: 10.000 € /patient/ year

Socioeconomic loss: 1.000.000.000 € / year
Chronic Ulcers: Etiology

70% venous ulcers (varicosis or severe PTS)

10% arterial ulcers (CLI)

10% mixt ulcers (arterial-venous)

10% atypical (e.g. vasculitis)
Diagnostic Workup

- **Medical history**: Duration, Development, Initial therapy

- **Clinical examination**: Edema, Dermatofaszioliposklerose, Varicosis…

- **Documentation**: Photography

- **Ultrasound (Duplex)**: Arterial – Venous

- **VVP**: (Obstruction)

- **Radiologic Examinations**: Phlebo-MR/-CT

- **Laboratory examinations** (Microbiology): Vasculitis,

- **Histology**: atypical ulcers or tumour
Chronic Ulcers: Therapy

- **Conservative treatment** (Compression, wound therapy)

- **Surgery** (superficial vein surgery and wound therapy)
  - ESCHAR Study (Barwell et al, Lancet 2004)
    - Lower rates of recurrence
    - No effect on higher rates of wound healing

- **Intervention** (+ local wound therapy)
  - Good healing rate und low recurrence rate
Early endoluminal treatment in venous ulceration

A Randomized Trial of Early Endovenous Ablation in Venous Ulceration

- RCT 450 patients
- Faster ulcer healing in the early intervention group
- More time free from ulcers
Early endoluminal treatment in venous ulceration

Recurrence Rate 1 year: 11.4 % vs 16.5 %
Early endoluminal treatment in venous ulceration

- Endoluminal treatment was not standardized
- Complications of Interventions: Pain and DVT

<table>
<thead>
<tr>
<th>Type of endovenous intervention</th>
<th>Early Intervention (N = 224)</th>
<th>Deferred Intervention* (N = 226)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Endothermal ablation only§</td>
<td>71 (31.7)</td>
<td>54 (23.9)</td>
</tr>
<tr>
<td>Foam sclerotherapy only¶</td>
<td>111 (49.6)</td>
<td>100 (44.2)</td>
</tr>
<tr>
<td>Mechanochemical ablation only</td>
<td>5 (2.2)</td>
<td>1 (0.4)</td>
</tr>
<tr>
<td>Endothermal ablation and foam sclerotherapy§§</td>
<td>27 (12.1)</td>
<td>16 (7.1)</td>
</tr>
<tr>
<td>Mechanochemical ablation and foam sclerotherapy¶¶</td>
<td>3 (1.3)</td>
<td>0</td>
</tr>
<tr>
<td>Abandoned treatment¶</td>
<td>1 (0.4)</td>
<td>0</td>
</tr>
<tr>
<td>No treatment</td>
<td>6 (2.7)</td>
<td>55 (24.3)</td>
</tr>
</tbody>
</table>
A Randomized Trial of Early Endovenous Ablation in Venous Ulceration: a critical appraisal.

CONCLUSIONS:

Gohel et al. conclude that early endovenous ablation of superficial venous reflux results in faster healing of venous leg ulcers than deferred endovenous ablation. Patients assigned to the early-intervention group also had longer ulcer-free time during the first year after randomization.

- Unclear, which method is the best for treatment of venous ulcers
- Only smaller ulcers (2.9 cm²): faster healing
- Only „young“ ulcers (< 6 month): faster healing
- No mixed ulcers (arterial/venous)
Endoluminal vs open vein surgery

Open vein surgery:
- Established method
- Application in all pathologies
- Reimbursement

Endoluminal:
- Possible without general anesthesia (older patients)
- No incisions
- Less Hematoma / Edema
- Less Infections
- Repeated interventions (e.g. Foam) can be easily performed
Radiofrequency ablation

**Advantage:**
- established method
- easy to perform
- possible without general anesthesia

**Disadvantage:**
- technical limitations (Crossectomie)
- reimbursement / Costs
EVLA (endovenous laser ablation)

**Advantage:**  - versatile method (laser crossectomie)
  - possible without general anesthesia
  - can be performed under anticoagulation

**Disadvantage:** - technically more complex
  - reimbursement / costs
  - pain
MOCA (mechano-chemical ablation)

**Advantage:**
- no thermal damage
- can be used without tumineszenz

**Disadvantage:**
- more relapses
- reembusement /costs
- venous valves !!!
Cyanoacrylat (VenaSeal)

**Advantage:**
- no thermal damage
- can be used without tumineszenz
- can be used for all pathologies

**Disadvantage:**
- local reactions/punction site
- reembursement (highest costs)
- short application time
- extraneous material in potentially infected legs
Foam sclerotherapy

**Advantage:**
- Alcohol is always good ..... 
  - cheap 
  - can be used for all pathologies (universal weapon) 
  - no extraneous material in potentially infected legs 
  - Repeated interventions (e.g. Foam) can be easily performed

**Disadvantage:**
- more relapses 
- local reactions 
- challenging technique
Which endoluminal technique is the best?

No data.....

Theoretical considerations

- Thermal ablation: (Heat vs. Clue)

- Foam sclerotherapy (no extraneous material in potential infected legs, repeated interventions can be easily performed)
# Postthrombotic syndrome (PTS)

<table>
<thead>
<tr>
<th>Symptoms/clinical signs</th>
<th>None</th>
<th>Mild</th>
<th>Moderate</th>
<th>Severe</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pain</td>
<td>0 points</td>
<td>1 point</td>
<td>2 points</td>
<td>3 points</td>
</tr>
<tr>
<td>Cramps</td>
<td>0 points</td>
<td>1 point</td>
<td>2 points</td>
<td>3 points</td>
</tr>
<tr>
<td>Heaviness</td>
<td>0 points</td>
<td>1 point</td>
<td>2 points</td>
<td>3 points</td>
</tr>
<tr>
<td>Paresthesia</td>
<td>0 points</td>
<td>1 point</td>
<td>2 points</td>
<td>3 points</td>
</tr>
<tr>
<td>Pruritus</td>
<td>0 points</td>
<td>1 point</td>
<td>2 points</td>
<td>3 points</td>
</tr>
<tr>
<td>Pretibial edema</td>
<td>0 points</td>
<td>1 point</td>
<td>2 points</td>
<td>3 points</td>
</tr>
<tr>
<td>Skin induration</td>
<td>0 points</td>
<td>1 point</td>
<td>2 points</td>
<td>3 points</td>
</tr>
<tr>
<td>Hyperpigmentation</td>
<td>0 points</td>
<td>1 point</td>
<td>2 points</td>
<td>3 points</td>
</tr>
<tr>
<td>Redness</td>
<td>0 points</td>
<td>1 point</td>
<td>2 points</td>
<td>3 points</td>
</tr>
<tr>
<td>Venous ectasia</td>
<td>0 points</td>
<td>1 point</td>
<td>2 points</td>
<td>3 points</td>
</tr>
<tr>
<td>Pain on calf compression</td>
<td>0 points</td>
<td>1 point</td>
<td>2 points</td>
<td>3 points</td>
</tr>
<tr>
<td>Venous ulcer</td>
<td>Absent</td>
<td></td>
<td>Present</td>
<td></td>
</tr>
</tbody>
</table>

0-4 no PTS  
5-9 mild PTS  
10-14 moderate PTS  
>14 oder Ulcers severe PTS

- Reflux: Compression
- Venous Occlusion/Stenosis:
  
  Compression - Recanalization of deep veins
Stent angioplasty of iliac veins (PTS)

Radju et al., JVS 2010

Mortality 0%

Primäre Patency 57% (72 Monate)

Secundary Patency 86%

Ulcer healing 58%

QoL +++

Complications <6% (Reocclusion, Hematoma)

No clinical deterioration in case of reocclusion!
Stent angioplasty of iliac veins (PTS)

PTS central occlusion
Stent angioplasty of iliac veins (PTS)

PTS central occlusion
Stent angioplasty of iliac veins (PTS)

PTS central occlusion – Endophlebectomy + Recanalization
Endophlebectomy of the common femoral vein and arteriovenous fistula creation as adjuncts to venous stenting for post-thrombotic syndrome.

RESULTS:

Seventy-six legs (70 patients) were included. Median follow-up was 379 (range 73-1508) days. Primary, assisted primary and secondary patency rates at 12 months were 51, 70 and 83 per cent respectively. Sixty per cent of loss of primary patency (24 of 40 legs) was related to common femoral vein stenosis, and the rest to rethrombosis. Other complications included wound infection (29 per cent) and lymphatic leak (39 per cent). The Villalta score had decreased by a median of 7 points at 1-year follow-up.

CONCLUSION:

The combination of venous stenting, endophlebectomy and arteriovenous fistula creation for patients with extensive post-thrombotic vein damage and severe post-thrombotic syndrome is feasible.
Intermittend Pneumatic Compression (IPC)

- Increases venous flow after recanalization of iliac veins
- Can be applied in CLI/ venous or mixt ulcer patients
- Less painful vs. compression
- Improves wound healing
Summary

Early endoluminal treatment in venous ulceration

- Endoluminal therapy is effective in venous ulcerations
- More older / frail patients can be treated
- Early endoluminal treatment is superior to deferred therapy
  - Reduced hospital stay – reduced costs
- Multiple endoluminal modalities possible –
  - which is the best ???
- More RCT necessary
  - endoluminal vs open surgery (less complications ?)
- RCT – Reason for reimbursement
DGG 2019
Save The Dates
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