Treatment failures after successful GSV ablation - Root cause analysis and management

Raghu Kolluri, MD,
Director – Vascular Medicine
OhioHealth | Riverside Methodist Hospital
Columbus, OH
Disclosures

• Current
  – Medtronic – Consultant/ Speaker
  – Bard – Data Safety Committee
  – Cook – Consultant
  – Volcano – Consultant
  – Boston Scientific – Consultant/ Speaker
DEFINE – “TREATMENT FAILURE”

- GSV/SSV not closed
- GSV/SSV partially closed
- GSV/SSV closed but clinical status is Status Quo (i.e., Patient Reported Outcomes suck!)
  - Pain continues
  - Swelling continues
  - Ulcer not healed
  - Just plain unhappy -X
- Neovascularization - X
GSV/ SSV open/ partial ablation

• Equipment malfunction
• Technical error
  – Vein spasm
  – Large diameter
  – Obese
  – Could not pass wire (post thrombotic)
  – Simply not a good operator/ Newbie
  – Wrong vein ablated/ duplexed
  – SSV – lower success than GSV
• “God only knows” – AKA “Idiopathic”
No improvement in clinical status

• Technical error
  – Technologist/MD error in scanning
• Errors in Judgment
• Errors in Diagnosis
Technical error

• Errors in scanning
  – Most common in my practice
  – Most sonographers do not like to perform venous incompetence duplex scans and mapping
  – Info is handed
Errors in judgement

- Not identifying the pathologic vein
- Not identifying refluxive connections between the deep and superficial system
- Incomplete treatment
Errors in judgement

- Patients with or without contributing co-morbidities may require additional considerations:
  - Deep venous reflux
  - Iliofemoral or popliteal DVT, or a History of DVT
  - May-Thurner Syndrome
  - Pelvic insufficiency or congestion
    - Ovarian insufficiency
  - Morbid obesity with CALF PUMP DYSFUNCTION
Errors in judgement
Errors in judgement

- S/p GSV ablation
- No improvement
- Pelvic and profunda source
Errors in judgement

- S/p GSV (thigh only) ablation
- Venous eczema unresolved
- Intersaphenous vein from SSV thigh extension to the venous eczema
Errors in judgement

- S/P Right GSV ablation
- Severe cellulitis
- Placed on clindamycin and referred to PCP for further care
Errors in Diagnosis
“Acroangiodermatitis of Mali”

Pseudo-Kaposi Sarcoma
Errors in diagnosis

- S/P bilateral GSV ablation
VEIN/ VASCULAR SPECIALIST

VENOUS THERAPIES

Pain/ Swelling
Pulsatile flow in the veins
Hemodynamics
Other causes of “edema”

<table>
<thead>
<tr>
<th>Condition</th>
<th>No. (%) of Patients (N = 15)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Obstructive sleep apnea</td>
<td>9 (60)</td>
</tr>
<tr>
<td>Hypertension</td>
<td>6 (40)</td>
</tr>
<tr>
<td>Asthma (clinical diagnosis)</td>
<td>1 (7)</td>
</tr>
<tr>
<td>Restrictive spirometry pattern</td>
<td></td>
</tr>
<tr>
<td>Mild</td>
<td>5 (33)</td>
</tr>
<tr>
<td>Moderate</td>
<td>4 (27)</td>
</tr>
<tr>
<td>Appetite suppressant ever used</td>
<td>2 (13)</td>
</tr>
<tr>
<td>Right ventricular dysfunction</td>
<td>1 (7)</td>
</tr>
</tbody>
</table>

*Patients could have more than 1 condition or diagnosis.*

Arch Intern Med. 2000;160(15):2357-2362
Data on prevalence of RHF/ OSA in CVI
Errors in diagnosis

- Sleep apnea
Attenuation of Obstructive Sleep Apnea by Compression Stockings in Subjects with Venous Insufficiency

Stefania Redolfi¹,², Isabelle Arnulf¹, Michel Pottier¹, Jacques Lajou³, Isabelle Koskas³, T. Douglas Bradley⁴* and Thomas Similowski⁵*

OhioHealth prospective study...

- Prevalence of Right Heart Failure in patients referred for venous insufficiency
- Prospective observational, single center—300 patients (102 to date)
- All patients receiving Venous Incompetence Study → Right Heart Echo Evaluation, by RVT/ RDCS certified sonographers
  - RV / RA – Size and function
  - TR
  - TAPSE
  - RVSP
Our study...

- Venous incomp and Echo findings reviewed by 2 vascular medicine MDs and a 2 Cardiologists respectively

- Patient characteristics – BMI/ VTE History/ OSA etc

- CEAP/ VCSS

- “STOPBANG” Questionnaire for patients without OSA

### THE STOP-Bang Questionnaire
A Tool to Screen Patients for Obstructive Sleep Apnea (OSA)

<table>
<thead>
<tr>
<th>Name:</th>
<th>Age:</th>
<th>DOB:</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. S (Snoring):</td>
<td>Do you Snore loudly?</td>
<td>Yes____, No____</td>
</tr>
<tr>
<td>2. T (Tired):</td>
<td>Do you often feel Tired or sleepy?</td>
<td>Yes____, No____</td>
</tr>
<tr>
<td>3. O (Observed)</td>
<td>Has anyone Observed you stop breathing during your sleep?</td>
<td>Yes____, No____</td>
</tr>
<tr>
<td>4. P (Blood Pressure)</td>
<td>Do you have or are you being treated for high Blood Pressure?</td>
<td>Yes____, No____</td>
</tr>
<tr>
<td>5. B (BMI)</td>
<td>Body Mass Index &gt; 35 kg/m2?</td>
<td>Yes____, No____</td>
</tr>
<tr>
<td>6. A (Age)</td>
<td>Age over 50 years old?</td>
<td>Yes____, No____</td>
</tr>
<tr>
<td>8. G (Gender)</td>
<td>Gender male?</td>
<td>Yes____, No____</td>
</tr>
</tbody>
</table>

**High Risk for OSA:** Answering “Yes” to 3 or more items. Evaluation by a sleep specialist may be warranted.
Neuropathic pain

- 22% of patients referred to our vein clinic have + EMG/ NCS studies
Errors in judgement - ulcer

- Ulcer Healing
  - Inappropriate compression
  - Ablation – AK level

Sullivan, LP
Phlebology 2014

To determine the efficacy of MOCA in below the knee GSV in patients with persistent venous ulcers following above the knee GSV ablation

- Mean time to heal was 28 days
- MOCA can be delivered directly to the veins feeding the ulcer

Phlebology. 2014 Dec;29(10):654-7
Large B Cell Lymphoma

Basal cell carcinoma
Root cause analysis

SHERLOCKOLOGY

my name is Sherlock Holmes.
it is my business to know what other people don’t know

Why can’t people just

THINK?
Thank you
Treatment failures after successful GSV ablation - Root cause analysis and management

Raghu Kolluri, MD,
Director – Vascular Medicine
OhioHealth | Riverside Methodist Hospital
Columbus, OH