Venous Disease and Leg Ulcers

Edward G Mackay MD
St. Petersburg, FL
NCVH 2015 Orlando, FL
Disclosures

- Stocks  Endoshape® Sapheon®
- Medical Advisory Board BTG, Boston Scientific
Venous Leg Ulcer

- Most common leg ulcer
- Mostly due to superficial disease or combination of superficial and deep
- Rarely a cause of leg loss but a cause of significant disability
- Many options for treatment that lessen recurrence and possibly speed healing
  - almost all office base and the remaining mostly outpatient
Venous Ulcer Pathophysiology

Venous stasis
Capillary distension
Fibrin deposition in dermis; fibrinous pericapillary cuff forms
Skin deprived of oxygen and nutrients
Skin destruction

Fig 2: Image courtesy of David MacMillan, MD
Fig 3: Adapted from Paletta C, Massey B. Vascular Ulcers. [http://www.emedicine.com/plastic/topic467.htm](http://www.emedicine.com/plastic/topic467.htm), 2005
Causes of Stasis or Venous Hypertension

- Reflux or valve failure:
  - superficial axial Great, Small, Accessory Saphenous veins
  - perforator
  - pelvic
  - deep
- Obstruction Iliac, femoral and popliteal
- Pump failure
Diagnosis of Reflux

- History and Physical
- Duplex mapping
Treatment Options for Superficial Axial Reflux

- Compression
- Traditional surgery: ligation, stripping
- Endovenous Thermal Ablation
- Mechanical Chemical Ablation
- Chemical Ablation
Action of GC Hose
Endovenous Thermal Ablation

- RF Closure® now Venefit®
- Endovenous Laser of which multiple suppliers
- Requires Tumescent anesthesia
- Requires fairly straight vein
- Cannot treat right under the skin
ULTRASOUND GUIDED VENOPUNCTURE
Multiple Fibers
Pretty Boxes
RF Catheter
Endovenous Laser Treatment
Mechanical Chemical

- Tumescentless
- Clarivein®
- Uses combination of mechanical and chemical injury
- Still requires a fairly straight vein
- No risk of burn so superficial veins are okay
Postoperative pain and early quality of life after radiofrequency ablation and mechanochemical endovenous ablation of incompetent great saphenous veins

- van Eekeren RR1, Boersma D, Konijn V, de Vries JP, Reijnen MM.
- Patients treated with MOCA reported significantly less postoperative pain than patients treated with RFA during the first 14 days after treatment (4.8 ± 9.7 mm vs 18.6 ± 17.0 mm; P < .001)
- significantly earlier return to normal activities (1.2 ± 1.8 vs 2.4 ± 2.8 days; P = .02)
- work resumption (3.3 ± 4.7 vs 5.6 ± 5.8 days, respectively; P = .02).
Chemical Ablation

- Sclerotherapy
- Physician compounded foam
- Polidocanol Microfoam (Varithena®)
- Cyanoacrylate (VenaSeal®)
- Tumescentless
Physician Compounded Foam
US Guided Sclerotherapy
I inject; high concentration, low volume
Cerebral Vascular Incidents

Polidocanol Microfoam

- Varithena ®
- FDA approval 2014
- Superficial veins
- Tortuous veins
- Approved for GSV, Accessory veins
- Superficial varicosities
- Not the SSV
Cyanoacrylate

- Just got FDA approval
- Superglue
- Venaseal®
- Delivered through a catheter so fairly straight veins
- Questionable for superficial veins
Perforator veins

- Usually not acting alone
- Deep and/or superficial disease usually present
- Treat with ligation, sclerotherapy, or thermal
RF Ablation of Incompetent Perforators

- Low morbidity
- Can perform through ulcer
- Results:¹
  - 770 IP’s in 506 limbs
    - 79% closed at 1 year
    - 76% remained closed at 2 years


Image courtesy of Paul McNeill, MD
Pelvic Veins

- If for leg symptoms just treat the leg portion
- Treat from above for pelvic symptoms
Deep vein reflux

- Think obstruction
- Valve reconstruction has high morbidity
- Percutaneous valve replacement in the works
Marston W, Fish D, et al
Incidence of and risk factor for iliocaval venous obstruction in patients with active or healed venous leg ulcers
J Vasc Surg May 2011;53:5 1303-08
78 patients with CEAP 5/6

- 37% had ICVO >50%
- 23% had ICVO >80%
- Risk factors for ICVO >80% were female, h/o DVT and DVR
- Duplex with absent respiratory phasicity 100% specificity and PPV (only 77% sensitive)
- No patients with superficial reflux alone was found to have ICVO >80%
Iliac Vein Duplex Ultrasound
NIVL lesions present in silent form in 30-50% of the general population
Venous outflow obstruction: An underestimated contributor to chronic venous disease

Peter Neglén, MD, PhD, Tara L. Thrasher, BS, and Seshadri Raju, MD, Jackson, Miss
IVUS

Phased array transducer

Mechanical transducer
Contrast venography: oblique views

Require more ionizing radiation
Require more nephrotoxic contrast
healed
Conclusion

- Lots of treatment options and more coming
- Most done in office and some in the vascular lab
- Minimal morbidity and minimal downtime