Endovenous Ablation: “Tools, Technique and Tricks”

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Objectives

1. Obtaining Access: What are my options?
2. Traversing the Target Vein: Tips & Tricks
3. Tumescent Anesthesia: An easy approach
4. Energy deposition in the target vein
Obtaining Access

18 gauge needle vs micropuncture kit
Obtaining Access

**Advantages:**
- Cheaper
- Some users report a “better feel”

**Disadvantages:**
- Greater trauma to vein
- Usually only get “one shot”
- Patients may report greater pain with puncture
Obtaining Access

**Advantages:**
- Less traumatic to target vein
- Allows two to four puncture attempts at target vein
- Can use micropuncture needle for tumescent anesthesia

**Disadvantages:**
- More expensive
- .018 mandril wire can become “mangled”, requiring new kit
Obtaining Access
What’s New?

Transitionless micropuncture kit

Long Micropuncture Kit

Old Standard  Silhouette Transitionless
Long Micropuncture Kit

Two Types:
- 45 cm length introducer; 100 cm long .018 wire
- 60 cm length introducer; 130 cm long .018 wire
Long Micropuncture Kit

Advantages:
- Can fit 600 micron fiber through micropuncture outer introducer
- Eliminates need for a sheath
- .018 mandril wire is more rigid than regular .035 wire, allowing greater trackablility on the wire

Disadvantage:
- If system fails to track, will need a sheath, adding additional cost
Puncture Site

Site of puncture is controversial:

For Great Saphenous Vein:
- Above knee puncture has lead to higher recurrence rate
- Below knee puncture, is associated with potential nerve injury and parasthesia

For Small Saphenous Vein:
- The lower the puncture, the greater the risk of nerve injury, and potential foot drop
Puncture Site

Saphenous nerve & GSV

Sural nerve & SSV
Puncture Site: What’s the Solution?

For GSV:
- Puncture as low as GSV is incompetent
- As low as medial malleolus
- Warn patient of risk of parasthesia (.05-3 %)
- Use very careful tumescent technique

For SSV:
- Puncture as low as SSV is incompetent
- Above level of ankle
- Warn patient of risk of parasthesia (1-4 %)
- Use very careful tumescent technique
Traversing the Vein

What’s the hold up?
- Venous valves
- Abrupt changes in caliber
  - Perforator reflux, insertion of tributary veins
- Tortuosity & Angulation
- Target vein going inter-fascial to extra-fascial
- Anatomic variants
Traversing the Vein

How to overcome holdups:
- Use a angled 5 Fr catheter
- Use a angled sheath
- Use a hydrophilic wire
- Utilize localized pressure
- Perform a second puncture more proximally
Traversing the Vein

-5 Fr 65 cm MPA catheter
- Greater trackability
- Less pushability

-5 Fr 55 cm Ansel 1 sheath
- Greater pushability
- More expensive
Traversing the Vein

-.035 145cm Roadrunner™ Hydrophilic Wire
-.018 tip to .035 body
-Excellent to get past holdups

-.035 145cm TSCF J wire
-Combine with angled catheter or sheath
Traversing the Vein

My Approach:

– Start with long micropuncture kit
  - Greater trackability
– Use .035 145 cm J wire & angled catheter or sheath
  - I prefer sheath, greater pushability
– Use .035 hydrophilic Roadrunner™ wire
– Use second more proximal puncture
Tumescent Anesthesia

Key is to create a halo around vein under ultrasound guidance

I utilize a mechanical Klein™ pump
Tumescent Anesthesia

**Mixture & Volumes:**

- **Treating one leg:**
  - 500 cc bag of normal saline
  - Remove 50 cc of saline for flushing
  - Inject 50 cc of 1% xylocaine into saline bag
  - Inject 10 cc of 8.3% bicarbonate into saline bag

- Use 500 cc of volume in typical leg

- Use micropuncture 21 gauge needle for tumescent application with Klein™ pump
Energy Deposition

- I personally use laser
- Type of laser inconsequential
- Key: Adequate energy deposition
- Recommend:
  - 14 or 15 Watts continuous mode
  - Minimum of 2500 joules
  - May range from 2500 to 7500 joules
- Slow pullback is crucial
Conclusions

- Careful pre-planning is essential to minimize procedure time, and maximize patient comfort and outcome.
- New access options help minimize procedure steps.
- Tumescent anesthesia is critical to prevent complications.
Thank You!

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