How to Manage Below Knee Venous Thrombosis after Ultrasound Guided Foam Sclerotherapy For Incompetent Venous Tributaries.

Associate Professor Irwin V Mohan
MBBS, MD, FRCS, FEBVS, FRACS
Vascular and Endovascular Surgeon
irwin_mohan@hotmail.com
Westmead Hospital,
University of Sydney
Australia

I have no disclosures

Modern Option for Truncal Venous Incompetence
Thermal Ablation
Endovenous Laser Ablation or RFA

Major Tributary Venous Incompetence

Options for Tributary Vein Incompetence
- Phlebectomy
- (Laser)
- Ligations
- Foam Sclerotherapy-
  - Sodium Tetradecyl Sulphate (STS)
  - Polidocanol

Sclerosant Action
- STS (and polidocanol) , displaces blood from vein.
- Active in the unbound state.
- Transported bound to plasma protein (inactive), catalyzed in liver.
- Mechanism of action: lysis of endothelium.
- Detergent action: protein theft denaturation.
- Time taken to destroy venous endothelium: 20s.
Tessari technique for foam sclerosant

- Two plastic disposable syringes are connected by a three-way stopcock, and a filter.
- The foam is formed by mixing the liquid sclerosant (sodium tetradecyl sulphate) with 4 or 5 parts of air, through 20 passes between the two syringes.
- With the hub at a 30° rotation, passage generating high turbulence, which produces a high quality microfoam.
- Distending pressure in a bubble is inversely proportional to its radius.

US guided foam sclero

- Induces fibrosis of vein/obliteration of lumen by causing inflammation of endothelial & subendothelial layers of vein wall.
- Vein punctured under USS & foam sclerosant injected.
- No RCTs comparing USGFS versus conventional surgery.

Ultrasound Appearance of Tributary Ultrasound Guided Foam Sclerotherapy (UGS).

Risks of Sclerotherapy

Common
- Extravasation
- Ulceration
- Inflammation
- Thrombophlebitis
- DVT?
- Pigmentation

Uncommon (extremely rare)
- Visual disturbances
- Chest tightness, cough
- Anaphylaxis
- Vasovagal symptoms

Perforator Veins (PV) Variable Anatomy and Function

Deep Vein Sclerosis/Sclerosae (DVS) vs Deep Vein Thrombosis (DVT)

- Caused by Sclerotherapy.
- Non-compressible Vein and Usually Patent.
- Thrombus usually absent but may be present.
- Resolves quickly.
STS Foam Sclerotherapy

- Total number of patients 267
- Total legs treated 386, CEAP III-VI.
- Pre-intervention duplex, marking, and identification of perforators
- Compression Stockings – 2 weeks
- LMWH for high risk patients.
- Post treatment Scan within 1 week, 2 weeks, 6 weeks, 12 weeks.
- DVT 2 (0.5%) – extending to popliteal vein
- DVS 90 (23.3%)
Treatment and Outcome of STS Foam Sclerotherapy

Treatment of DVS cases involved below knee veins.

- Compression Stockings 6 weeks
- Aspirin 100mg – 12 weeks

Outcome
- No lesions progressed.
- Unchanged 13/44: 30%
- Completely Resolved 20/44: 45%
- Smaller, 11/44: 25%
  - 2cm - 13 cm,
  - 33% - 93%.

Conclusion
- Deep Vein Sclerosis (DVS) occurs in almost 25% of patients having ultrasound guided foam sclerotherapy.
- Lesions are of short length.
- The course of these lesions appears fairly benign, and are adequately treated with stockings and aspirin.
- The majority of DVS (70%) resolves or decreases in length within 6-12 weeks, and no lesions progressed.

Thank you