Venous Reflux Disease and Diagnosis

Robert Coronado, MD, FACC
My Background

- Internship, Sinai Hospital
- Residency, University of Arizona
- Nephrology Fellowship, University of Arizona
- Cardiology Fellowship, UC Davis
- Interventional Cardiology Fellowship, CIS
- Vascular Intervention Fellowship, CIS
My Background

• Director, Peripheral & Interventional Cardiology, DMC, Modesto, CA
• Past Director and Chief of Cardiology, SRMC
• Founder and President, NHVI
• Founder and President, Coronado Vein Center
• Vice President and Co-founder of The American Society of Cardiovascular Phlebology
Disorders of the Heart

- CAD
- Myocardial Disease
- Valvular Disease
- Conduction Abnormalities
- PAD
What we will not discuss:

- DVT prophylaxis or its treatment
- Pulmonary Embolus
- Hypercoagulable states
- Congenital Venous Malformations
- Anticoagulation
Chronic Venous Insufficiency and Varicose Veins
Manifestations of Venous Insufficiency

Varicose Veins
Swollen Legs
Skin Changes
Skin Ulcers

Photos courtesy of Rajabrata Sarkar, MD, PhD.
Venous Pump

- One Way Valves
- Muscle Contraction
- Inspiration
Pathophysiology of Venous Insufficiency

Healthy Vein Valves & Correct Blood Flow

Damaged Vein Valve & Incorrect Blood Flow
25 Million people suffer from venous reflux disease and varicose veins
Venous Reflux disease is 5x more prevalent than PAD, 2x more prevalent than CAD
Risk Factors of Venous Insufficiency

- Heredity
- Occupation
- Pregnancy
- Obesity

- Gender
- Age
- Prior Injury or Surgery
- Sedentary Lifestyle
Symptoms and Findings of Venous Insufficiency

- Edema
- Spider Veins
- Varicose Veins
- Skin Changes
- Ulcers
- Pain often described as an ache, fatigue, or heaviness
Symptoms and Findings of Venous Insufficiency (cont’d)

• Nocturnal Cramps
• Restless Leg Sx
• Beware of the Pt w/ “Neuropathy” w/ these Sx
  • No Diabetes or Other Risk Factors for Neuropathy
Physical Exam

• Edema
• Varicose Veins
• Spider Veins
• Skin Discoloration
• Ulcers
Diagnosis

- **Antegrade flow**: Blood flow toward the heart
- **Patency**: Vessel is clear of obstruction and flow is present
- **Compression**: Vein wall collapses when pressure applied over vein with transducer
- **Occlusion**: Complete closure of a vessel with no flow present
- **RETROGRADE FLOW**: Blood flow away from the heart
Distal Augmentation

Normal valve closure after augmentation

Abnormal valve closure after augmentation
• Detoxified by Liver
• Cleared or filtered by kidneys
• Oxygenated and CO\textsubscript{2} removed by lungs
• Not cleared of dying red/white blood cells by spleen
Treatment Options

• Conservative/Medical Treatment
• Definitive
• Adjunctive
Surgical Intervention

• Archaic
• Barbaric
• Obsolete
Endovascular Techniques

- Requires extensive knowledge of anatomy and physiology as well as venous pathology
- Office Based
- Local Anesthetic
- Chemical or heat ablation of culprit vessel
- NO Down Time
- Covered by most insurance plans
Endovascular Techniques

• Thermo Ablation:
  • Radiofrequency
  • Laser
Radiofrequency Ablation

Disposable catheter inserted into vein

Vein heats and collapses

Catheter withdrawn, closing vein
Adjunctive Therapies

• Microphlebectomy
• Sclerotherapy
• Clinical and cosmetic applications
Thank you

Robert Coronado, MD, FACC
Coronado Vein Center, Redding CA