

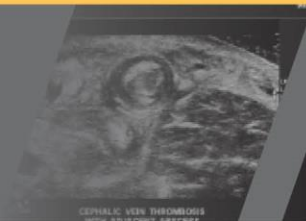
2024 MID-ATLANTIC CONFERENCE
12th ANNUAL CURRENT CONCEPTS IN
VASCULAR THERAPIES

2024



Hilton Virginia Beach Oceanfront
Virginia Beach, Virginia

APRIL 18-20



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Workup and Treatment
Plan for Edema:
Not Everything is
Venous Disease

Disclosures

- none

Lower Extremity Edema Causes

- Localized Etiology
 - Venous
 - Obstructive – DVT, May-Thurner, AAA
 - Insufficiency, Post-Thrombotic Syndrome
 - **Lymphedema**
 - Trauma
 - Infection
 - Lipedema

Lower Extremity Edema Causes

- Systemic Etiology
 - Hepatic Insufficiency
 - Cardiac Dysfunction
 - Hypoalbuminemia/Anemia
 - Renal Insufficiency
 - Medications
 - **Amlodipine** and other Ca⁺⁺ blockers

Workup

- Labs
 - CMP, Transaminases, CBC, pro-BNP, +/- echo, d-dimer
 - Ultrasound
 - r/o DVT duplex if acute
 - Venous insufficiency duplex if episodic or chronic

Workup

- Lymphoscintigraphy
 - Inject radio-labelled sulfur colloid into 1st and 2nd web spaces
 - Radionuclide scanning to observe tracer egress



Initial Management

- Compression and elevation
 - Very little risk
 - Favor thigh high over knee high
 - Whatever the patient is willing and able to wear
 - If abnormal pulse exam, get ABI before putting in compression >20 mmHg
 - refer to vascular surgery if ABI abnormal

Initial Management

- Restore skin integrity
 - If open wounds, treat with unnaboot or similar
 - Typically change 1-3 times per week with home health
 - Or refer to wound care center
- Treat underlying infection
 - PO abx for cellulitis
 - Topical antifungals

Initial Management



Initial Management

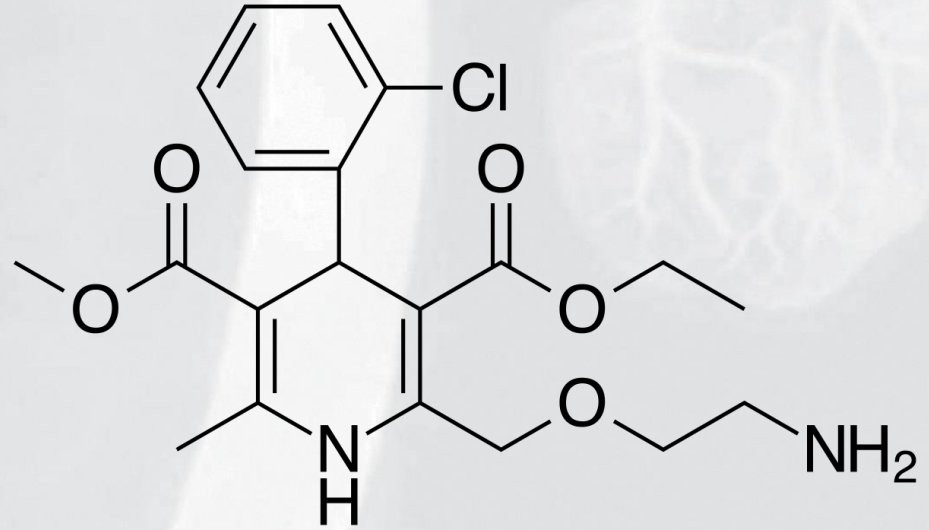


Management

- Treat underlying systemic etiology
 - Diuretics
 - Nutritional support
 - Improve cardiac function
 - Medications
 - BiV pacer
 - Correct valve dysfunction
 - Improve coronary circulation

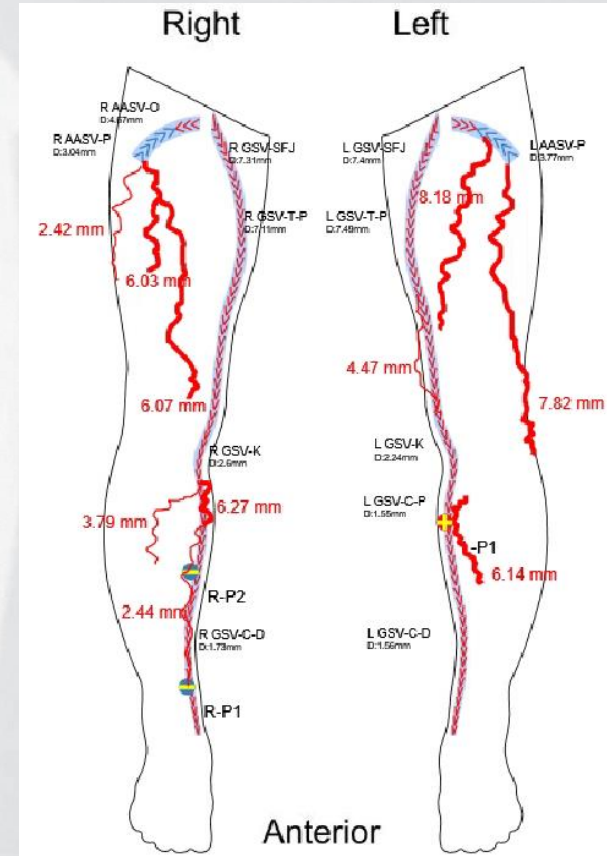
Management

- Treat underlying systemic etiology
 - Get patients off Ca⁺⁺ blockers if at all possible
 - Especially Amlodipine



Management

- Refer to Vascular Surgery if necessary
 - Order venous insufficiency duplex US of affected limb(s) prior to referral
 - Save patient a step towards treatment
 - Can be done same day as consultation in office



Lymphedema vs PVI

- Lymphedema
 - No cyanosis
 - No VVs/spider veins
 - Does not improve at night
 - Involvement of feet
 - + Stemmers sign
- PVI
 - Cyanosis
 - VVs/spider veins
 - Improves at night and with elevation
 - Sparing of feet

Lymphedema vs PVI



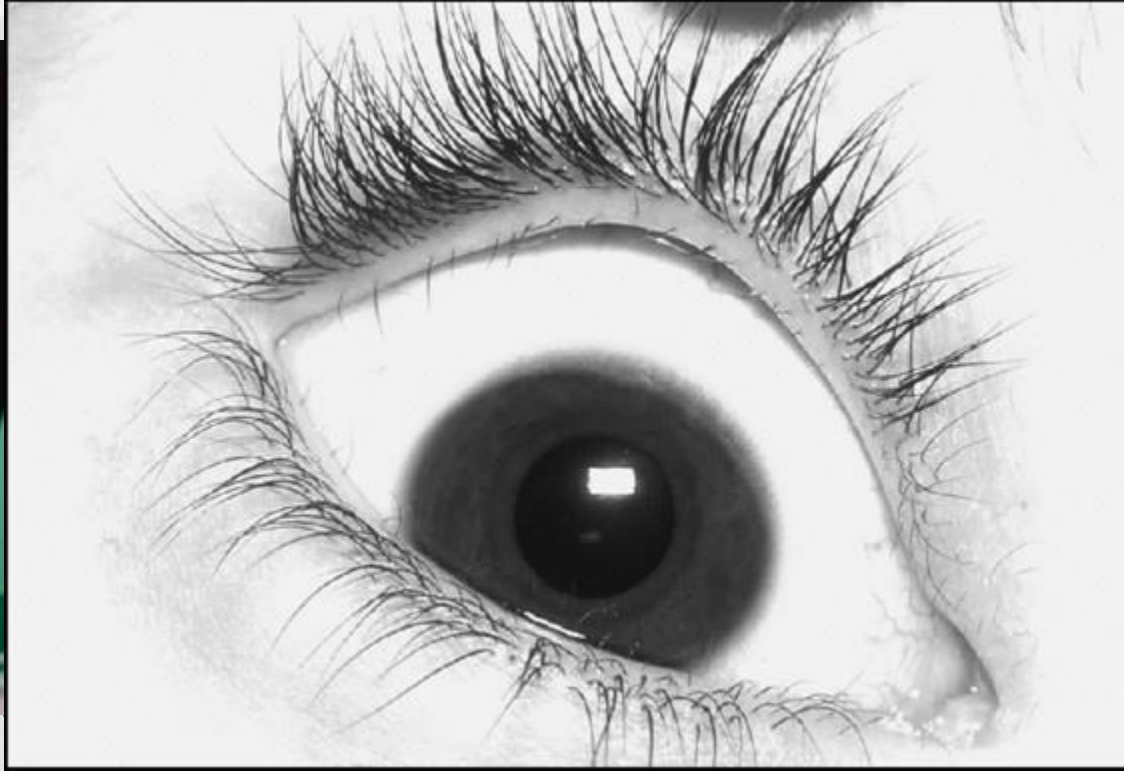
Lymphedema vs PVI



Lymphedema Classification

- Primary (Intrinsic) Lymphedema – 10%
 - Congenital - <1yr
 - Aplasia, typically bilateral
 - Praecox – 2-35yr
 - Most common, F>>M, typically unilateral
 - Tarda - >35yr
 - 10% *with* foot sparing edema

Lymphedema Classification



Lymphedema Classification

- Seco
- Ph
- Inf
- Ma
- Ra
- Su
-



Lymphedema Stages

- Latency (stage 0) – at risk w/ no clinical disease
- Stage 1 – pitting edema, improves with elevation
- Stage 2 – no pitting, fibrosis present, no improvement with elevation
- Stage 3 – non reversible lipodermatosclerosis, skin hypertrophy, dependent fat deposition

Lymphedema Stages

Stages of Lymphedema

Stage 1

Stage 2

Stage 3



Asymptomatic, in which the lymphatic system experiences abnormal flow but no fluid build-up

Swelling, due to an accumulation of lymph fluid that may subside when elevated

Permanent swelling that cannot be relieved through elevation, accompanied by changes in the skin (fibrosis)

Stages of Chronic Venous Disease (CVD)

C1
Spider Veins

C2
Varicose Veins

C3
Swelling

C4
Skin Changes

C5,C6
Venous Ulcer



thickening and scarring



Lymphedema Management

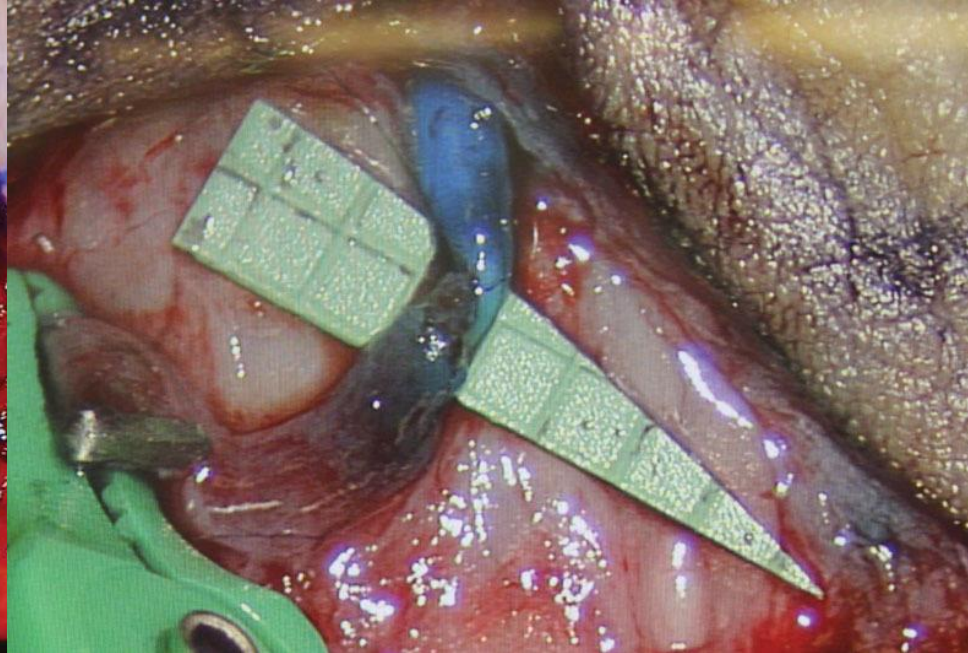
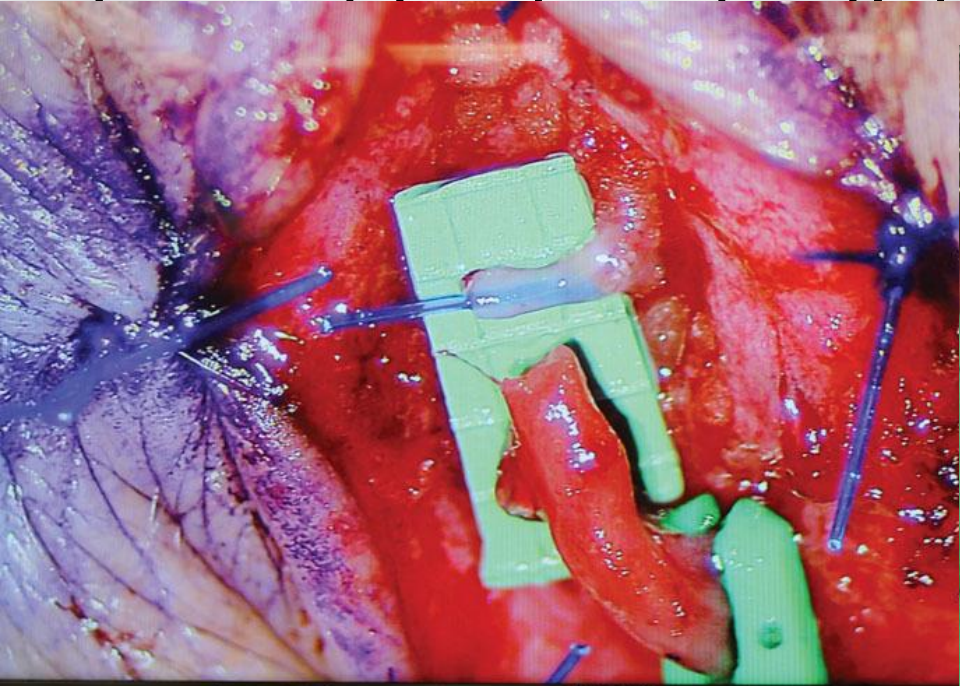
- Complex Decongestive Therapy (Lymphedema PT)
 - Acute Intensive Reduction Therapy
 - Sequential pneumatic compression boots
 - Low stretch support wraps
 - Manual lymphatic drainage
 - PT exercises aimed at improving venous egress
 - Optimal skin and wound care

Lymphedema Management

- Complex Decongestive Therapy (Lymphedema PT)
 - Maintenance Therapy
 - Compression daily, wrapping nightly
 - Self manual lymphatic drainage
 - Weight loss
 - Maintaining skin integrity

Lymphedema Management

Clinical Treatment of Lymphedema: Representative Cases



SAMSUNG

Lymphedema Management

- RCT, 46 pts, LVB or not at time of ALND
 - 4% vs 30%
 - Significant difference in arm volume out to 18 mos

Randomized Controlled Trial > [Ann Surg Oncol. 2011 Sep;18\(9\):2500-5.](#)

doi: [10.1245/s10434-011-1624-4](#). Epub 2011 Mar 3.

Surgical prevention of arm lymphedema after breast cancer treatment

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Questions