

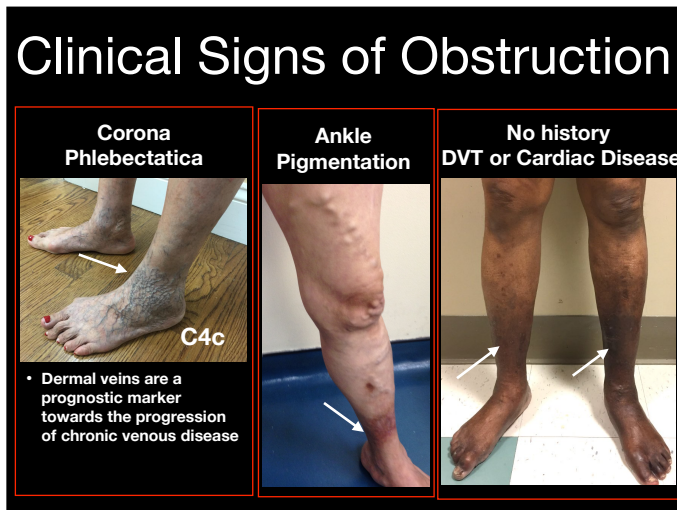
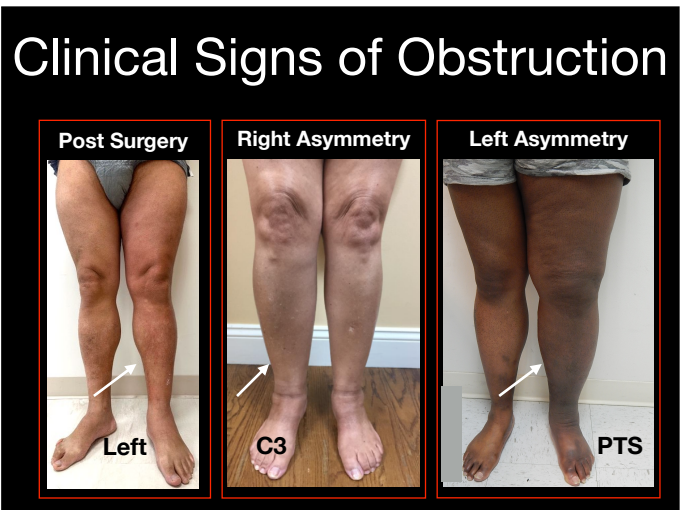
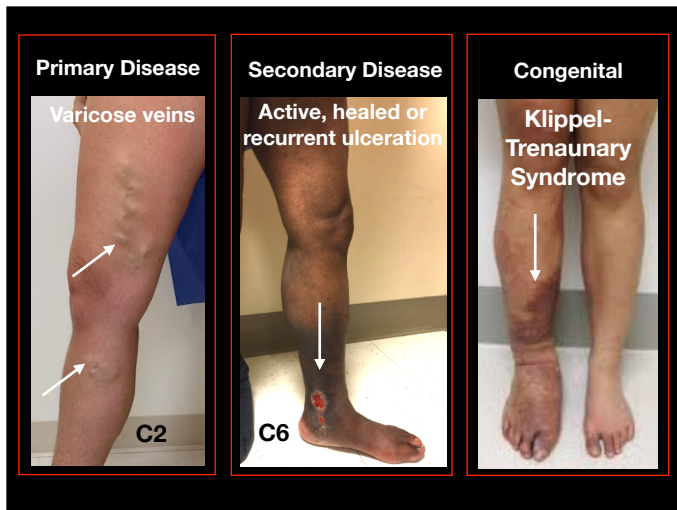
# The Iliocaval Evaluation in Chronic Venous Insufficiency

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## Disclosures

None



# Clinical Signs of Obstruction

Symptomatic pelvic patients with escape points



# Indications for Iliocaval Duplex Exam

- Inconsistent pain and disproportional swelling
- Signs and symptoms do not coincide with the lower extremity duplex findings
- Asymmetry of lower extremities
- CEAP 3-6 patients
- Chronic pelvic pain
- IVC filter placement
- High risk for unknown DVT
- Previous known DVT
- Venous claudication
- Failed ulcer healing after superficial vein treatment
- Recurrent ulceration

# Iliocaval Duplex Ultrasound

**Table 1.** Femoral-iliocaval tract duplex ultrasound (DU) protocol

Gray-scale imaging	Color flow and pulsed wave Doppler
CFV diameter proximal	CFV waveform with distal thigh augmentation
EIV diameters distal, mid, proximal	EIV waveforms distal, mid, proximal
IIV diameter origin	IIV waveform
CIV diameters distal and proximal	CIV waveform distal, proximal, and iliocaval confluence
IVC diameter distal	IVC waveform distal and proximal
IVC diameter proximal	



Venous duplex ultrasound protocol for ilio caval disease  
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Volume 6, Issue 6, November 2018, Pages 748-757  
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# Optimize Patient Prep & Positioning

- Morning schedule, 8am-12pm, NPO, hydrated with (Gas-X) 2 tabs the night before and 2 tabs the morning of the exam to minimize bowel gas
- Empty urinary bladder prior to start of exam
- Supine position with head elevation ~10-15°, utilizing the anterior approach
- L/R decubitus and standing positions as needed
- Under garments must be removed, gown and privacy drape sheet must be provided

# Iliocaval Duplex Exam

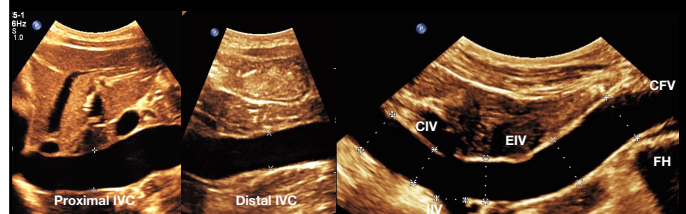
Exam begins at the right CFV followed by the left CFV

Right iliac system is examined, followed by the left iliac system and finishes with the IVC

Each step is completed and documented before moving to the next regardless of any negative or positive results

# Iliocaval Outflow Tract

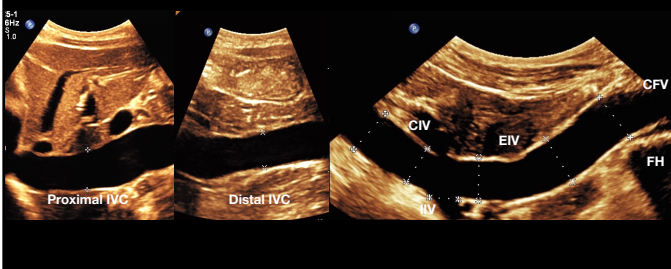
Utilizing the **orange chroma tint** enhances the visual perception of the image leveraging our ability discern higher resolution in the spectrum of colors as opposed to conventional shades of black and white





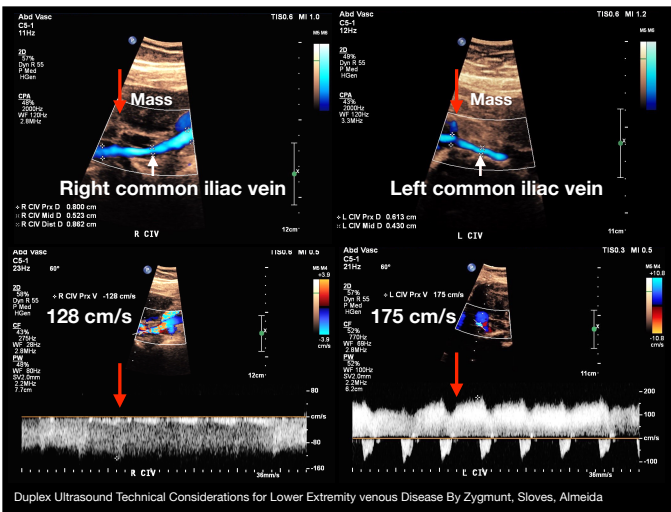
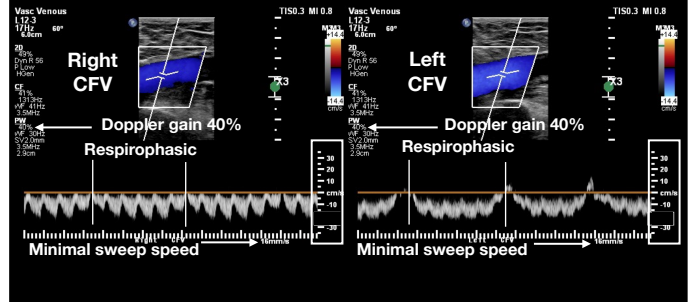
# Iliocaval Outflow Tract

Utilizing the **orange chroma tint** enhances the visual perception of the image leveraging our ability discern higher resolution in the spectrum of colors as opposed to conventional shades of black and white



# Asymmetry Bilateral Common Femoral Veins

62 YO female with bilateral edema and ankle pigmentation

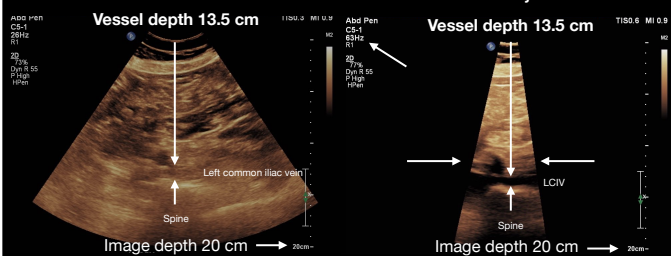


# Optimize for Technically Challenging Patients

BMI 46, LT PTS, ankle ulcer  
Suboptimal image quality

Iliocaval confluence

- Narrow sector width
- ↑Frame rate 63Hz
- TGC adjusted



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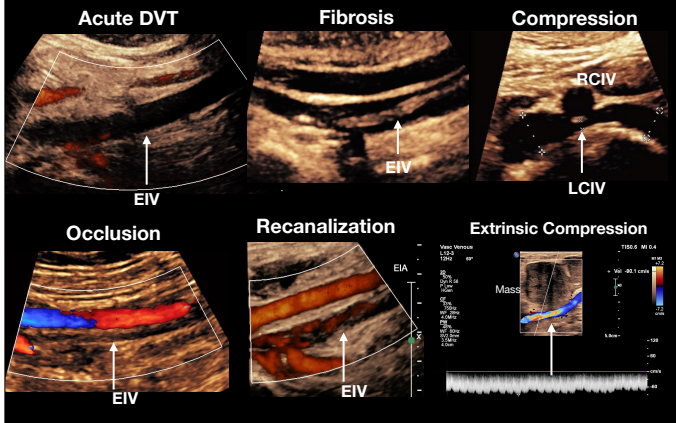
# Criteria for the Iliac Veins

- 50% reduction in vein diameter, CIV < 8 mm, EIV < 7 mm, CFV < 6 mm (measured with calipers)
- Peak vein velocity ratio > 2.5
- Define characteristics of obstruction: Acute, fibrosis, vein compression, wall thickening, occlusion and recanalization
- Collateral veins
- Post stenotic dilation
- Other causes of cavo-Iliac compression include: lymphadenopathy, tumors, cysts, hematoma, aneurysm, distended bladder or penile prostheses

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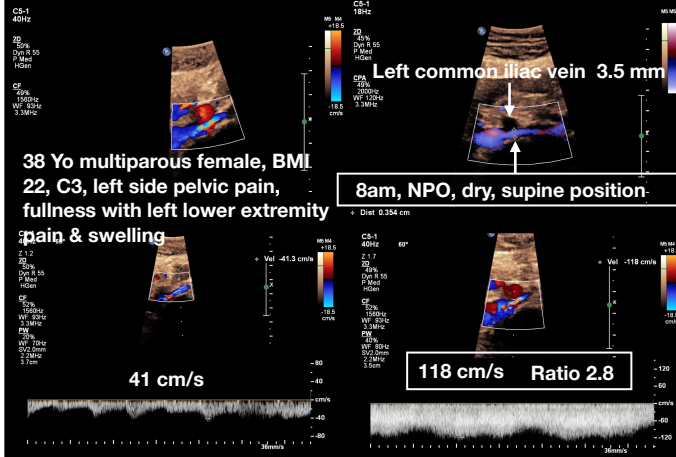
Criteria for defining significant central vein stenosis with duplex ultrasound

# Outflow Tract Obstruction

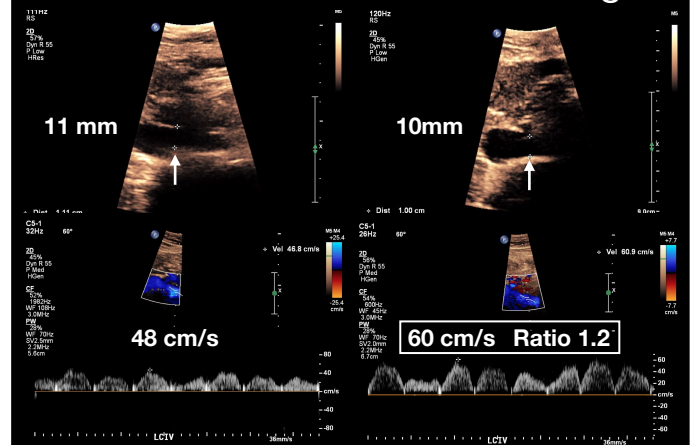


# Why and What to Look For

## NIVL: Fixed Lesion or Not?



## Lateral Decubitus & Standing

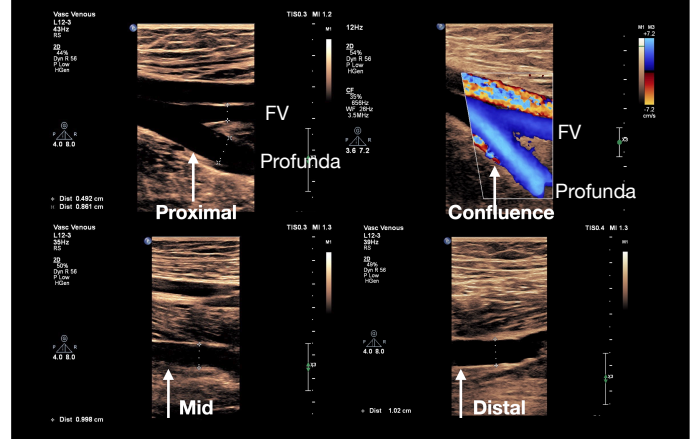


# Post Thrombotic Case

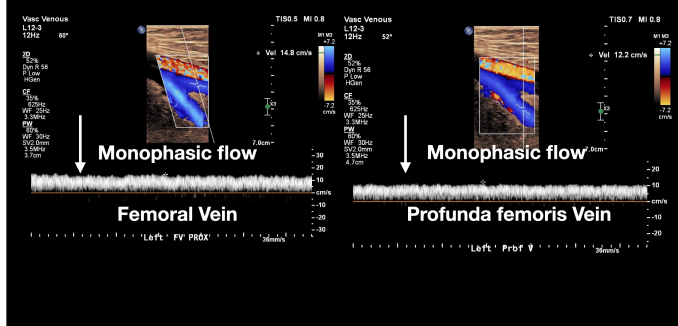
- 51 YO male with a PMHx intravenous drug use, family HX of DVT and factor V Leiden
- 2011 sustains a fall involving his left lower extremity due to motor cycle accident, develops DVT and PTS
- Chief complaint: left thigh, calf tightness, and pain while walking 1-2 blocks, hyperpigmentation, leg, ankle, foot, ABI 1.1
- Compliant with anticoagulation & 30-40 mm Hg stockings with inadequate relief of symptoms



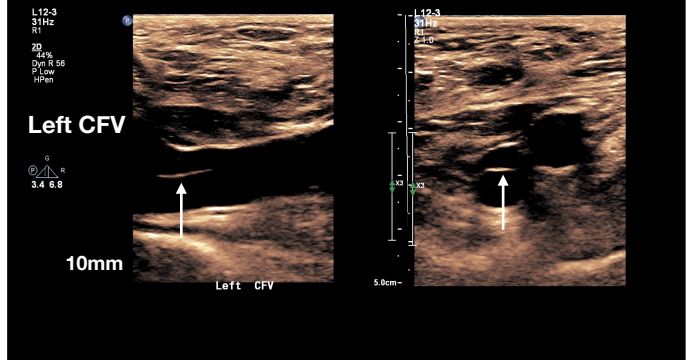
# Left Profunda Femoris Vein



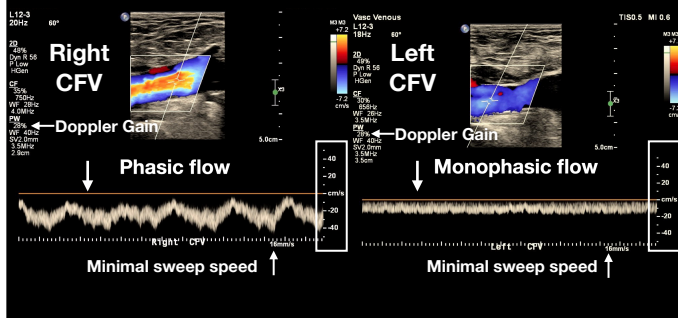
# Left Femoral and Profunda Femoris Veins



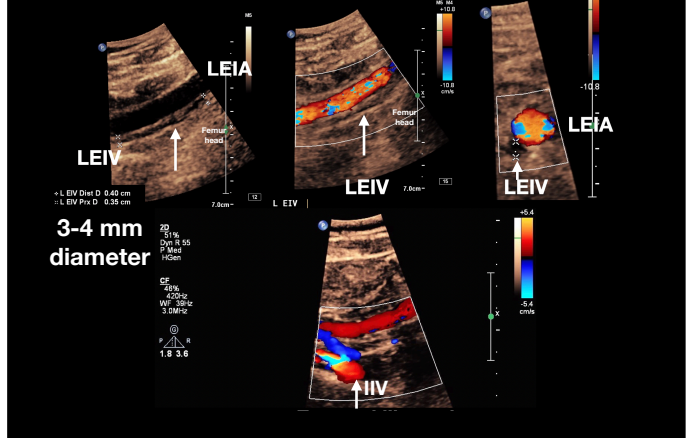
# Left Common Femoral Vein



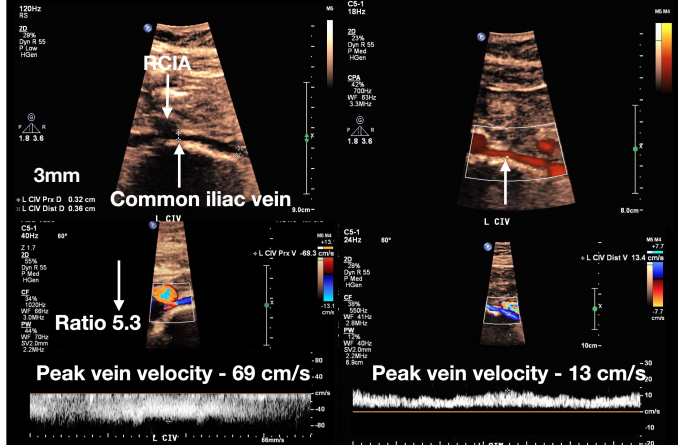
# Asymmetry Bilateral Common Femoral Veins



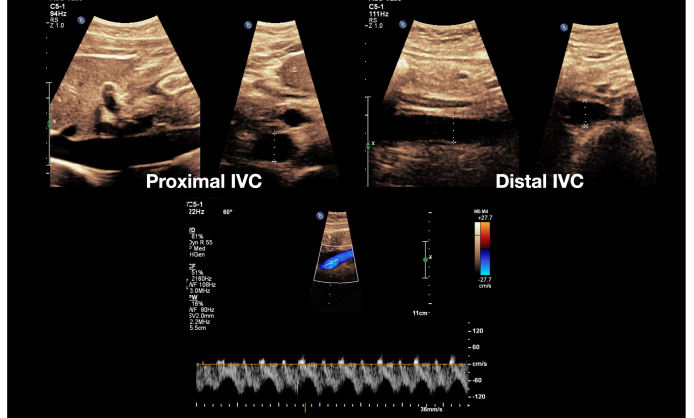
# Left External Iliac Vein



# Left Common Iliac Vein

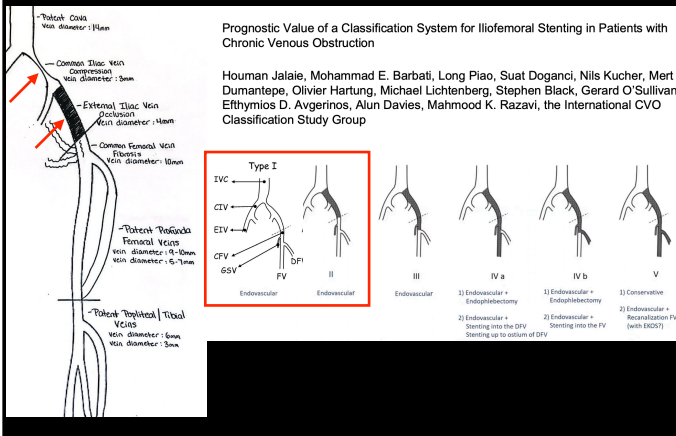


# Inferior Vena Cava

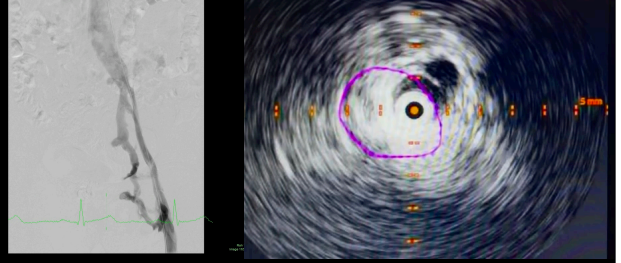




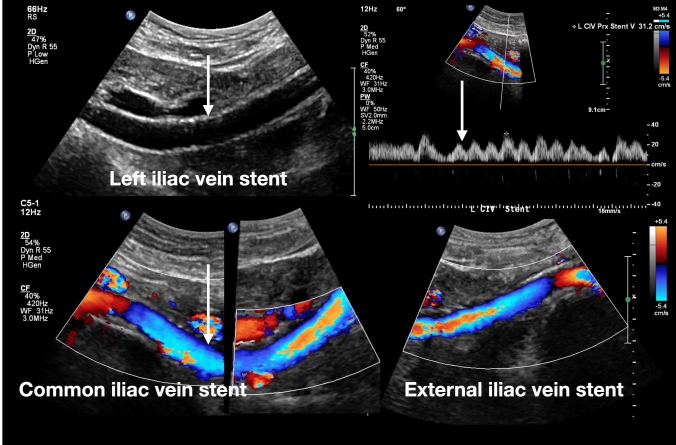
# Deep Vein Map & Inflow



# Venogram & IVUS



# Venous Stent



# Conclusion

## Iliocaval Duplex Ultrasound

- Provides real-time imaging of patency and flow
- Identifies the location and severity of obstructions
- Supports pre-procedural planning on outflow characteristics
- Facilitates the use of IVUS without requiring additional imaging modalities

Thank You