

### Renal Artery Duplex Imaging Veith-2024

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### The Renal Duplex Examination

- Could Be Extremely difficult
- Skinny is not always easy!
- Experience plays key role
- Equipment
- Breathing, CHF, Gas
- Multangular Interrogation Approach

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### Renal Duplex Prep

- Mild laxative (Milk of Magnesia)
- Nothing but fluids, Jello after 9 pm
- Jello is ok for breakfast
- Please take meds!
- No smoking
- CRF, diabetic patients are encouraged to bring a snack for post duplex
- Research prior exams!!!

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### Critical Anatomy

- Aorta
- Common Iliac
- IVC
- Celiac
- SMA
- Right Renal Artery
- Left Renal Artery
- Bilateral Renal Veins
- Spleen

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### Normal Blueprints

*\* Blueprints are essential in complex matters!*

**Spectral Blueprints**

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### Direct Method

Renal / Aortic ratio > 3.5  
 Peak Systolic velocity of RA  
 Peak Systolic velocity of AO

**PSV >225-240**

Post stenotic turbulence  
 Aortic velocities < 40-50cm/s and > 120cm/s  
 can skew RAR results

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### Renal Artery Anatomy

- Located 2 cm below the Xiphoid process
- The RRA has a longer course to travel than the left (LRV length > RRV)
- IVC serves as the mid aspect position on the RRA (RAD and SUP)
- Arise from the lateral or posterolateral wall of the abdominal aorta
- Right think 9-10 o'clock
- Left think 2-3 o'clock

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### Utilization of Probes

- Standard Convex, Curved, Micro curved
- Vector
- Do not be afraid to use non standard probes for insomation!
- Utilize multiple angles of interrogation
- Patients deserve excellence in image quality and so does your reading Physician

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FMD ( FIBROMUSCULAR DYSPLASIA )      ATHEROSCLEROTIC (OSTIAL LESION)

### Location-Location-Location

*Drawn By Laura Tamm P.A.C., RVT*

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### Ostial Stenosis

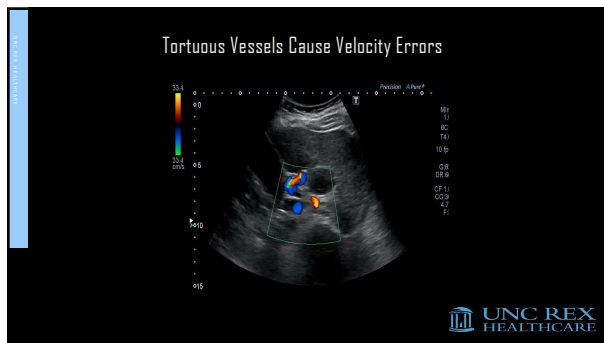
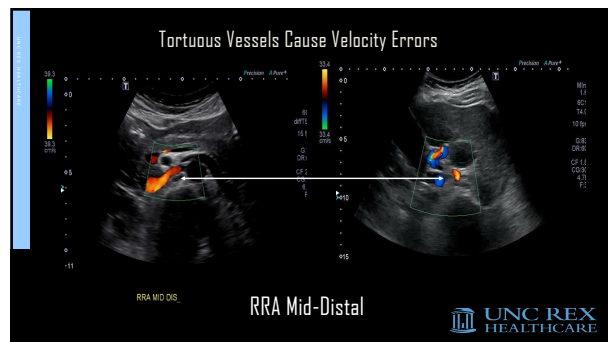
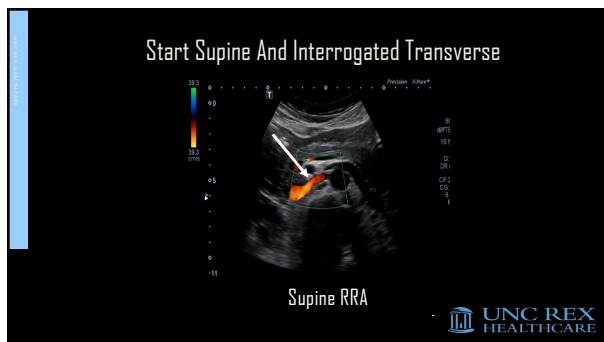
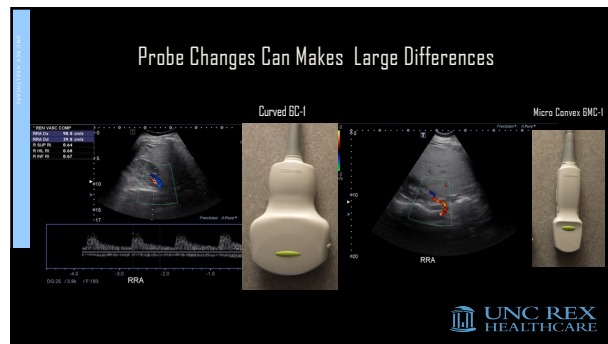
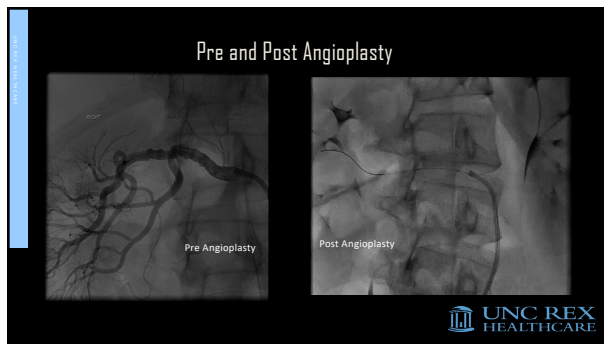
REMEMBER PROXIMAL!!!

Vel A 413.6 cm/s  
 Vel B 85.4 cm/s

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### FMD Velocities Obtained

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### Color Frequency Change

Note lack of visualized color flow

Lower Color Frequency!!

RRA Mid - Dis

RRA Mid - Dis

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### Always Use Multi-Angular Approaches

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### Always Be Aware Of Incidentals

AORTA DIST

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### Technical Issues and Having Two Transducers Ready....

- 42 year old female
- Hypertension
- Anxiety
- Hyperlipidemia
- No impressive family history

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### What is your diagnosis?

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### Same Patient

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### Pearls and Pitfalls Summary

- Prep - mild laxative day before, nothing but Jello and coffee in the am
- Pre-test probability - expect the expected!
- Image optimization on first image out of the shoot
- Transducers - use standard and non standard
- Utilize color for intraparenchymal flow before Doppler
- Stenosis - use two approaches and two probes
- Two Machines
- Position - supine, oblique lateral, and prone
- Accessories, video, angiogram
- Complete puzzle - direct and indirect
- Atherosclerotic disease location - FMD
- Incidental findings...



### Thank You!



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