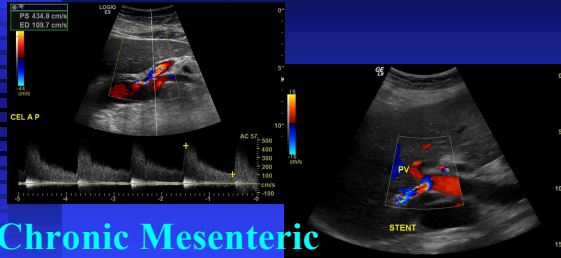


Mesenteric Hemodynamics



Chronic Mesenteric Ischemia

Phillip J Bendick, PhD
Vascular Sonography Education

THE MESENTERIC STUDY

Acute Mesenteric Ischemia Mortality Data

- Past 35 years 69%
- Past 10 years 66%
- Series of >40 patients 70%

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Acute Mesenteric Ischemia Mortality Data

- Most recent data (2009) 40 – 50%
- Early diagnosis and treatment !!

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Acute Mesenteric Ischemia:

a surgical emergency, not an urgent ultrasound study!!



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Chronic Mesenteric Ischemia

F:M 3:1

Nausea

Post-prandial pain



“Fear of food” syndrome

Weight loss

Diarrhea

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Chronic Mesenteric Ischemia

- Sx onset to Dx: 12 - 18 mos.

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Chronic Mesenteric Ischemia



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Chronic Mesenteric Ischemia

- Age 65 (45 – 85 yrs)
- Typically 2-vessel involvement
- Sx:
 - Post-prandial pain 90 - 100%
 - Weight loss (20-30 lb.) 70 - 80%
 - “Fear of food” ~ 50%

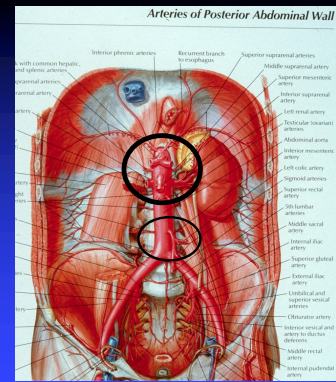
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Chronic Mesenteric Ischemia

Technically adequate duplex ultrasound examinations in more than 95% of patients

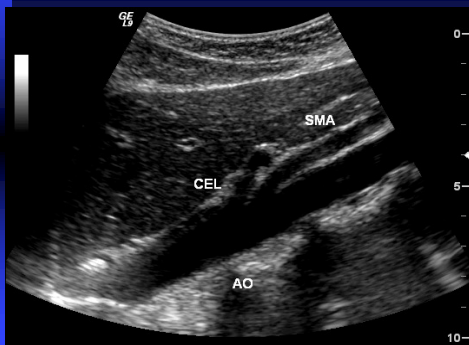


ANATOMY OF THE MESENTERIC STUDY

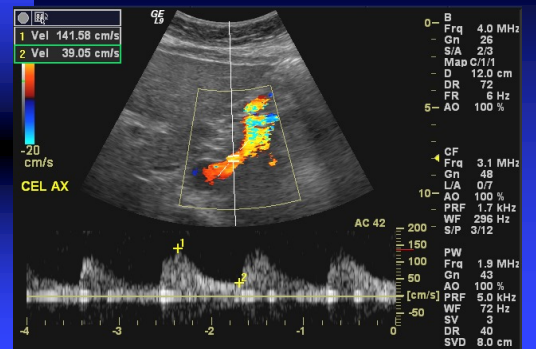


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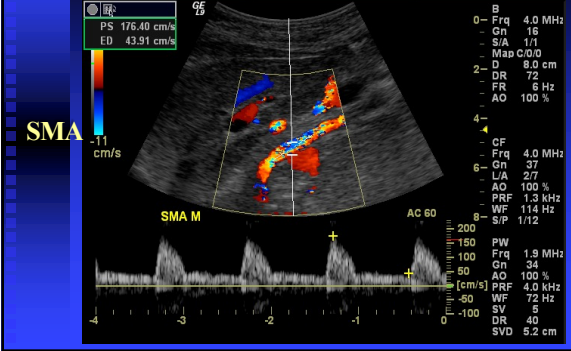
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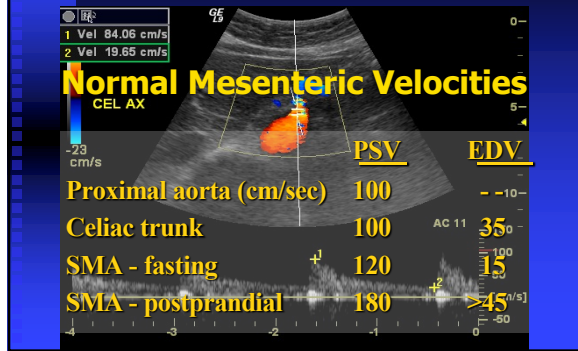
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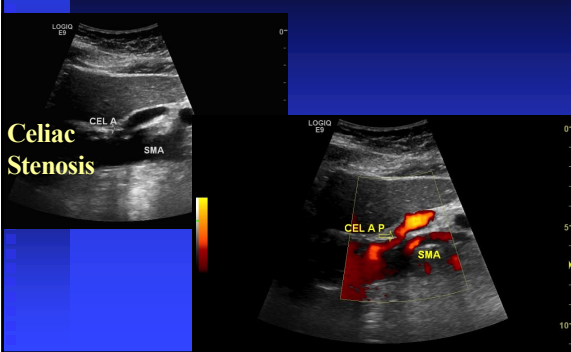
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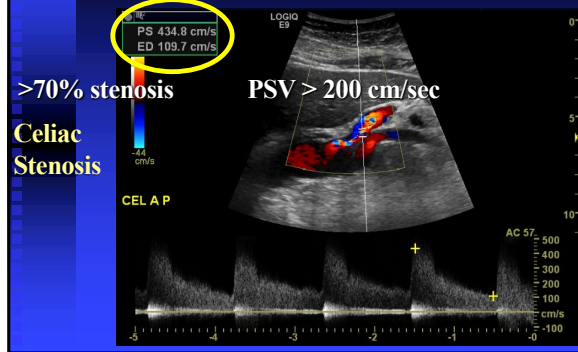
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THE MESENTERIC STUDY



THE MESENTERIC STUDY

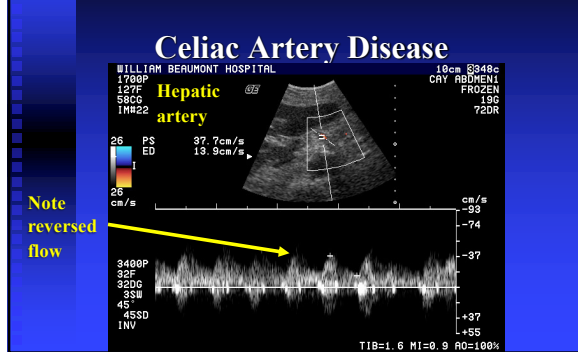


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Celiac Artery Disease

- >70% stenosis PSV > 200 cm/sec
- Total / near total occlusion Absent flow
- Reversed common hepatic artery flow

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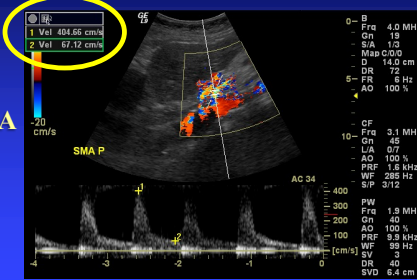


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>70% stenosis PSV > 275 cm/sec

Stenosis

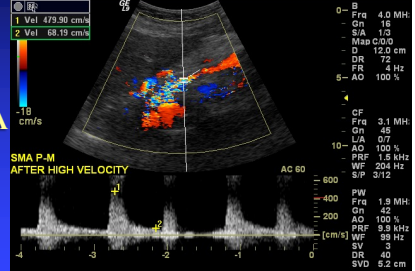
Proximal SMA



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Post-Stenotic Turbulence,

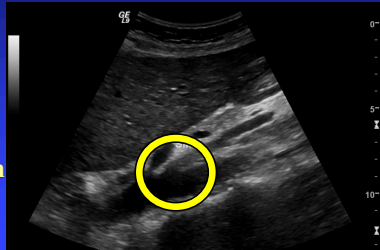
Proximal SMA



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Proximal SMA

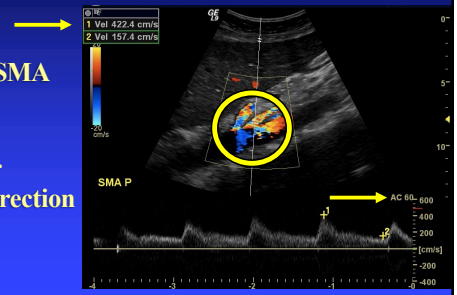
Beware of improper angle correction



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Proximal SMA

Beware of improper angle correction



THE MESENTERIC STUDY

Proximal SMA

Beware of improper angle correction



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Miscellaneous studies - MALS

- Median arcuate ligament syndrome (Dunbar Syndrome)
- First reported case: Harjola 1963
- Described as syndrome: Dunbar 1965

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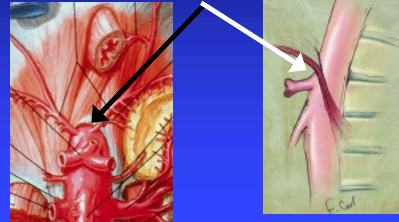
Miscellaneous studies - MALS

- Most common cause of single vessel stenosis
- Mean age ~30 yr (± 10)
- 80-90% female (especially younger population)

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Miscellaneous studies - MALS

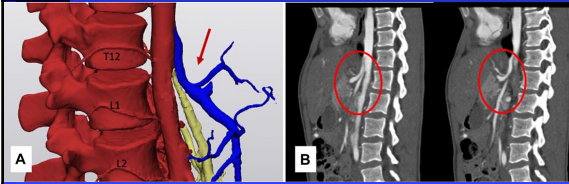
- Median arcuate ligament syndrome



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Miscellaneous studies - MALS

- Median arcuate ligament syndrome (severe cases may involve SMA, but rare)



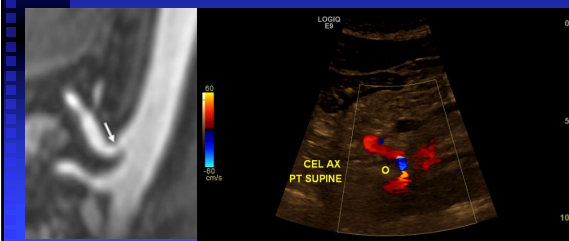
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Miscellaneous studies - MALS

- Dx: Ultrasound first, then angiography
- Treatment: Surgery – Open or laparoscopic
- Immediate sx relief >85%
- Late recurrence ~5%

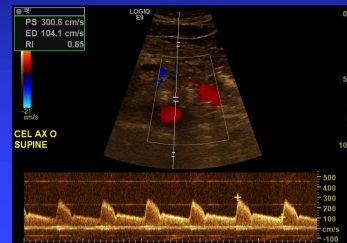
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Miscellaneous studies - MALS



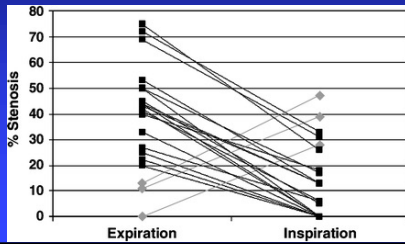
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Miscellaneous studies - MALS



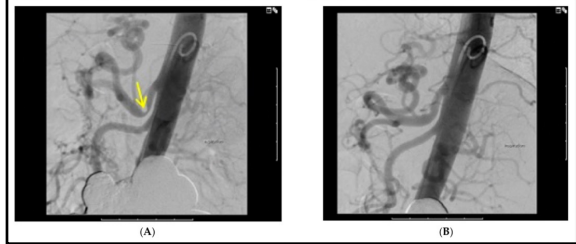
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Miscellaneous studies – MALS
Stenosis is respiratory dependent



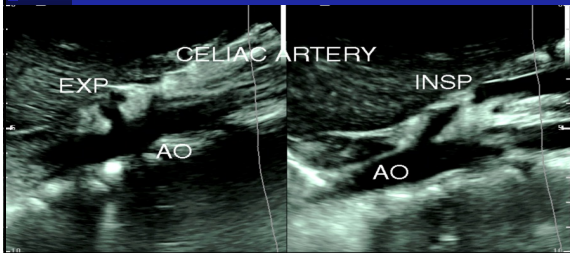
THE MESENTERIC STUDY

Miscellaneous studies – MALS
Stenosis is respiratory dependent



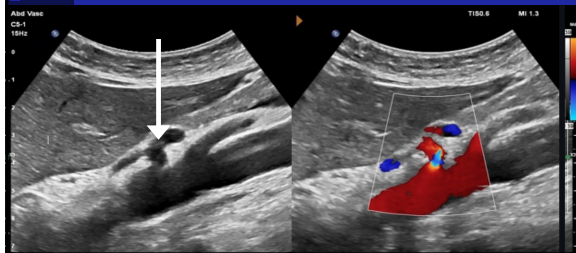
THE MESENTERIC STUDY

Miscellaneous studies – MALS
Stenosis is respiratory dependent



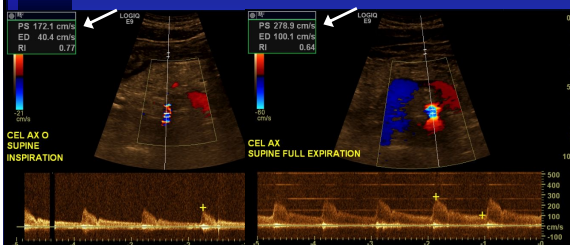
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Miscellaneous studies – MALS
Imaging Dx: Deflection angle $>50^\circ$



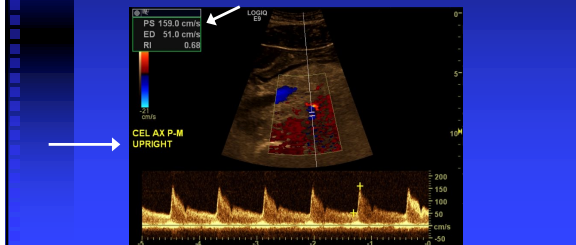
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Miscellaneous studies – MALS
Doppler Dx: Variability with respiration



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Miscellaneous studies – MALS
Doppler Dx: Variability with position



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Thank you
for your attention !!



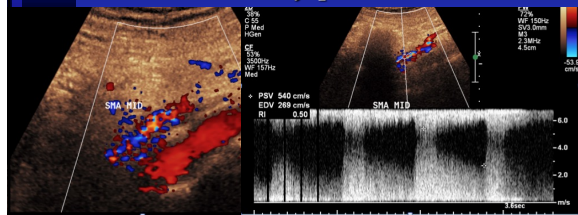
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Miscellaneous studies - Arterial

- Fibromuscular Dysplasia



Images Courtesy of Heather Gornik, MD

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SMA Dissection

