

Internal Medicine Point-of-Care Ultrasound: LUQ/Kidney

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Disclosure

- I have no financial disclosure or conflicts of interest with the presented material in this presentation.

PEARLS



P - Parasternal

E - Epigastric

A - Anterior lung; apical (cardiac)

R - RUQ

L - LUQ

S - Suprapubic

Lecture Outline

- Discuss beginner and advanced goals with POCUS
- Probe Orientation
- Normal Ultrasound Anatomy
- Pathology and Applications for the internist

LUQ View

- Beginner

- Identification of the spleen, vertebral bodies, diaphragm, and left kidney.
- Ascites can be visualized as an anechoic region surrounding the spleen.
- Left pleural effusion can be visualized as an anechoic region cephalad to the diaphragm with a positive spine sign.

- Advanced

- Assess for splenomegaly with better sensitivity than traditional techniques by measuring the spleen along its long axis or by sliding the probe along the mid- or posterior axillary line to visualize position of the spleen tip.
- Evaluate for urinary obstruction and hydronephrosis.
- A fluid-filled stomach may be seen just anterior to the spleen and, in the presence of vomiting, suggests gastroparesis, small bowel or gastric outlet obstruction.

Probe Orientation in Left Upper Quadrant View

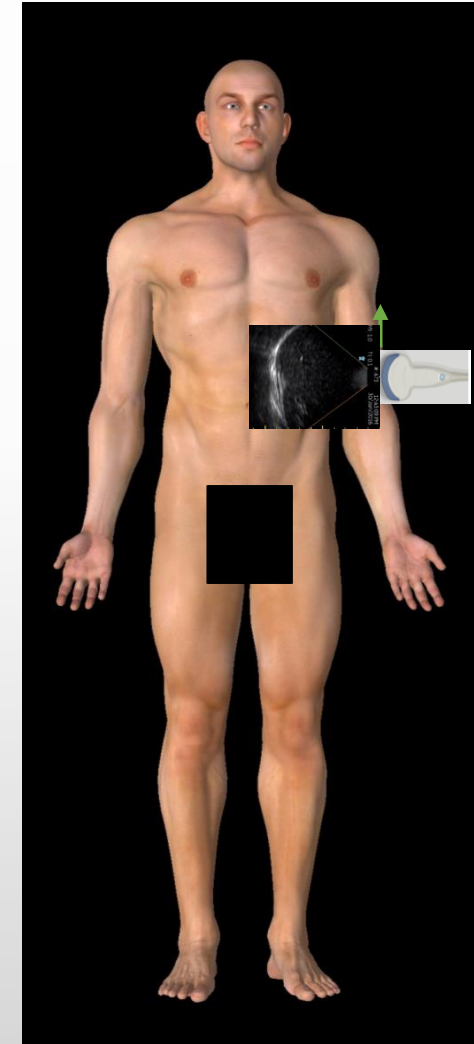
Probe: Curvilinear, Phased-Array

Preset: Abdomen

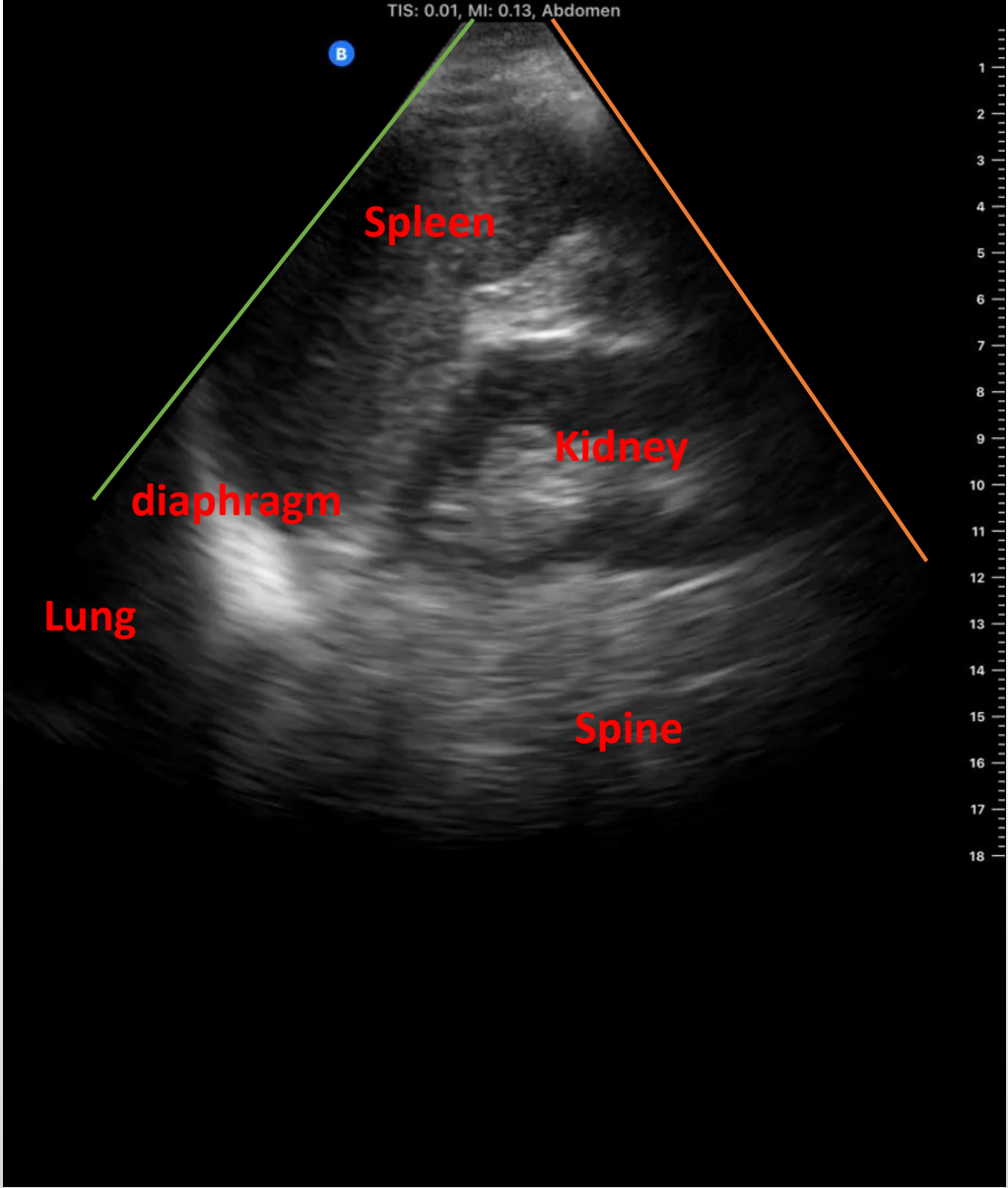
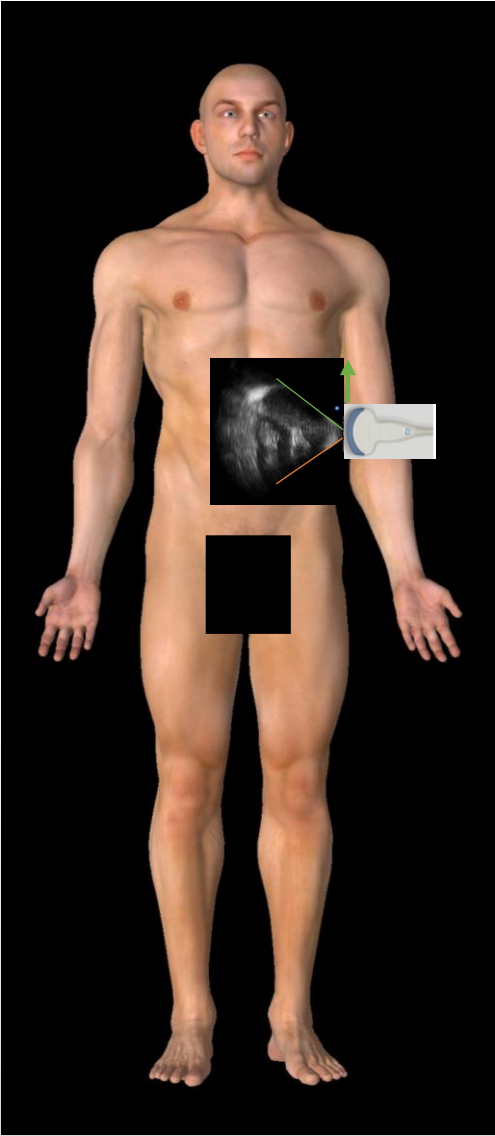
Probe marker: Cephalad for longitudinal view,
Anterior for transverse view (to better assess the
left kidney)

Probe location: Anchor your probe in the **posterior**
axillary line around the 8th – 10th intercostal space
("knuckles to bed").

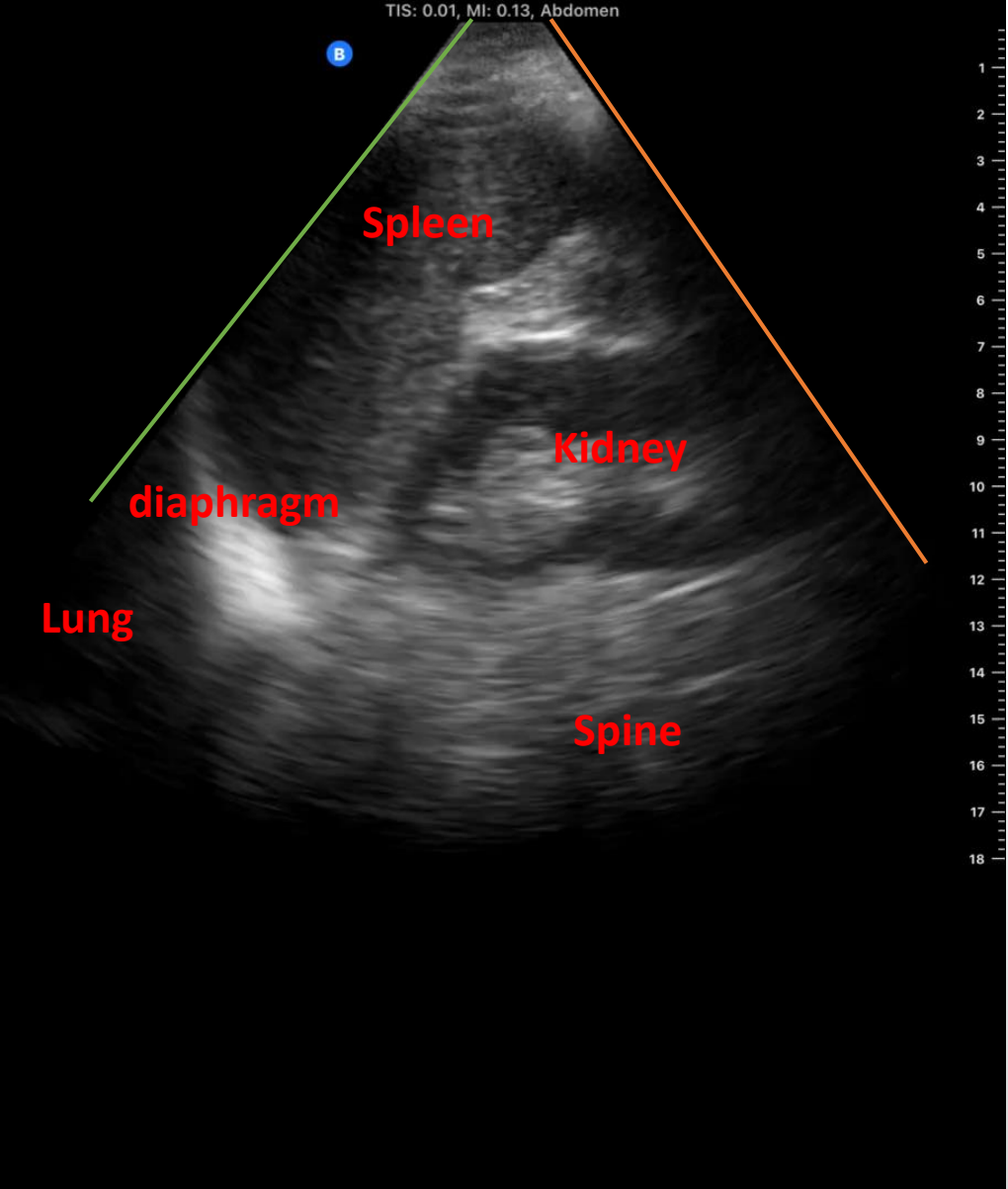
*The spleen and left kidney lie more posterior and
superior than the right side.



LUQ

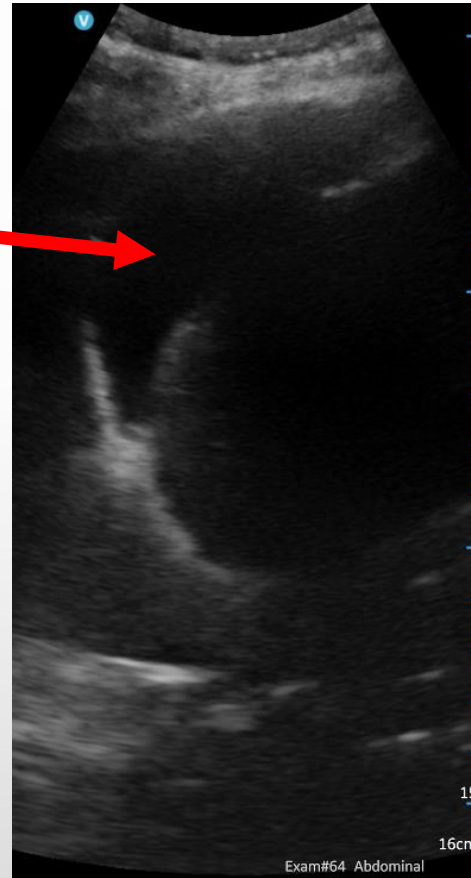


LUQ



Where does fluid accumulate on LUQ?

Splenophrenic
recess

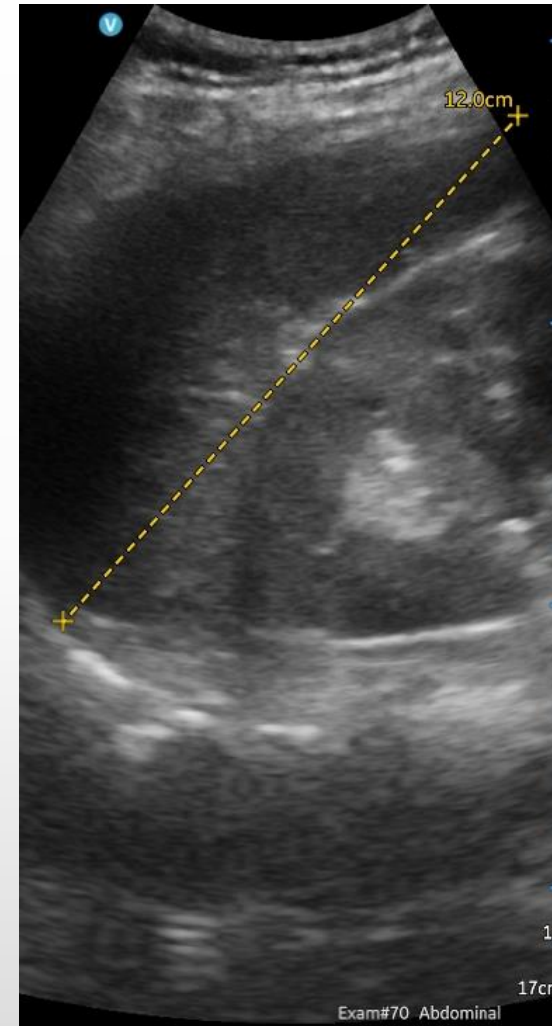


Spleen Measurement

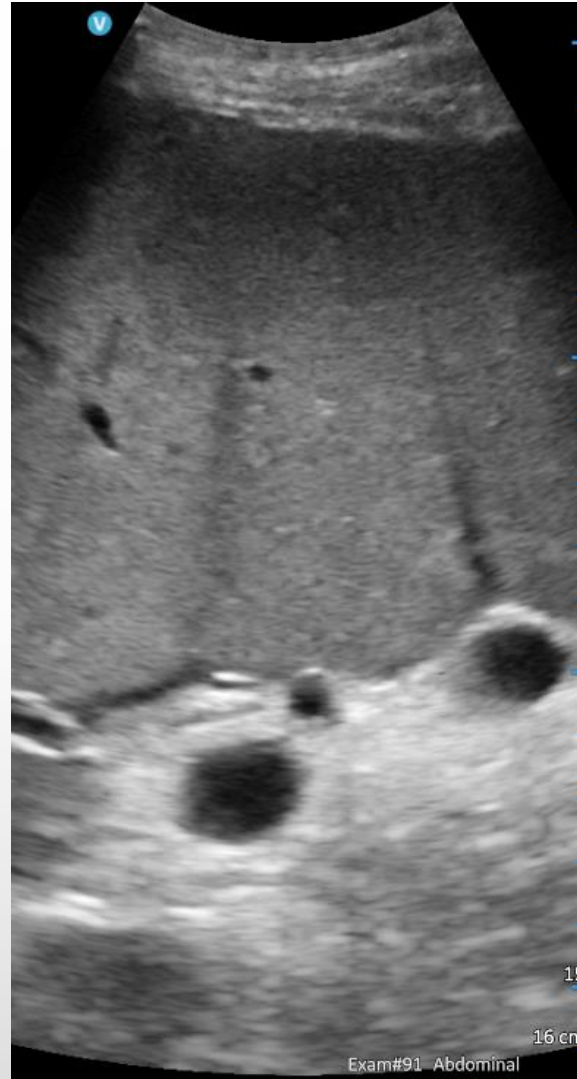
Measure the spleen in the craniocaudal dimension.

A healthy spleen has a homogeneous echogenicity, smooth capsular contours.

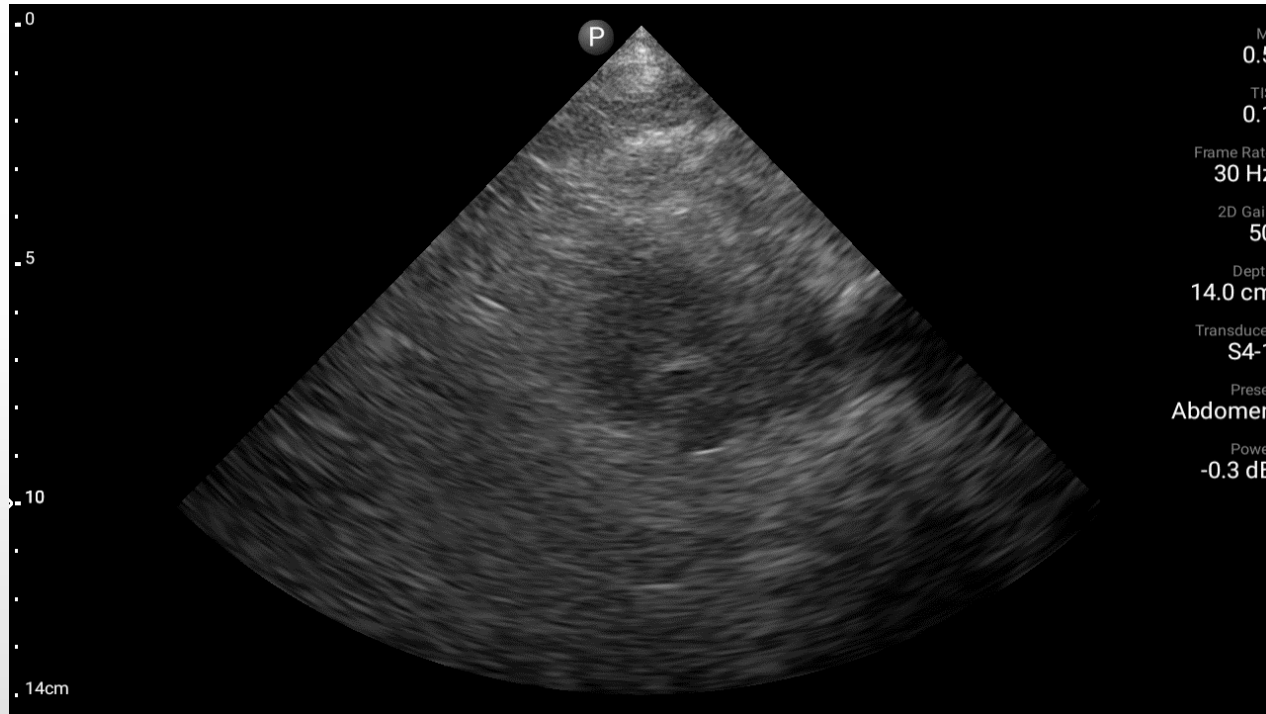
A normal spleen measurement is <12-14cm.



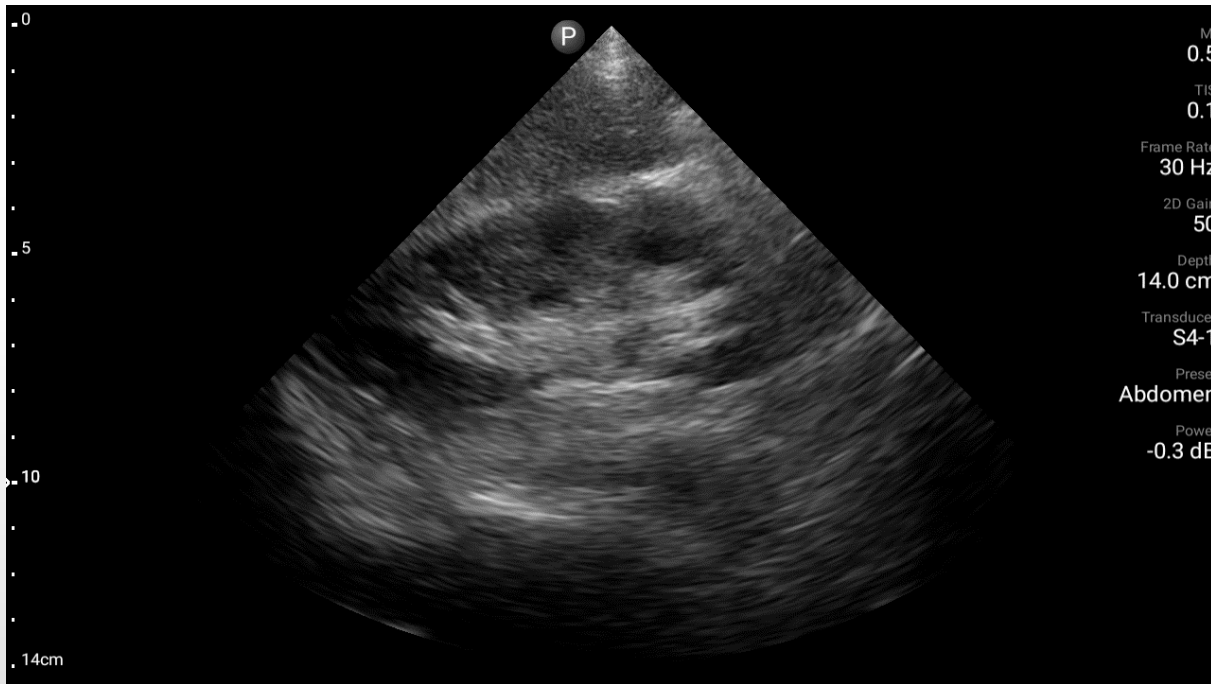
Splenomegaly with ascites



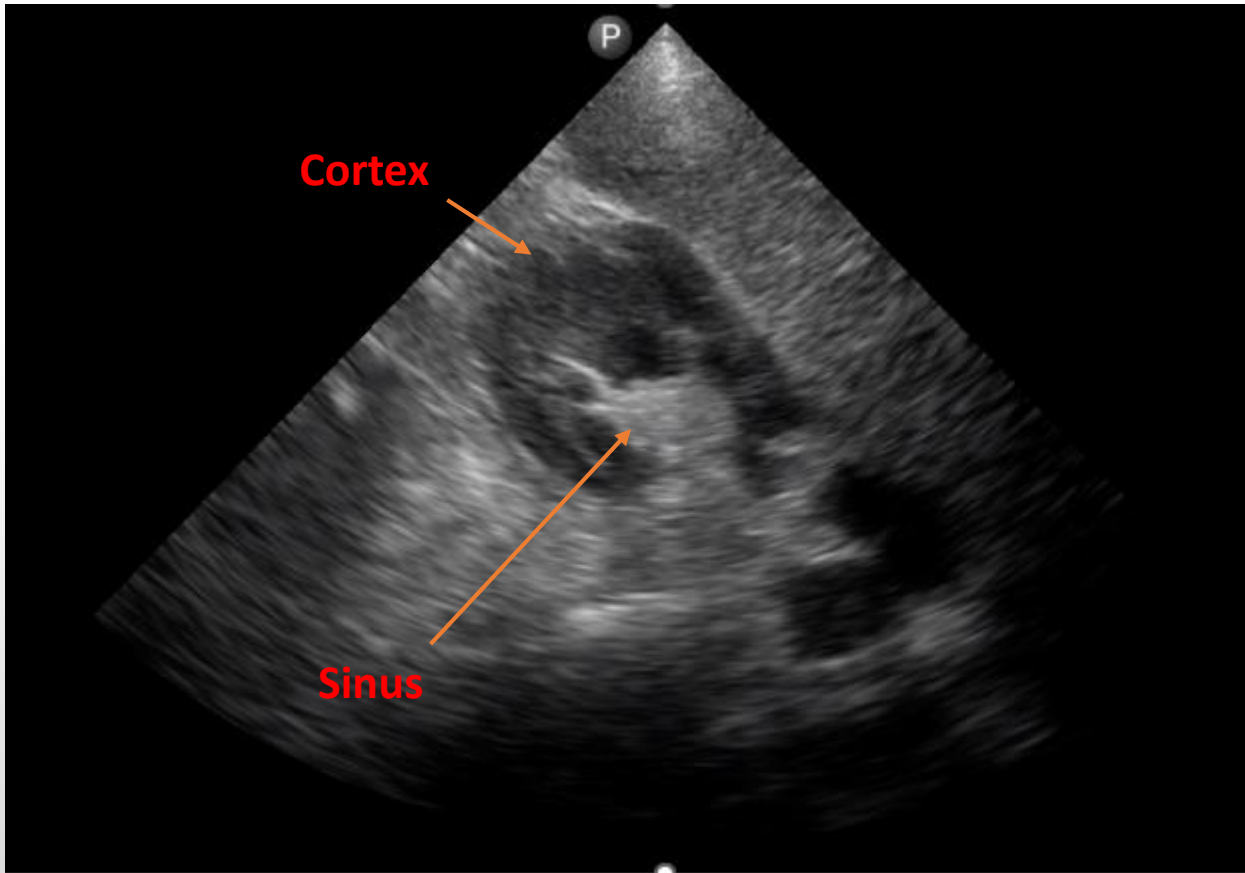
Kidneys (Transverse)



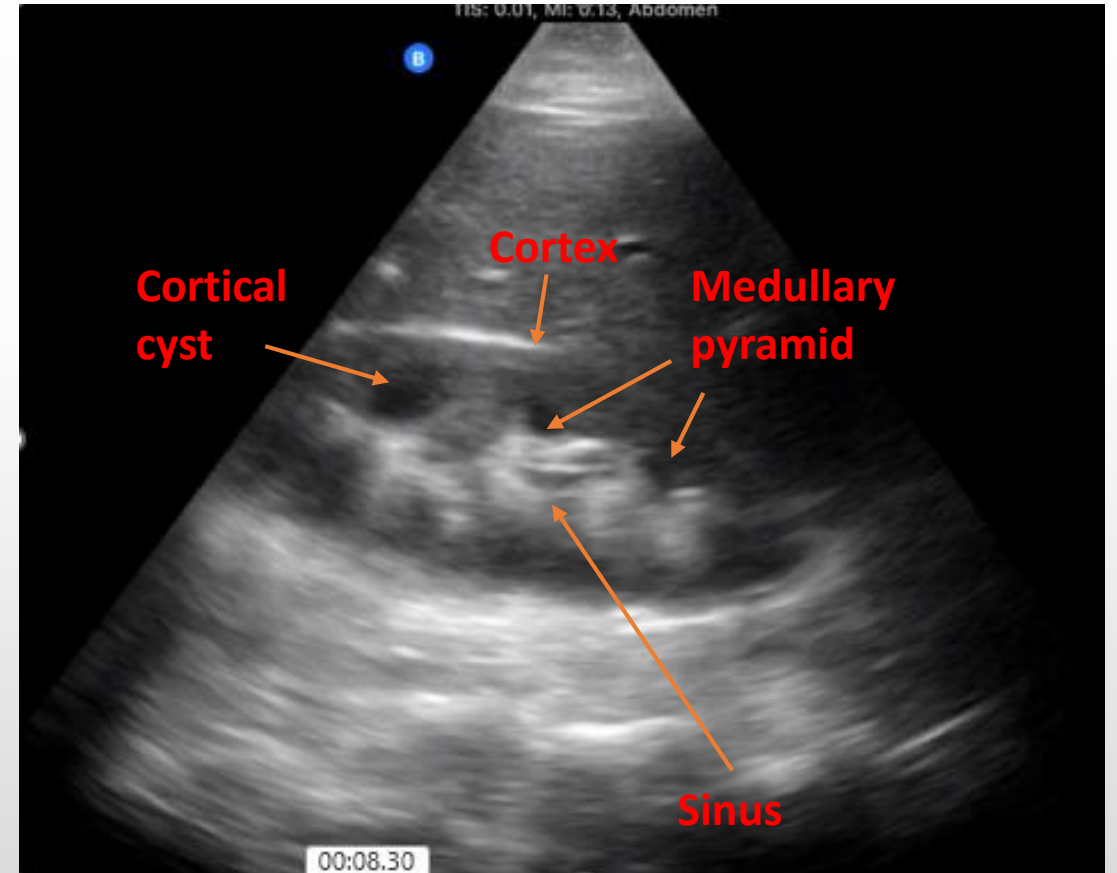
Kidneys (Longitudinal)



Kidney anatomy



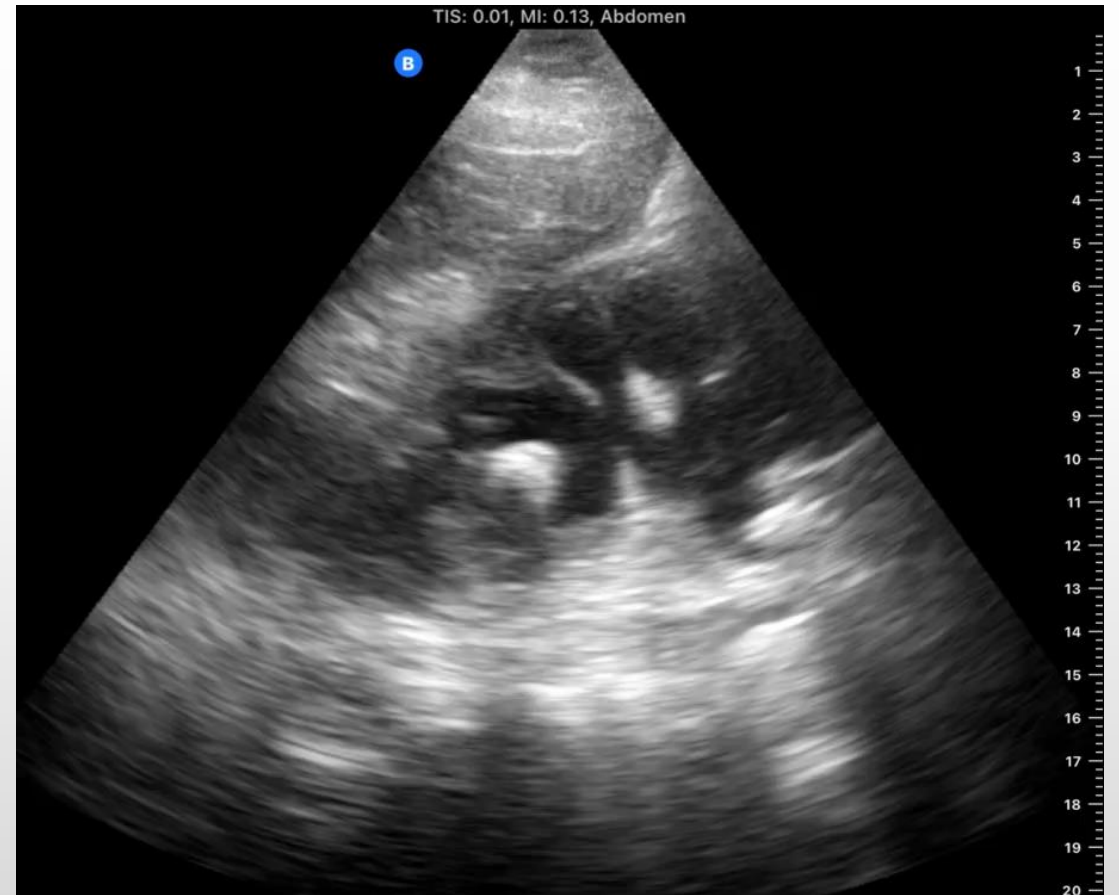
Transverse



Longitudinal

Hydronephrosis and kidney stones

Sometimes renal stones can be seen in the renal cortex, pelvis, or the ureteropelvic junction.

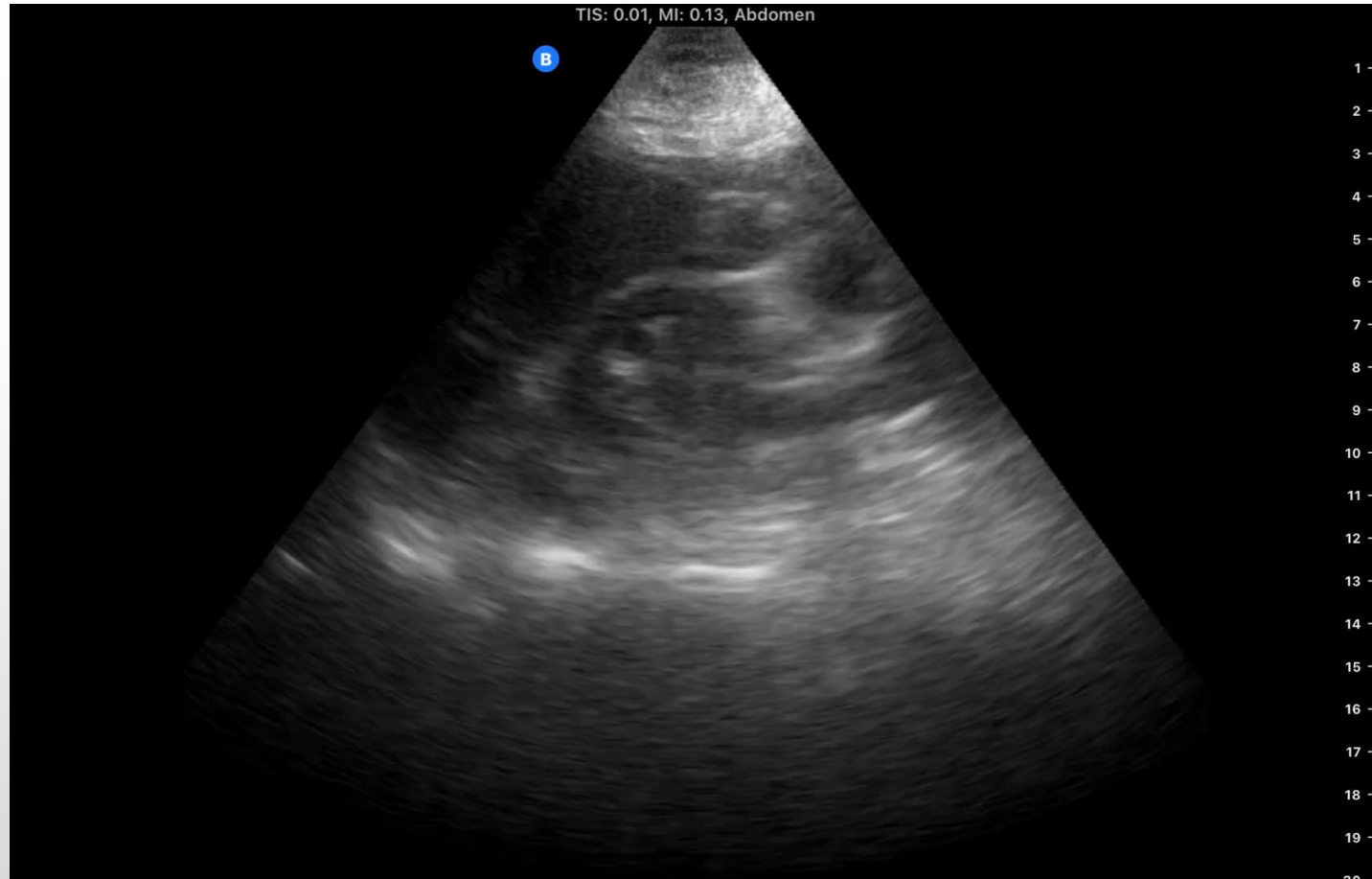


Evidence Based Medicine

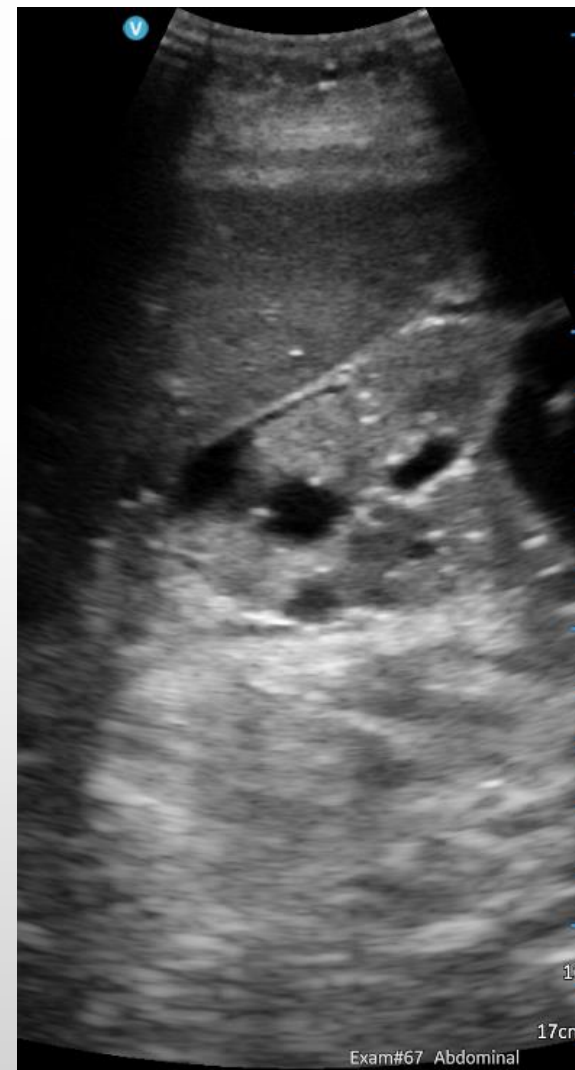
- Meta-analysis of 5 studies:
 - Overall POCUS sensitivity was 70% and specificity 75%
 - In two of the studies, the presence of moderate-severe hydronephrosis had 94% specificity for stone.
 - POCUS is helpful when hydronephrosis is present, as there is probably a stone greater than 5mm.

Wong, C., Teitge, B., Ross, M., Young, P., Robertson, H. L., & Lang, E. (2018). The Accuracy and Prognostic Value of Point-of-care Ultrasound for Nephrolithiasis in the Emergency Department: A Systematic Review and Meta-analysis. *Academic Emergency Medicine*, 25(6), 684–698. doi:10.1111/acem.13388

Renal cyst



Polycystic kidney disease



References

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- Wagner, M., & Boughton, J. (2018). Pearls for an ultrasound physical and its routine use as part of the clinical examination. *Southern Medical Journal*, 111(7), 389–394.
<https://doi.org/10.14423/smj.000000000000000834>