

Case Setup

Ultrasound Preparation:

- Ensure phased array, linear, and curvilinear probes are present, functioning and clean.
- Ensure the ultrasound screen is easily visible to the examinee, either directly or via screen share.

When Examinee Enters:

“Hello Doctor, I am Dr. _ and will be assisting as your examiner for this ultrasound case. As a reminder, please ask me to change probes, change depth, gain, or mode of ultrasound to assist you with the case. Please ask for help to reposition the patient or bed. Do you have any questions?”

Case vignette:

“As you have noted, the patient is presenting with **left flank pain.**”

For diagnostic ultrasound:

“I would like for you to now demonstrate how you would assess **the patient’s flank pain** using ultrasound to evaluate the kidney. Which probe would you like to use?”

Probe settings:

- Linear
 - Gain 10, depth 5cm
- Phased array
 - Gain 10, depth 5cm
- Curvilinear
 - Gain 10, depth 5cm

If asked to change probe settings:

- “Tell me when to stop adjusting [gain/depth]
 - Adjust the gain and depth slowly, allowing the examinee to stop you.

“When you find an acceptable image, please let me know.”

After examinee has selected their image, **using their own clip/image:**

“Thank you, I will take the probe from you now. Please direct your attention to the screen. Please point out any artifacts, anatomy, or pathology that would be important for this complaint.”

Then show the examinee the pathology clip/image:

“Now assume this image/clip is the image obtained of this patient. Please point out any pathology you see on this image/clip.”

Application:

“What would your immediate next steps be for this patient?”

-Refer to the grading criteria if using it as an educational case.

End of case:

“Thank you, that concludes your case.”

Case Pearls & Pitfalls:

- 1) The left kidney tends to sit much higher in the abdomen than the right kidney as the spleen is often much smaller than the liver. Because of this, you may need to scan more posteriorly and cephalad (“to the bed, and to the head”).
- 2) Sometimes having the patient take a deep breath in and hold it can help facilitate finding the kidney, as the diaphragm will help displace the kidney lower into the abdomen for easier viewing.
- 3) The longitudinal view of the kidney should start with the indicator towards the patient’s head. If rib shadowing is blocking the visualization of the kidney, angling the indicator slightly towards the patient’s back (posteriorly) with the probe almost diagonal will help view the kidney through the rib spaces.
- 4) Oftentimes ultrasound may not visualize the kidney stone if it has descended into the ureter. Finding secondary signs of obstruction (hydronephrosis or hydroureter) is the primary clinical utility with point of care ultrasound.