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## Examiner Script

### 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 right upper quadrant pain.”

### For diagnostic ultrasound:

“I would like for you to now demonstrate how you would assess this patient’s right upper quadrant pain using ultrasound to evaluate the gallbladder. Which probe would you like to use?”

Probe settings:

- Linear
  - Gain 10, depth 5cm
- Phased array
  - Gain 10, depth 2cm
- **Curvilinear**
  - **Gain 10, depth 2cm**

If asked to change probe settings:

- “Tell me when to stop adjusting the 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: **Freeze the image**

“Thank you, I will take the probe from you now. Please point out any relevant artifacts, anatomy or pathology.”

“I would like you to now obtain your second image, your measurement. When you find an appropriate image, I will freeze the image and then please show me on the screen where you would like to measure.”

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

After examinee has selected their image: **Freeze the image**

“Please show me on the screen where you would like to measure.”

**Use calipers, and mark where the examinee indicates, generating a measurement.**

**After the examinee has completed their measurement, direct them to your screen where you will show pathology:**

“Please direct your attention to the screen. Assume this image is the image you obtained from this patient. I would like you to point out any pathology or artifacts that would be important for this complaint.”

**After they have indicated any pathology:**

Application:

“Assuming the patient has a CBD measurement of 4mm and a negative sonographic murphy sign, please indicate what are your next steps in management of this patient?”

**End of case:**

“Thank you, that concludes your case.”

### **Pearls and Pitfalls**

- If you are unable to localize the gallbladder, you may attempt starting from a subxiphoid view and tracing along the inferior ribs laterally, or start in the RUQ “FAST” view and trace along the ribs medially.
- For patients that are particularly tender, you may try an intercostal view, anteriorly on the chest between the ribs, as the chest wall will protect the gallbladder from excess pressure.
- Measure the gallbladder wall anteriorly, as a posterior measurement may be subject to falsely elevated thickness from posterior acoustic enhancement (as the gallbladder is a largely fluid filled structure). Greater than 3 mm wall thickness is considered pathologic.
- Signs that would suggest cholecystitis are: thickened gallbladder wall, fluid surrounding the gallbladder wall (pericholecystic fluid).
- Consider a non-mobile stone in the neck of the gallbladder (stone in neck, SIN sign) as a finding concerning for early or impending cholecystitis.