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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 a 54 year old male presenting with progressive shortness of breath."

Cardiac Ultrasound:

"I would like for you to now demonstrate how you would assess dyspnea using ultrasound to evaluate left ventricular function with a parasternal long axis view. Which probe would you like to use?"

Probe settings:

- Linear
  - Gain 10, depth 10cm
- 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:

—"Thank you, I will take the probe from you now. Please direct your attention to the screen. Assume this video is the video you obtained from this patient. I would like you to point out any artifacts, anatomy, or pathology that would be important for this complaint."

****After interpreting the normal images, direct the examinee to the screen where you will show them pathology** - heart dysfunction / heart pathology clip**

—"Assuming this is your patient's ultrasound, please interpret the image/clip, pointing out any pathology."

Application:

—"Assuming you saw diffuse B-lines on pulmonary ultrasound, in addition to the cardiac ultrasound you've seen already, what would you think about fluid administration for this patient who is hypotensive?"

End of case:

—"Thank you, that concludes your case."

Case Pearls and Pitfalls:

1) If you are having difficulty obtaining images in the parasternal / apical cardiac views, having the patient roll on to their left side (lateral decubitus), and elevating their left arm above their head. This helps displace the heart closer to the chest wall, and opens the rib spaces allowing for better views.
2) To help assist visual estimation of ejection fraction, or systolic function, you can look at the anterior leaflet of the mitral valve. If that leaflet is touching the septum, it is unlikely to have systolic dysfunction. You may look up E-Point Septal Separation (EPSS) for further reading.