D. How to Obtain Information from a Difficult Patient

Views discussed so far...

So far we have examined the following views:

1) Subxiphoid View to exam IVC collapsibility,

2) Doppler of Carotid Artery VTI (velocity time integral) for Assessment of Volume Responsiveness,

3) Parasternal Long Axis View (Left Ventricular End Diastolic Diameter, Atrial Size, E – Point Septal Separation),

4) Parasternal Short Axis View (Left Ventricular End Diastolic Area, Fractional Area change),

5) Apical Four Chamber (LA size, Mitral and Tricuspid Valve Evaluation),

6) Apical Five Chamber (Aortic Valve Evaluation, LVOT VTI for Volume Responsiveness).

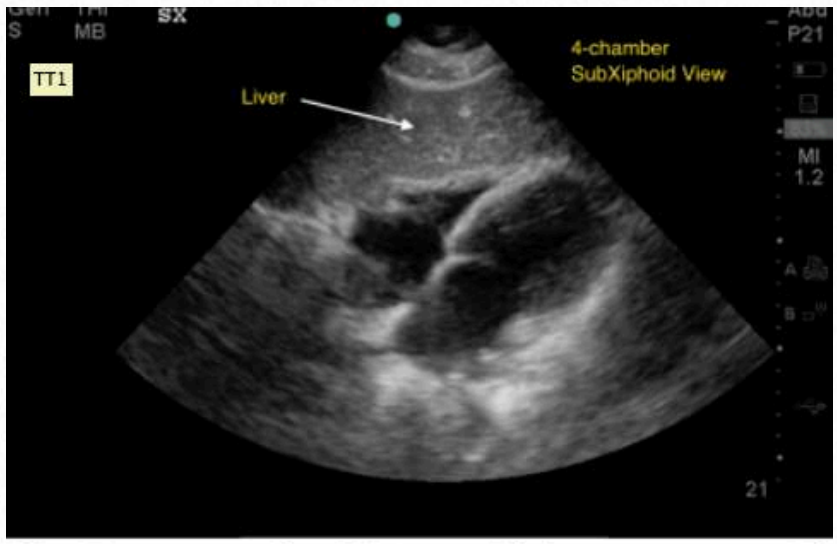
Subxiphoid Pericardial View

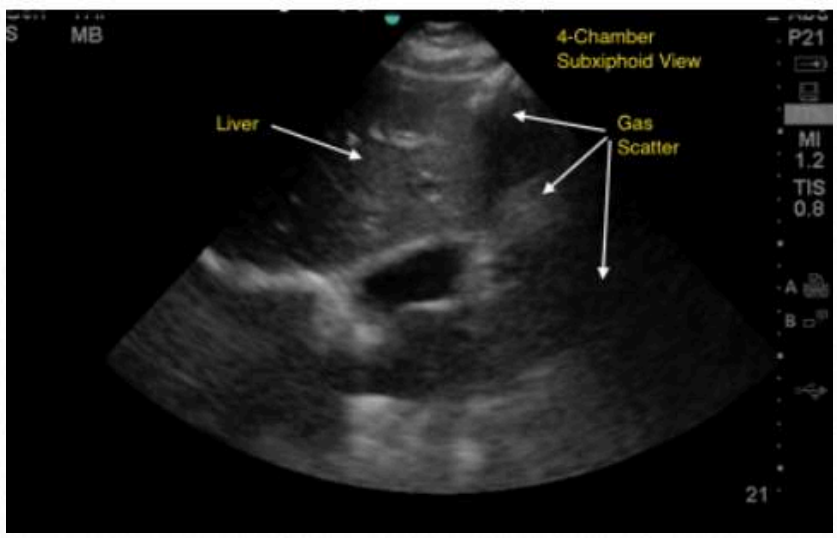
The probe (phased array or curved linear) should be placed under the xiphoid process, almost parallel with skin surface, with the indicator directed to the 3 o'clock position. Flexion of the patient's hips and knees reduces abdominal tension and aids in image acquisition. The image is obtained via 90 degree clockwise rotation of the transducer from IVC view, and provides an ideal view of anterior pericardium (the location of most pericardial effusions).

Consider a possible pneumothorax when unable to obtain images of heart for no apparent reason.

Tips for Subxiphoid View and Image Optimization

- Use your liver as an acoustic window (without it you will get gas scatter).
- Have the patient take a deep breath and hold it.
- Adjust from center subxiphoid space to the right (to have ultrasound transmit across the liver versus being reflected by gastric air).
- Make sure you have the best window possible by moving the probe one rib space below and above the standard probe position. When manipulating the probe, it is often best to work in circles around the target area to identify the best acoustic window.
- Remember to always optimize the patient's position.
- If possible hold ventilation.
- Apply more pressure and use adequate amount of ultrasound gel.
- Do more exams!





Evaluate for markers of cardiac failure

When one cannot see the entire cardiac anatomy clearly, try to glean information regarding cardiac function from structures that you are able to see.

- Left Atrial Size (>5cm = Heart Failure)
- E-point Septal Separation (1.2 cm = Systolic Failure)
- Use non-standard view
- Subxiphoid window altered to get parasternal SAX “like view”