

GOLDEN SHOT OF ECHOCARDIOGRAPHY

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My Only Relationship is Seren



Lecture Plan

- Indications for Bedside Echocardiography
- Where the Ephysicians stand in Bedside Echocardiography
- Most Frequent Axis is PSLA and brief anatomy and physiology of the heart
- Cases 1,2,3,4,5,6
- Takehome Case 7
- Bottomline

Task Force of ACC and AHA: Class 1 recommended indications for using echocardiography in Emergency Department

Differential diagnosis of Shock	Cardiac or not?
Differential diagnosis of Dyspnoea	PE, CHF, MI
Management and Evaluation of Shock	Fluid therapy or inotrop
Suspicion of Pericardial effusion	Tamponade or Not

Performing formal echocardiography in emergency department is time-consuming (17 minutes)

Determination of left ventricular function by emergency physician echocardiography of hypotensive patients. Moore et al. [Academic Emergency Medicine](#) 2002; 9:186-193

Visual estimation of ejection fraction is believed to be an accurate method for determining left ventricular EF

Visually estimation of bedside echocardiographic ejection fraction by emergency physicians.
Ünlüer et al. *West J Emerg Med*: 2014; Vol XV; no 2.

EYEBALLING TECHNIQUE

>50% LV WNL

<20% severely depressed LVF

90–100% Hyper dynamic LV

PSLA 98%, PSSA 96%, Apical 4-chamber 74%.

Directed bedside trans thoracic echocardiography: preferred cardiac window for left ventricular ejection fraction estimation in critically ill patients. Dustin G. Mark et al. **AJEM** (2007) 25, 894-900.

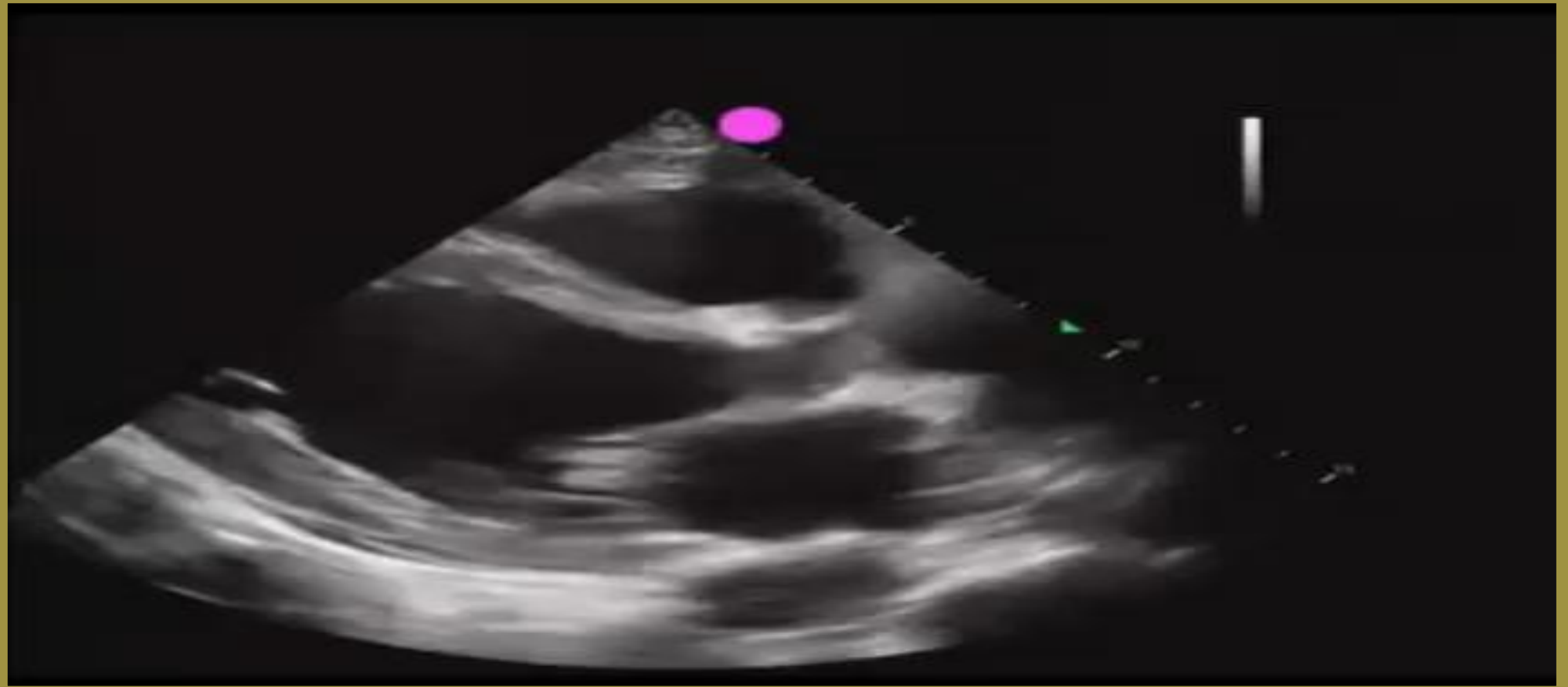
PSLA

Probe position at
Parasternal 3.rd or 4.th
intercostal space

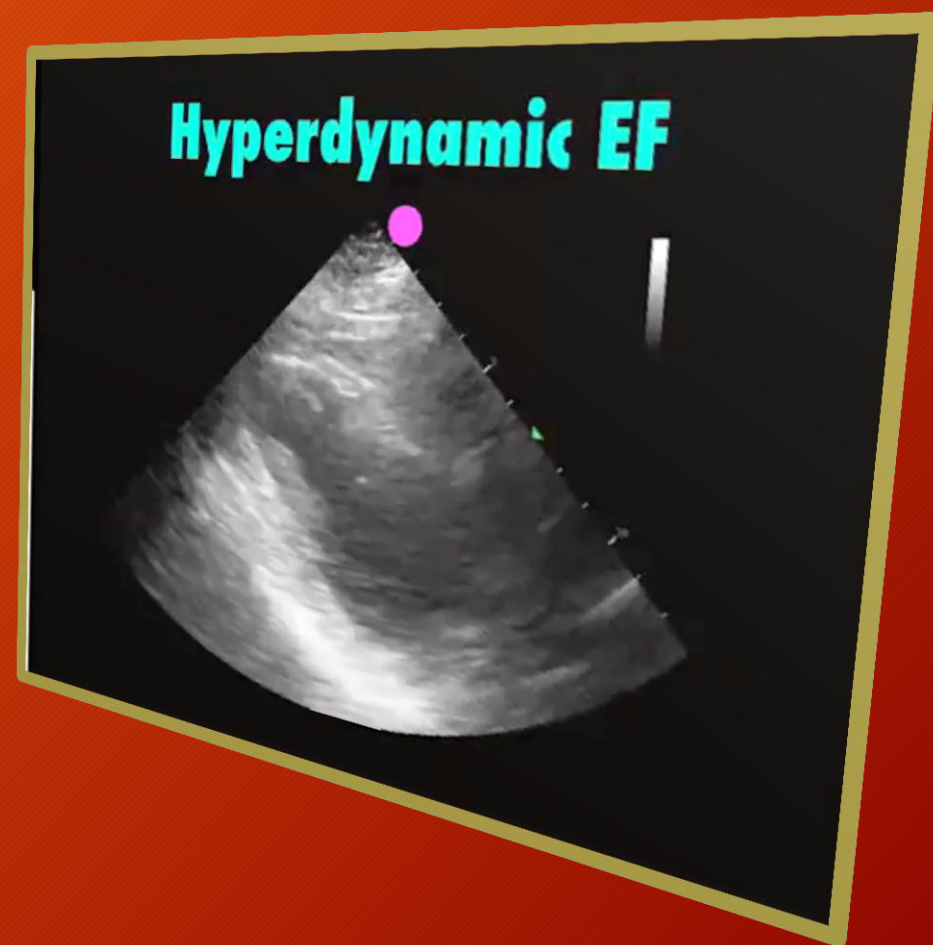
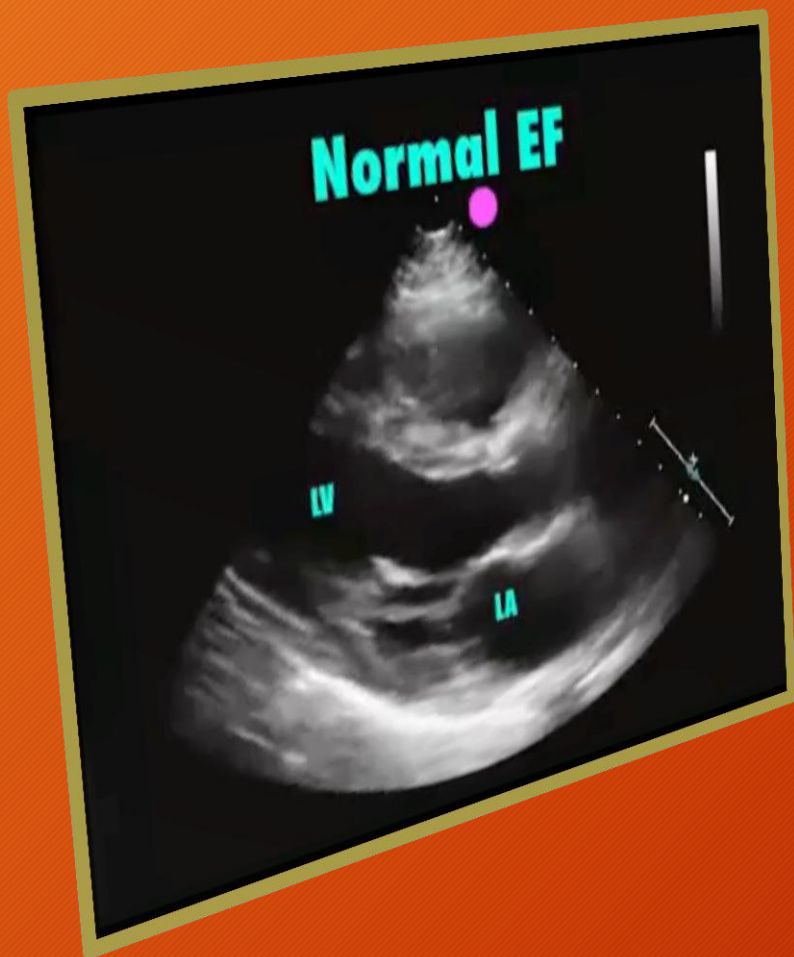
Marker is angled towards
patient's right shoulder

The image should include;
RV at the top, LV is in long
axis / mitral valve, aortic
root, aortic valve









Moderately Decreased EF



Severely Decreased EF



Traumatic, pericarditis, malignant, uremic

Acutely 80-200 cc fluid may be collected without elevation in pressures

Patient tolerates this much more well in long-term collections

Diastolic collapse of right heart shows us that patient is going to tamponade

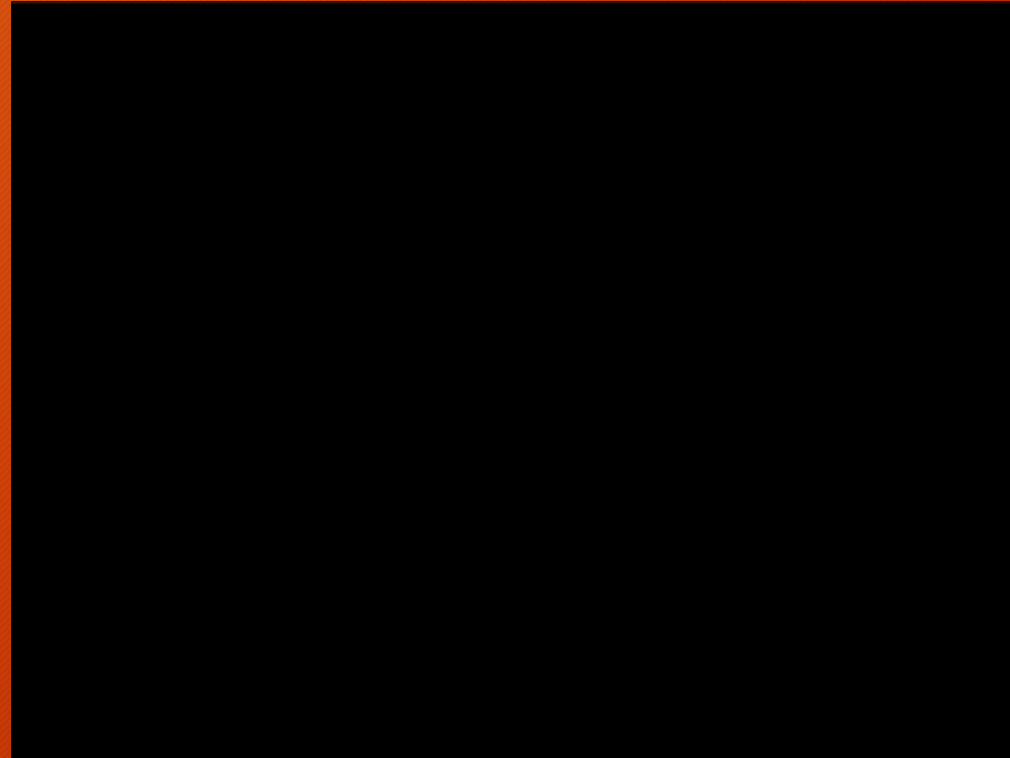
We must differ it from epicardial fat pads.

Red Flags in bedside ultrasonography for surgical cases. **Unluer E E** et al.
Interv Med Applied Sci. 2013; Jun:5(2):85-8

CASES 1

EPs 96% sens, 97%
specific in detecting
pericardial effusion

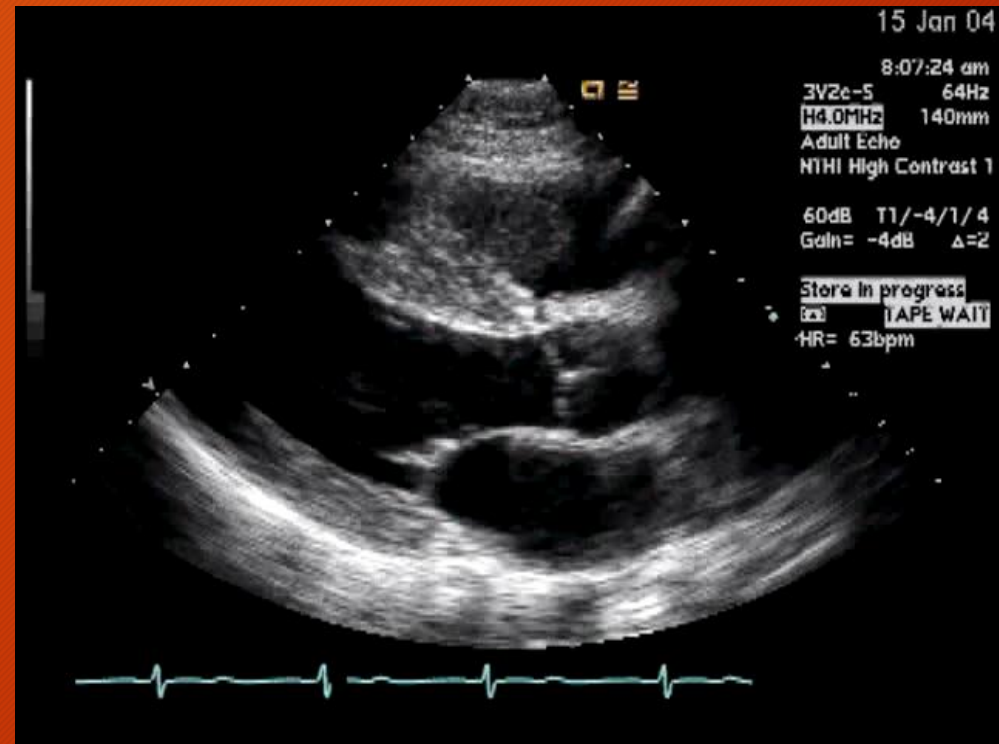
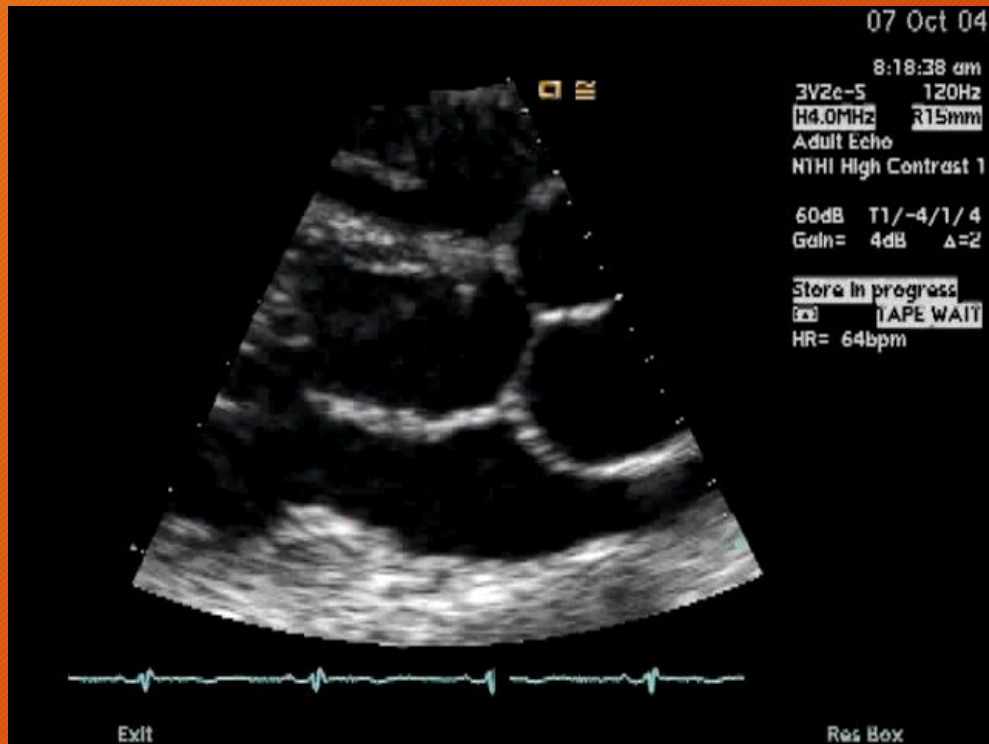
Ann.Em.Med.2001



CASES 2-3-4



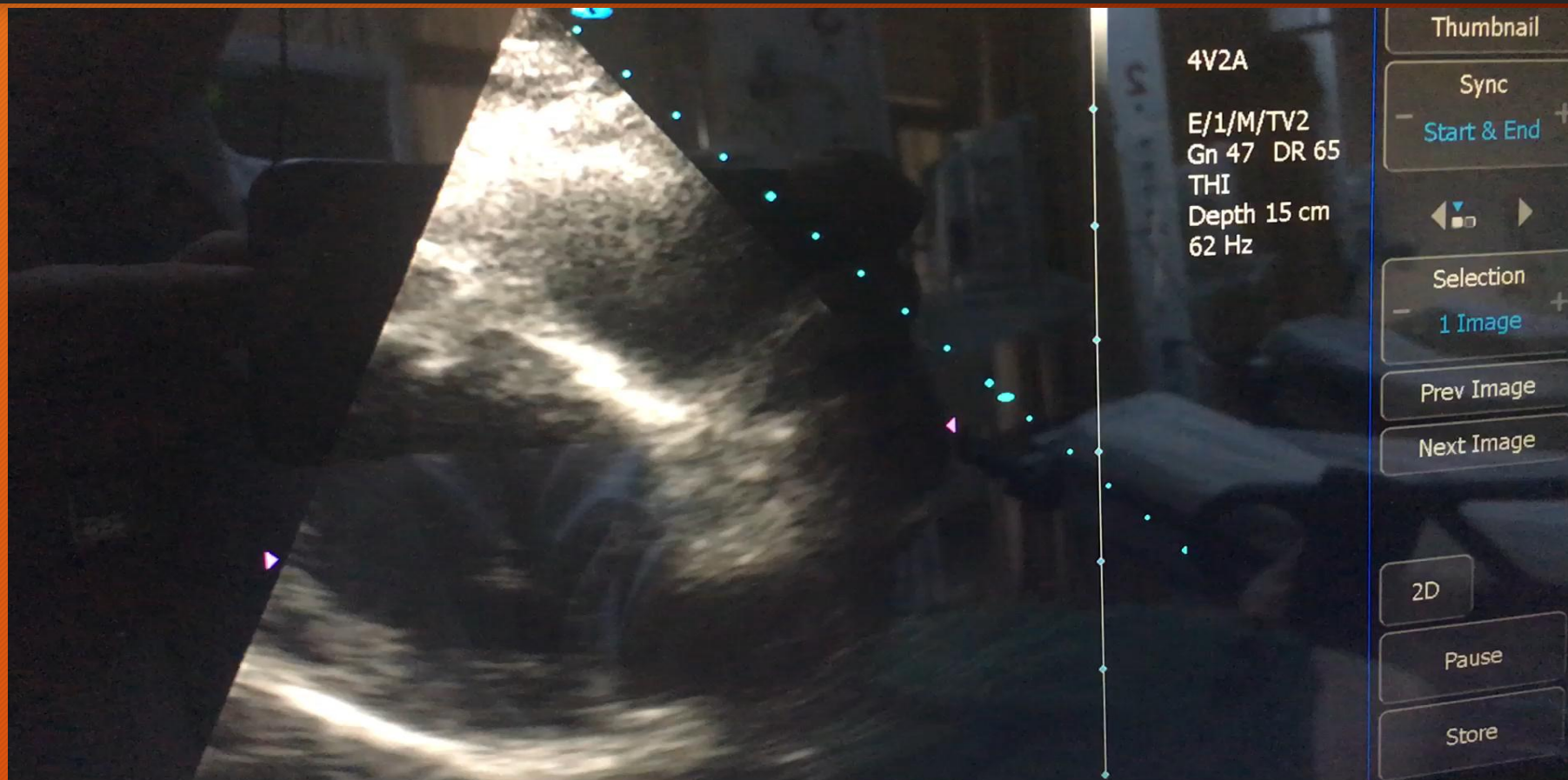
CASES 5-6



Takehome Case 7

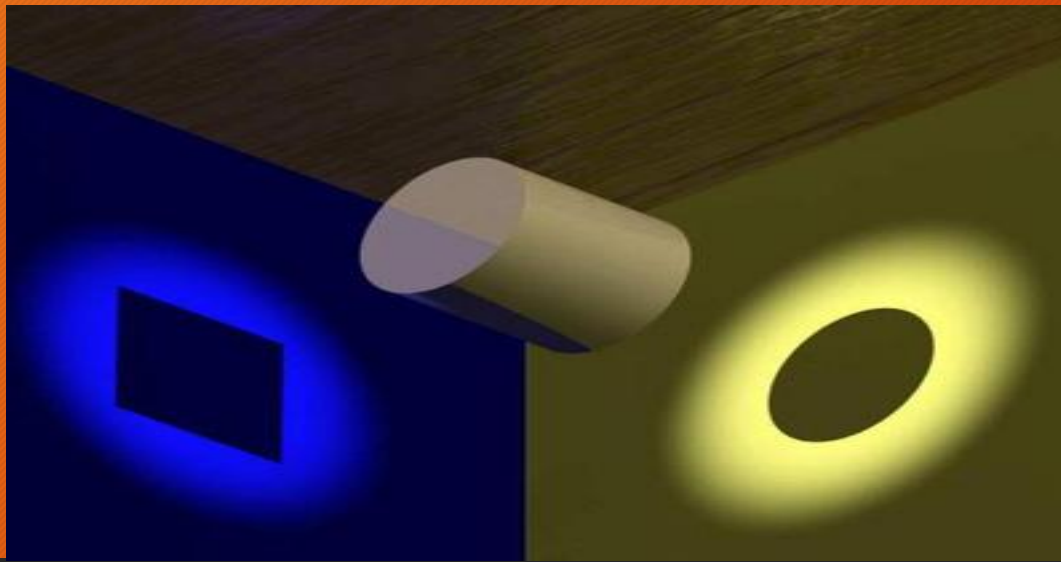
- 48 years old male patient with the scapular pain for 6 six hours before the admission to ED and no pain on presentation
- No remarkable past medical history
- PE : R 140/80 mmHg, L 140/70, HR 90 beats/minute
- ECG no ischemia
- Negative cardiac markers
- Borderline mediastinal widening = 8 cm

Parasternal Long Axis



Case 7





Bottomline Message

Do not forget that USG is 2D imaging modality and you have to get another view for scanning and recunstruct the images in your brain to get real anatomic 3D image of the organ of ineterest as seen in this case as much as possible.....

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