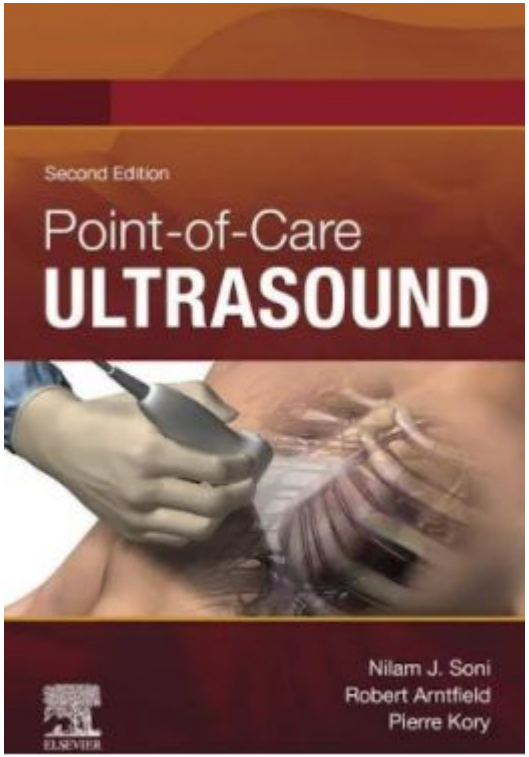
Cardiac POCUS

A little more than the basics

Objectives!

1. Accurately assess LV function
2. Accurately assess RV function



LV function

Three markers of LV function

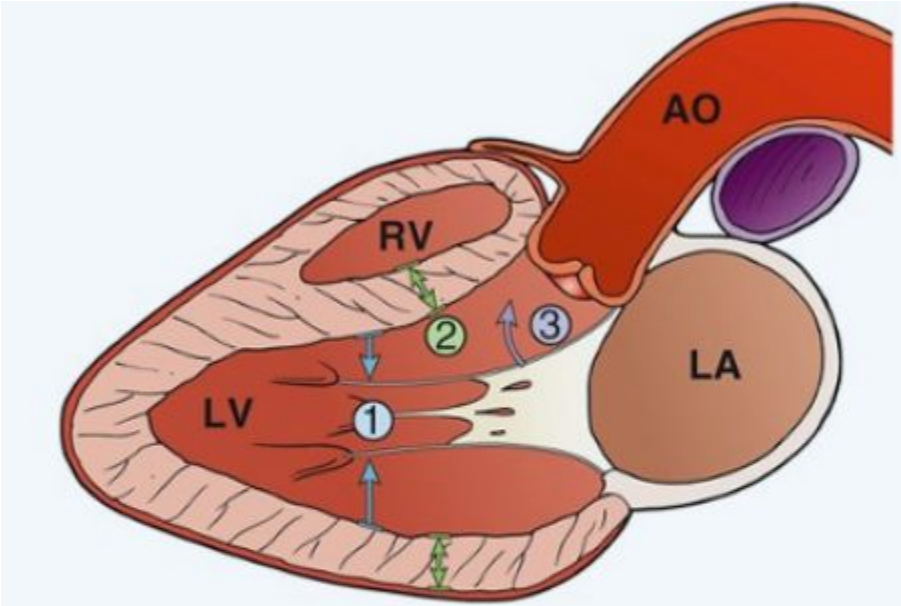
1. **Endocardial excursion**. Does the endocardium move symmetrically toward the center of the LV chamber during systole?

2. **Myocardial thickening**. Does the myocardium increase in thickness by approximately 40% in all LV segments during systole?

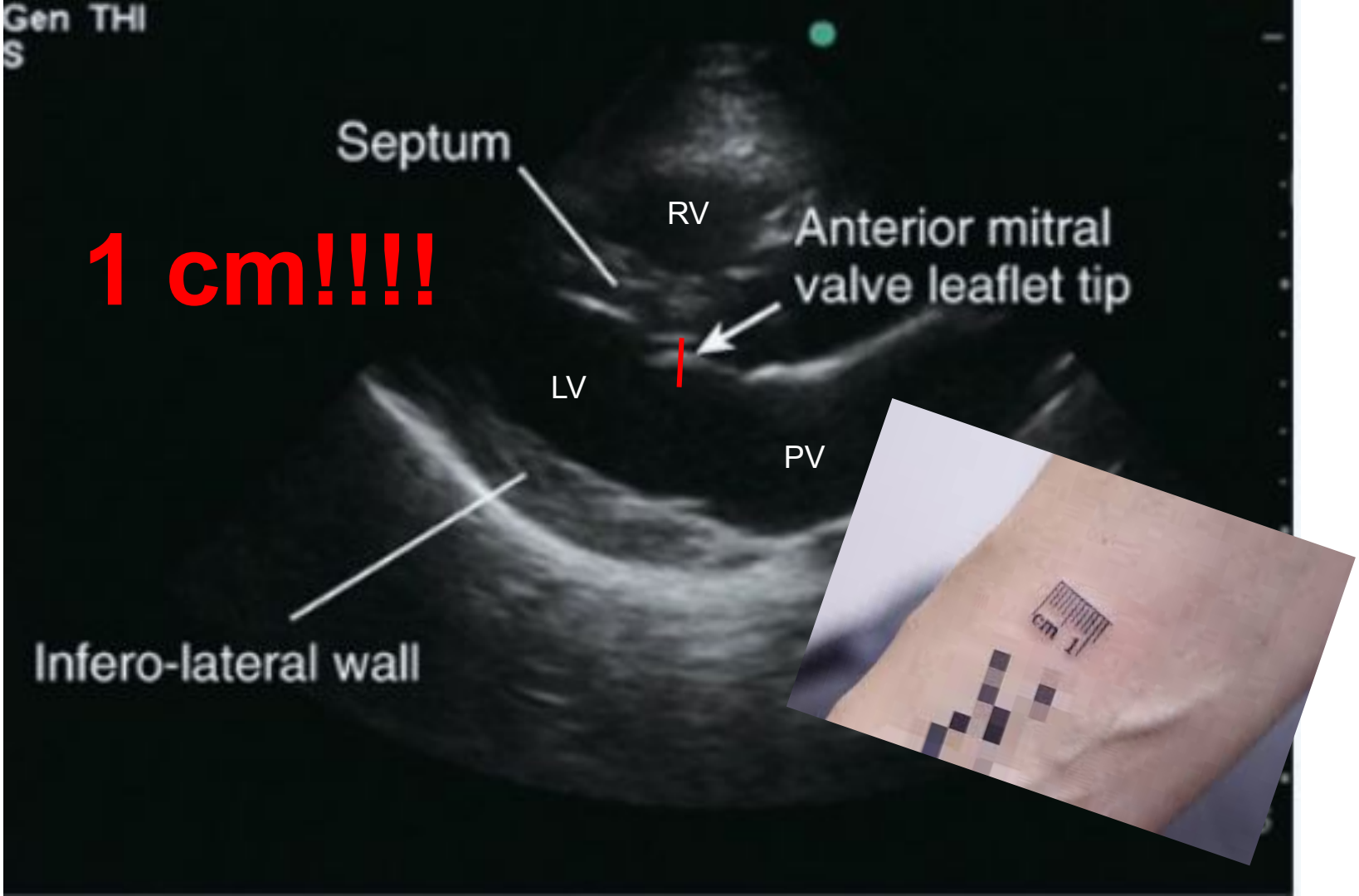
3. **Septal motion of the anterior leaflet tip of the mitral valve** (E-point septal separation). Does the anterior leaflet tip of the mitral valve come within **1 cm of the septum**, which corresponds with an **EF of >40%**

Parasternal long axis (PLAX) - LV function assessment

Normal PLAX



1 - Endocardial excursion
2 - Myocardial thickening
3 - Septal motion of anterior leaflet of mitral valve


Gen THI
S
Septum
RV
Anterior mitral
valve leaflet tip
1 cm!!!!
LV
PV
Infero-lateral wall
cm 1

Hyperdynamic (Parasternal long)

Reduced EF (Parasternal long)

Severely reduced EF (parasternal long)

Example 1

Case 1, 1.2

75 year old man, coming to the ICU after a Whipple for pancreatic CA, hypotensive on NE ggt started intraoperatively by anesthesia.

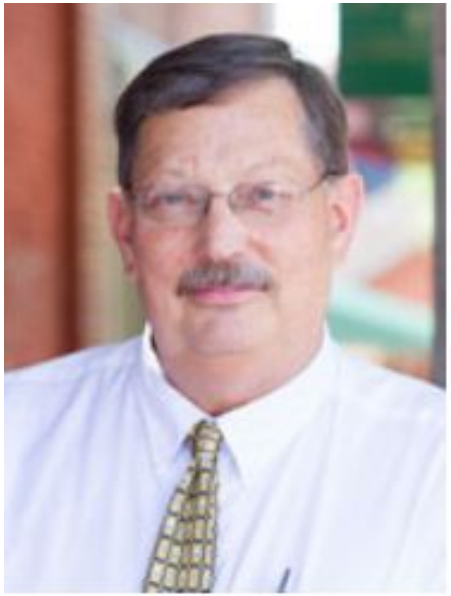
You are frantically paged by the surgery attending to do a bedside echo and find out why the patient is hypotensive.

Example 2

Case 2, 2.2

46 year old previously health man presents with SOB, cough for 2 days after returning from a vacation in SE Asia. He is febrile and tachycardic w/ rales bilaterally

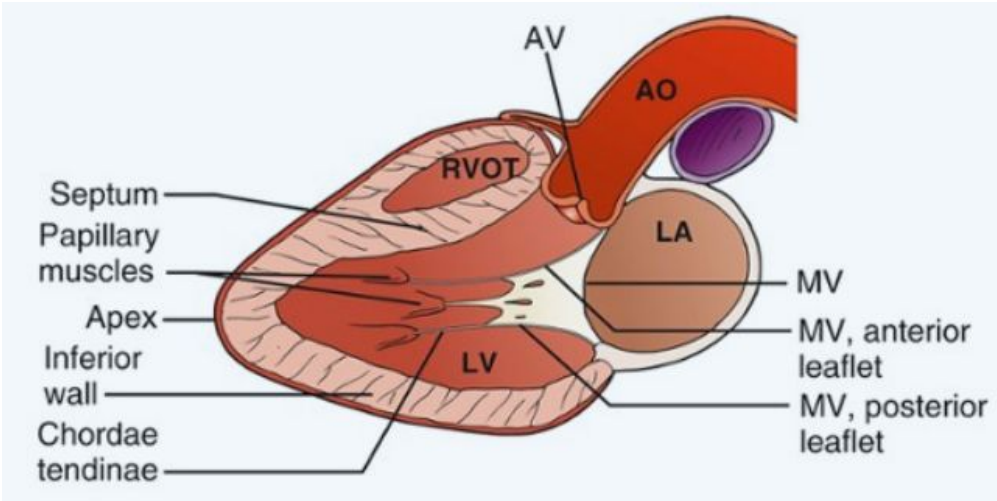
Dr. Moussa pages you to figure out why this guy is SOB.



Great job doctor!

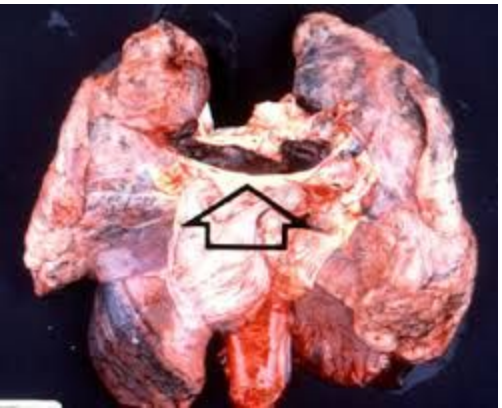
Don’t be fooled…..

***** Bedside Echo begins and ends with image acquisition and optimization *****



RV function!

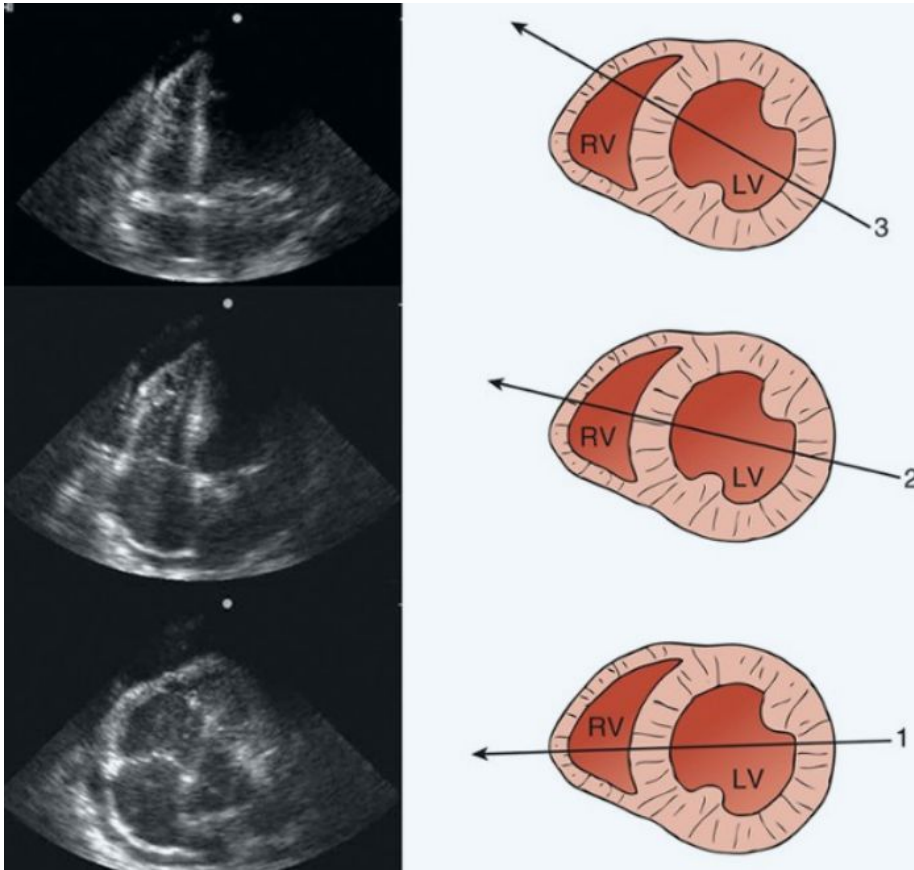
1. RV size?
2. RV contractility (qualitative and quantitative)
3. RV thickness (Pulmonary HTN - acute or chronic?)
4. Paradoxical septal motion



Apical 4

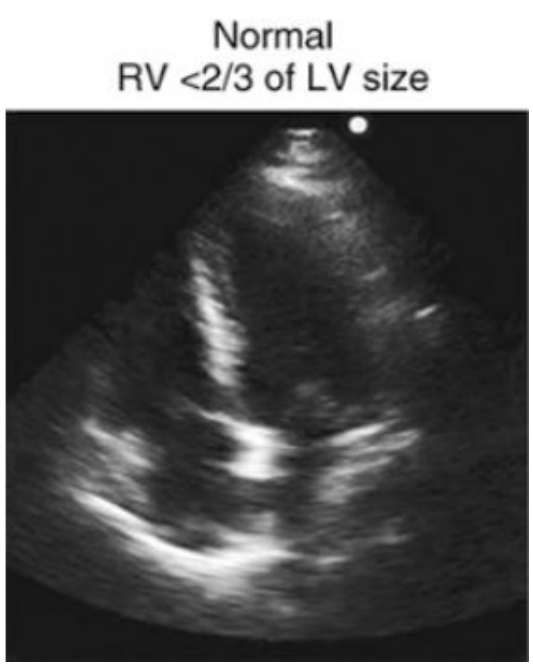
Apical 4 gives you a direct comparison between LV and RV size

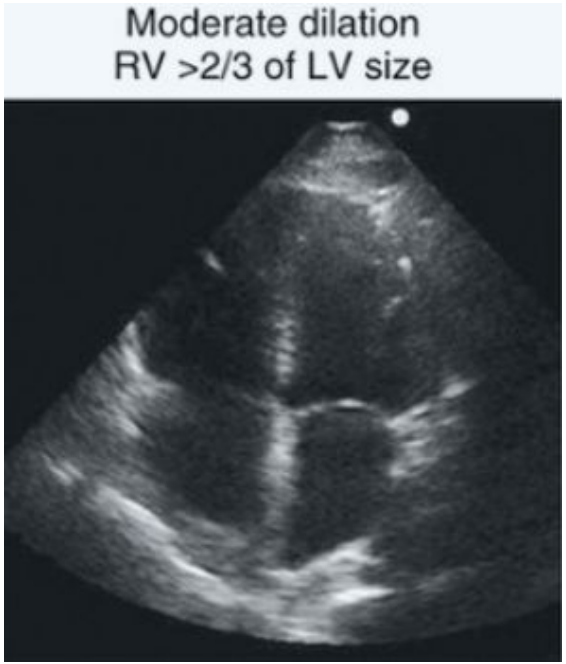
[Off-axis images]

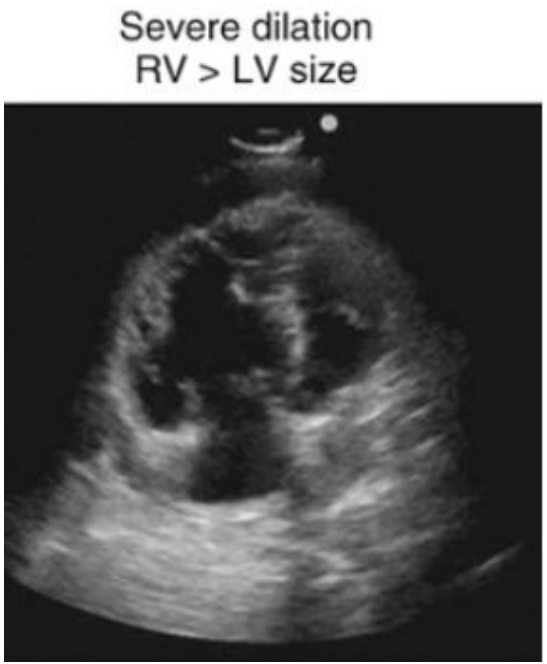


RV function

1. RV size - should be smaller than LV!







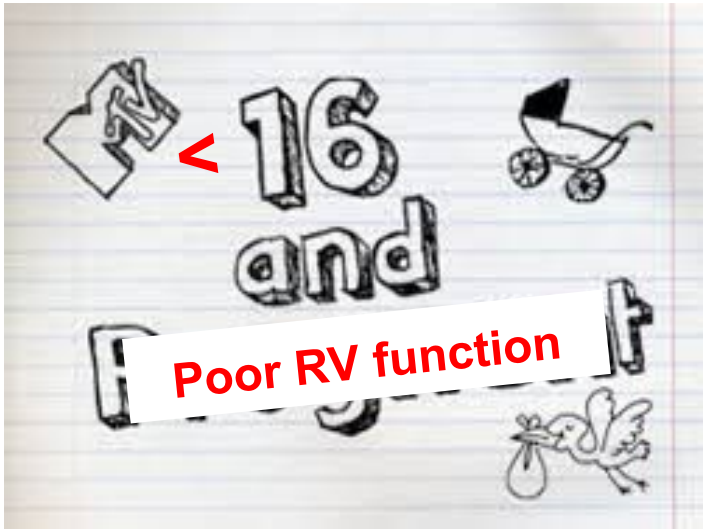
RV function

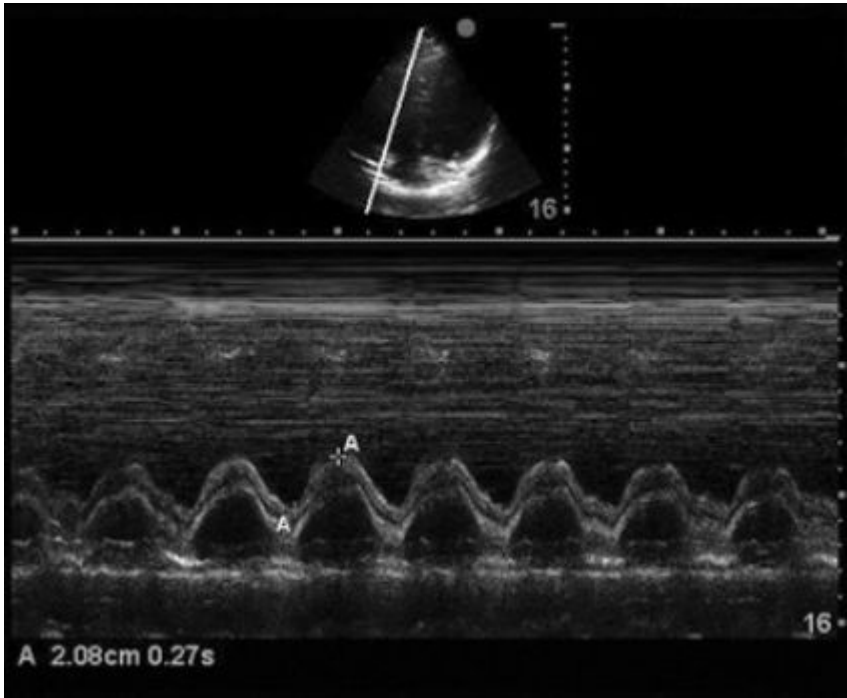
2. RV contractility (qualitative and quantitative)

Normal RV function

TAPSE - Tricuspid Annular Plane systolic excursion

Normal TAPSE >16



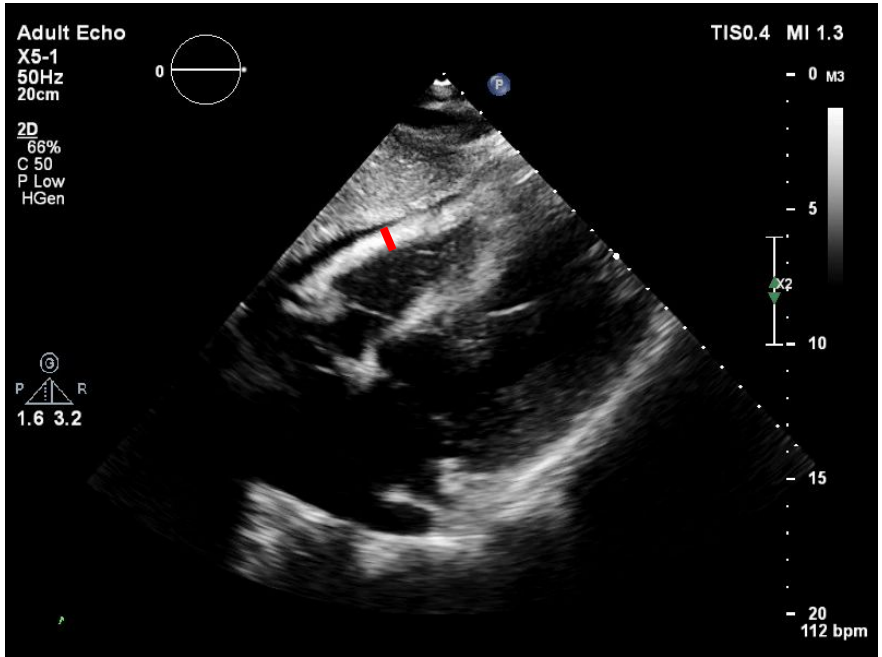


RV function

3. RV thickness (Pulmonary HTN - acute or chronic?)

Normal = < 5mm in diastole

Always remember, chronic COPDers can get PEs!

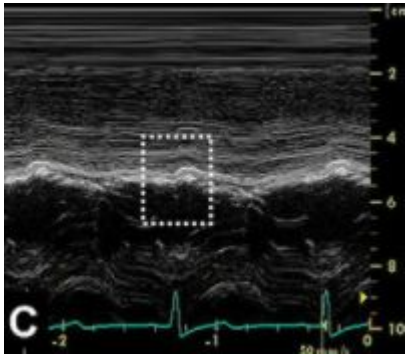


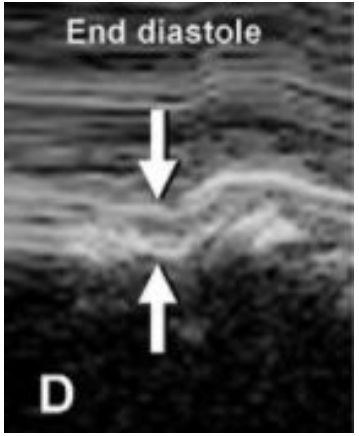
RV function

3. RV thickness

- Subcostal view - align US beam perpendicular to RV free wall

- Exclude RV trabeculations and papillary muscle

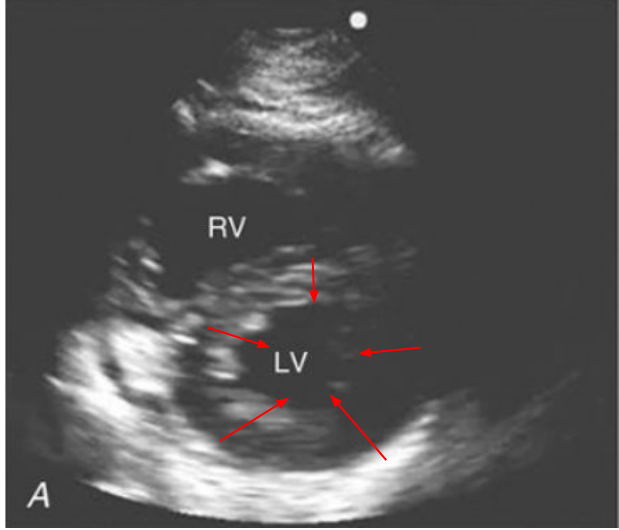


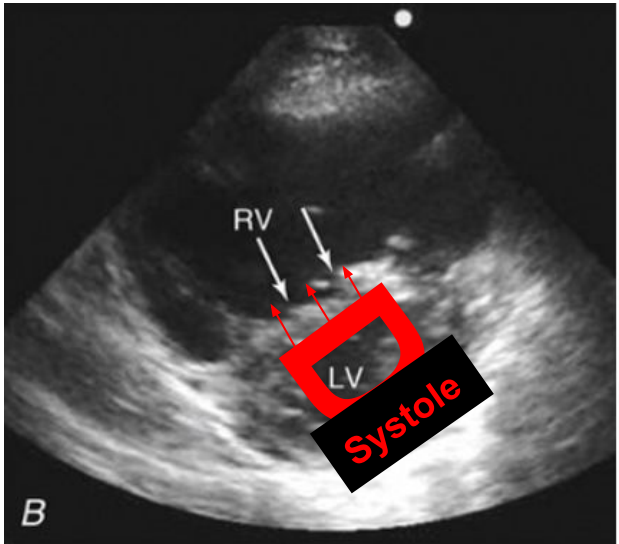


RV function

4. Septal motion

"Paradoxical septal wall motion"






SO IN SUMMARY

Three markers of LV function

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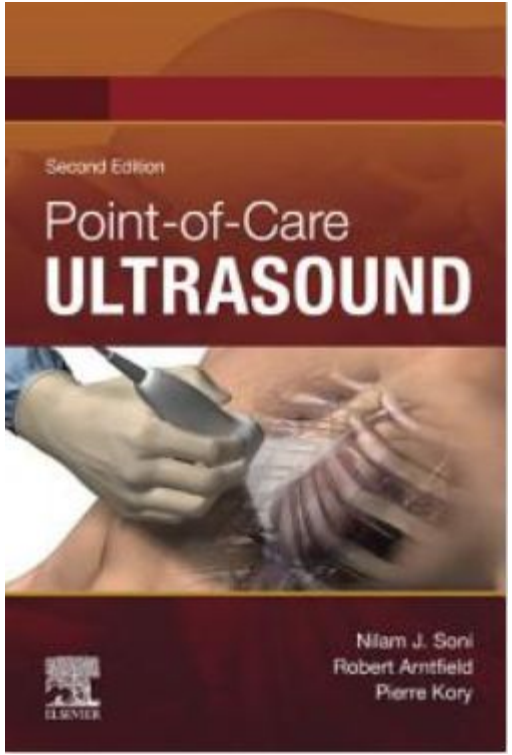
RV function

1. RV size (**< ⅔ LV**)
2. RV contractility (**TAPSE >16**)
3. RV thickness (**5mm or less**)
4. Septal motion (**Concentric endocardial excursion toward LV cavity in systole**)


"I forget things almost instantly."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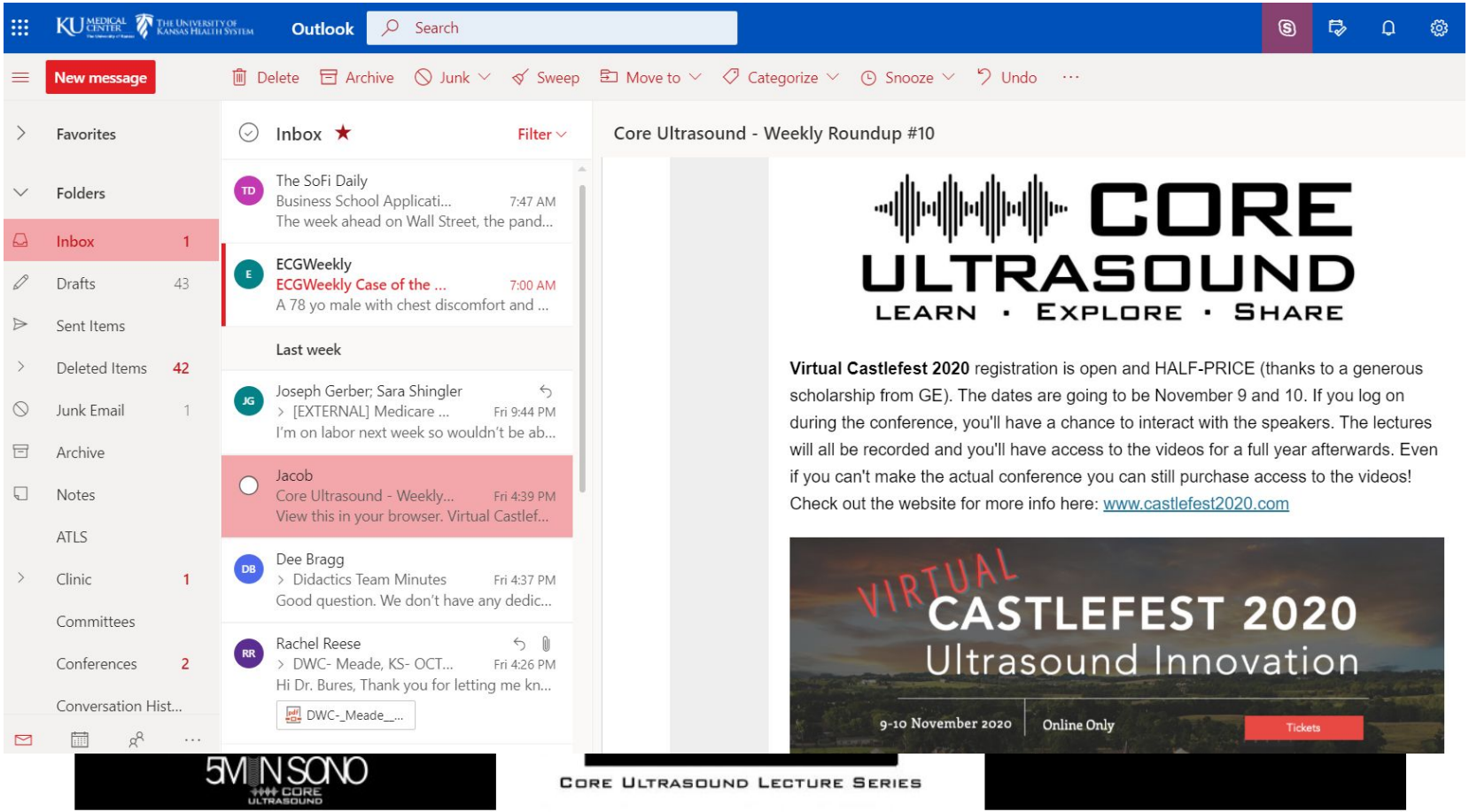
Robert Arntfield
Pierre Kory
ELSEVIER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Jacob
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RR
Rachel Reese
> DWC- Meade, KS- OCT... Fri 4:26 PM
Hi Dr. Bures, Thank you for letting me kn...
DWC-_Meade_...
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