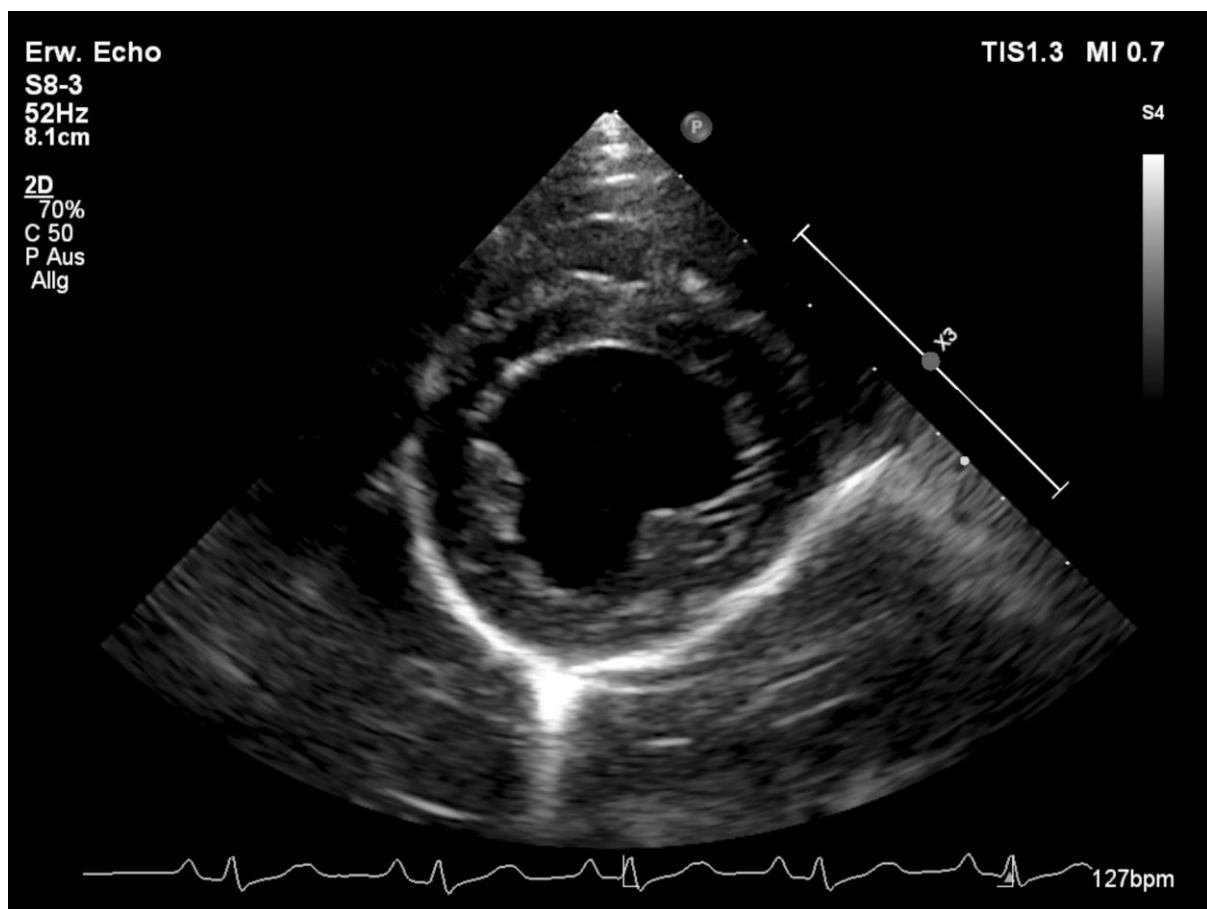


IVUSS – Cardiology

Standard echocardiographic views and measurements

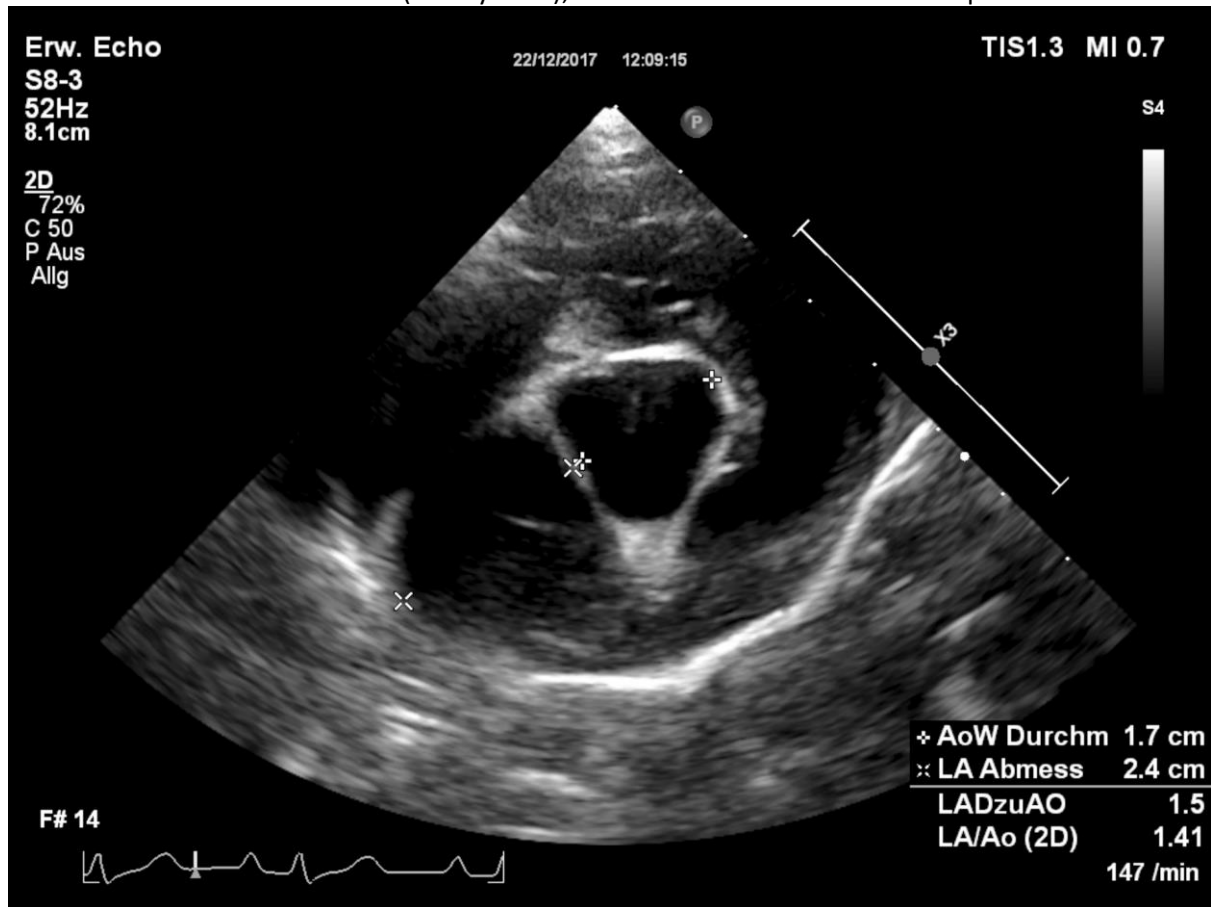
Right parasternal Short axis with identification of chambers

- LV with papillary muscles

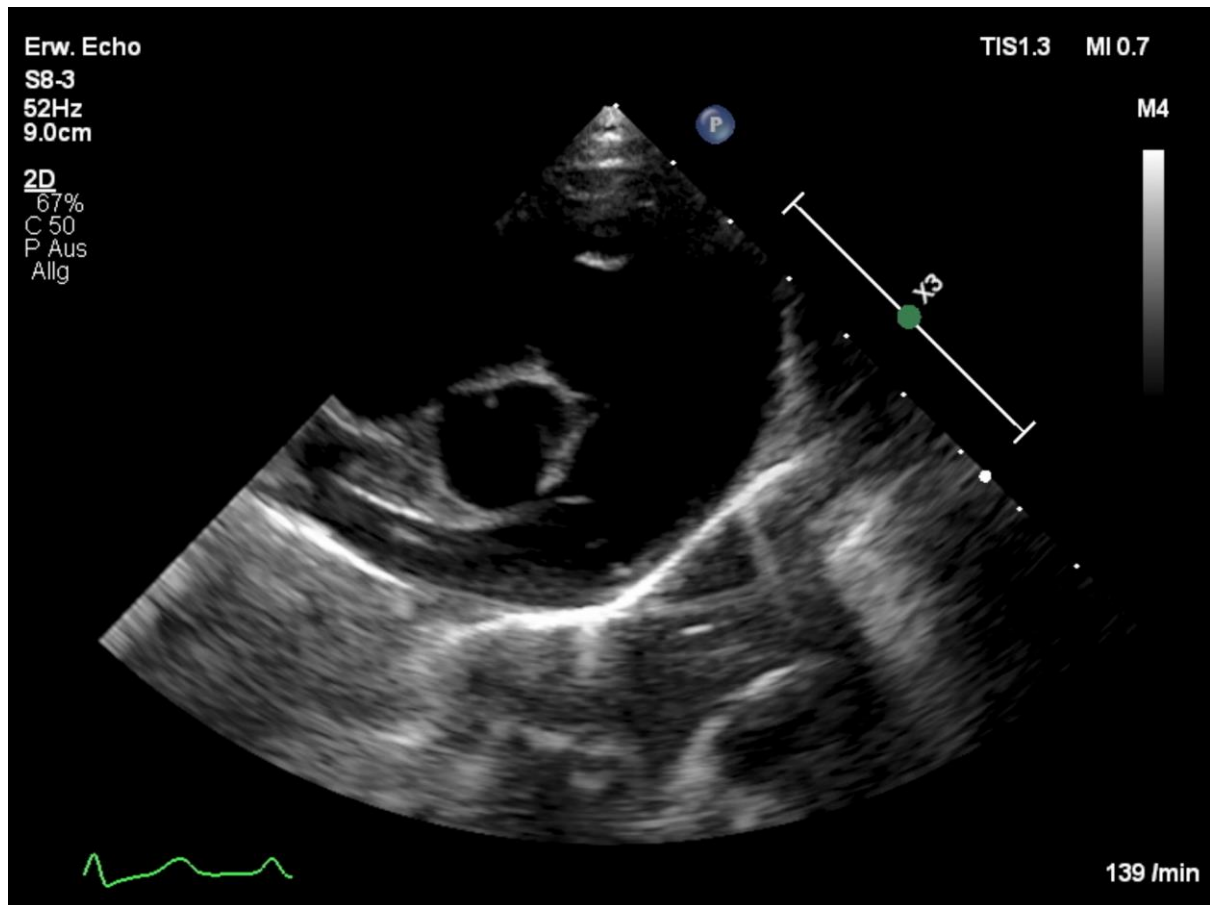


- LV M mode with measurements: Note that the measurements should never be taken from the first cardiac cycle on the M-Mode image because you cannot exclude a previous arrhythmia. End-diastolic is at the beginning of the QRS-complex, end-systolic is where septum and free wall are closest. Calculation of end-diastolic and end-systolic Cornell-Index
- (LV M mode of mitral valve) – *ideally this should be recorded from long axis 4-chamber views; recording of the MV from the LV right parasternal view short axis accepted*

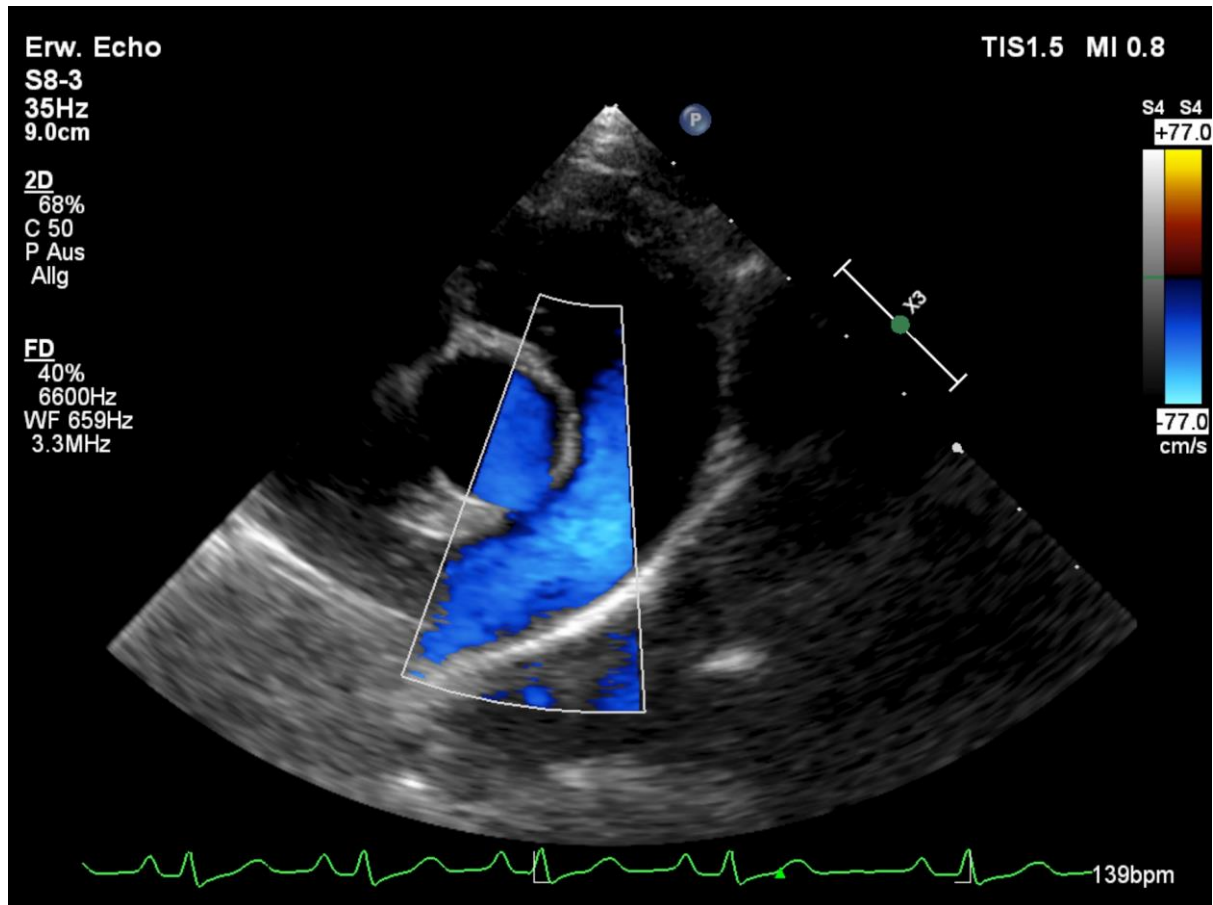
- Heart base AO/LA with 2 D measurement (M mode AO/LA): Taken from the first frame when the aortic valve is closed (end-systolic); Swedish or Rishniw method accepted



- Heart base with pulmonary valve, main pulmonary artery and its division into right and left pulmonary artery



- Pulmonary artery color flow with appropriate PRF-setting. PW-recordings below and above the pulmonic valve, CW-Doppler with vmax- measurement



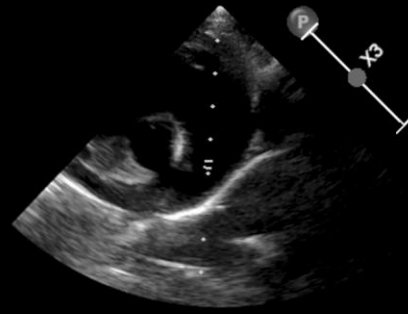
Erw. Echo

S8-3
52Hz
9.0cm

2D
67%
C 50
P Aus
Allg

TIS0.5 MI 0.4

S4



PW

40%
WF 150Hz
DV2.0mm
3.0MHz
4.7cm

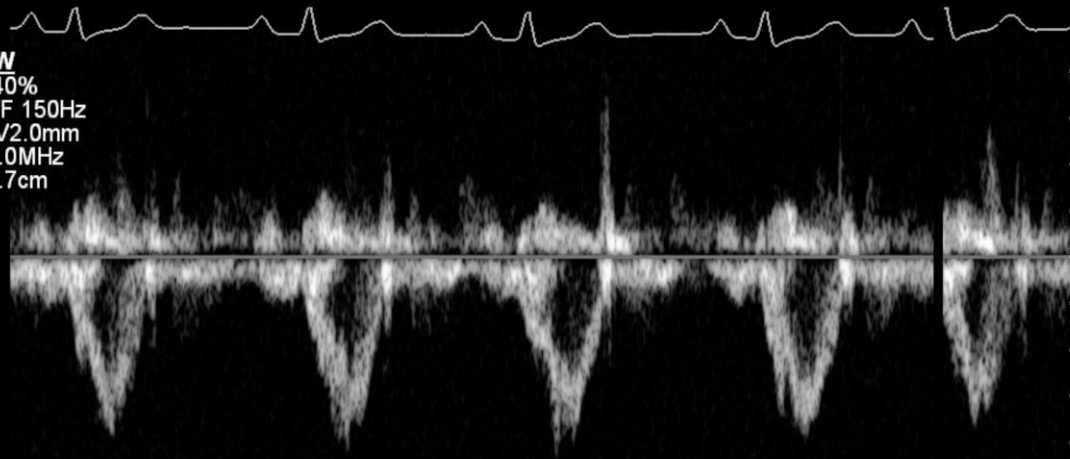
-80

-40

cm/s

-40

-80



100mm/s

126bpm

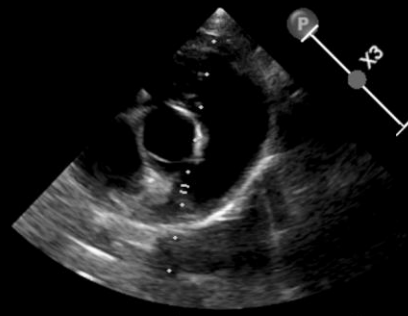
Erw. Echo

S8-3
52Hz
9.0cm

2D
67%
C 50
P Aus
Allg

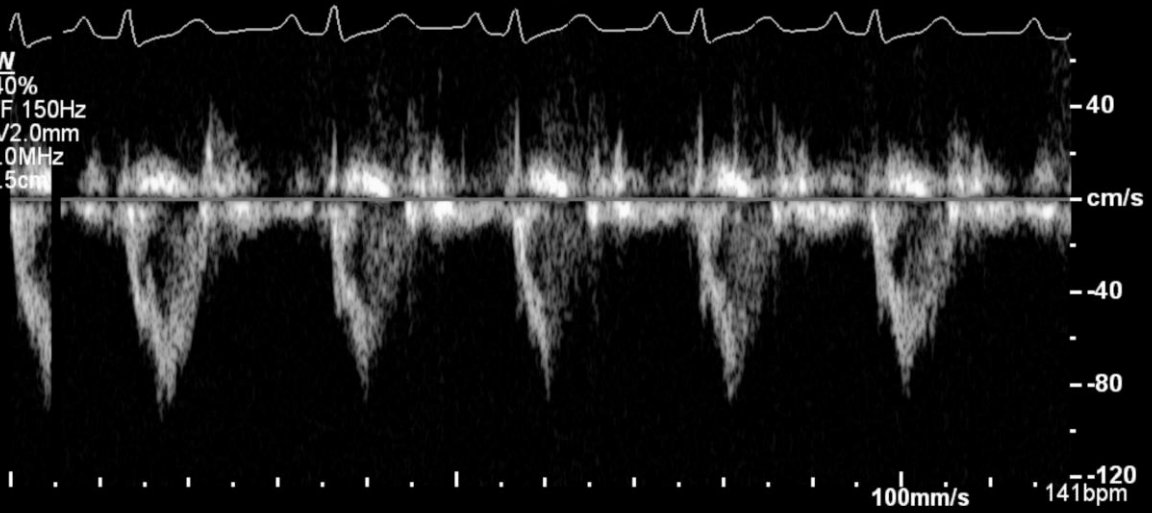
TIS0.5 MI 0.4

S4



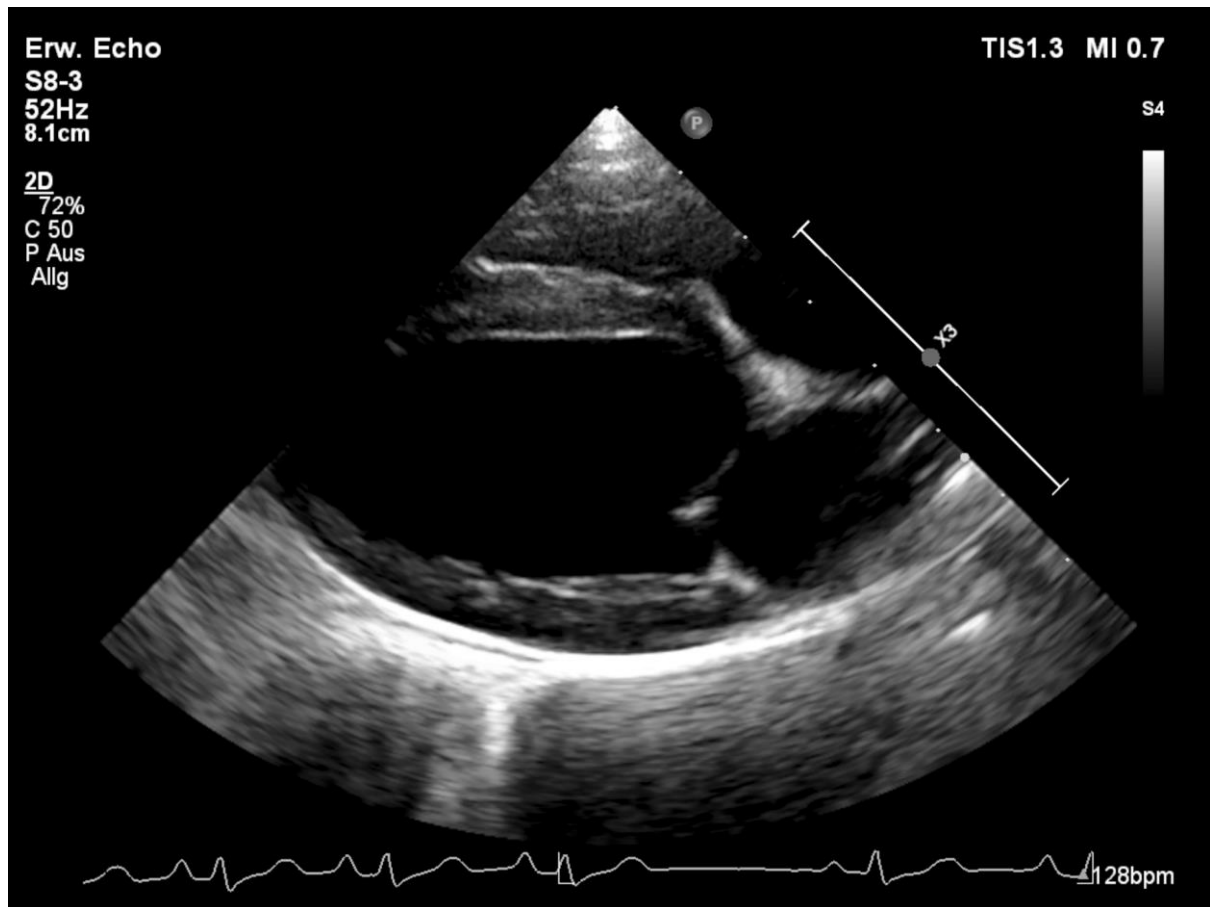
PW

40%
WF 150Hz
DV2.0mm
3.0MHz
5.5cm



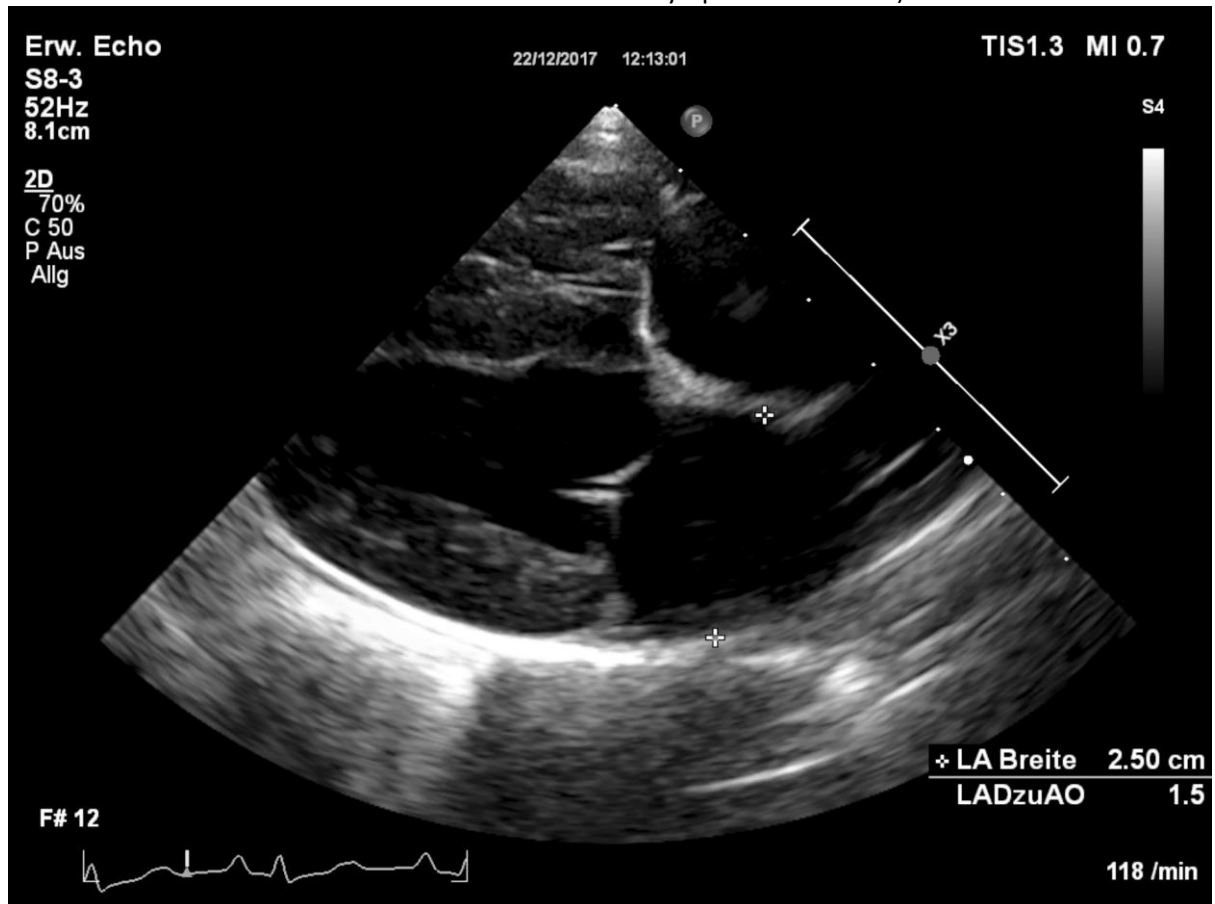
Right parasternal Long axis with identification of chambers

- 4 chamber view (perpendicular to sound beam, most important view!!!)



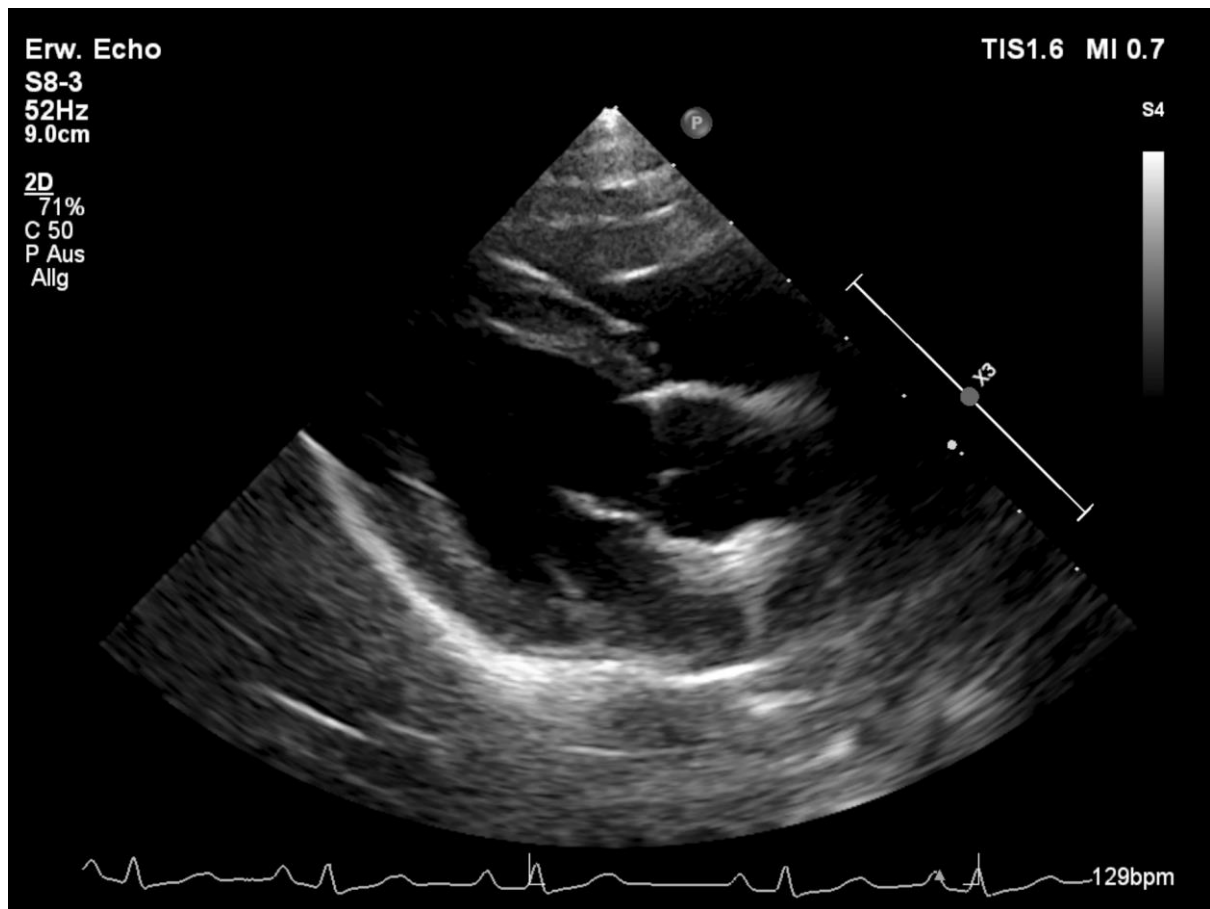
- LV-M-mode measurements (for details see short axis views, measurements should not differ significantly from those obtained in short axis views - this is to ensure that views are correct)
- M-Mode of the mitral valve movement with EPSS-measurement (since EPSS cannot be underestimated, the narrowest EPSS distance should be selected for the measurement; as for all M-Mode measurements, the first cardiac cycle on the M-Mode recording should not be used for measurement)

- left atrial diameter, measured end-systolic (just before mitral valve opening) parallel to the mitral valve annulus and half-way up the left atrium)



- color across the mitral valve with appropriate PRF-setting
- color across the tricuspid valve with appropriate PRF-setting

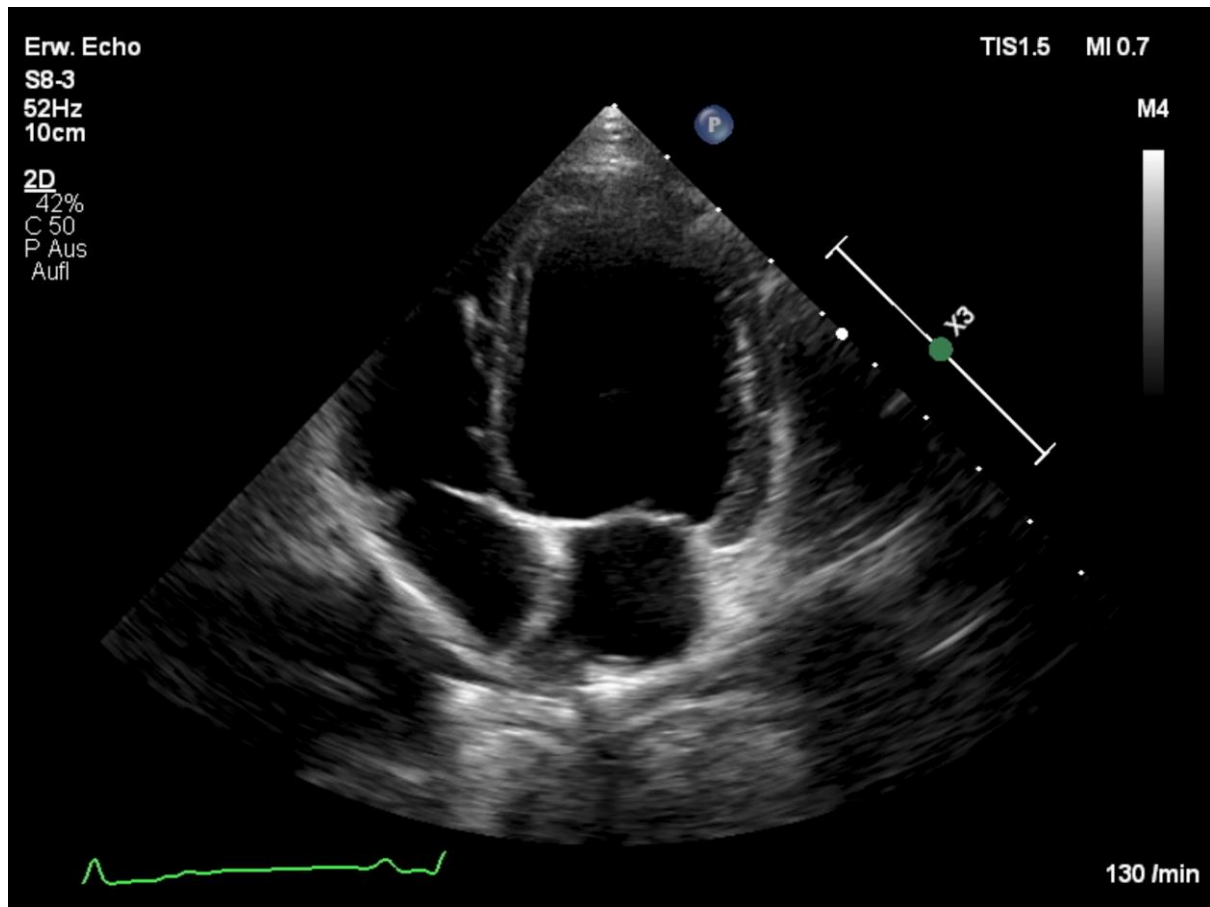
- 5 chamber with complete LVOT and aortic valve/aortic root



- M-Mode with aorta to left atrium-ratio (aortic diameter at the beginning of the QRS-complex, left atrial diameter where it is widest - do not use first cardiac cycle on M-Mode recording!)
 - Color flow across LVOT and aortic valve
- sub-xiphoid (sub-costal) view of the LVOT and aorta
 - CW across the LVOT and aortic root with measurement of v_{max}

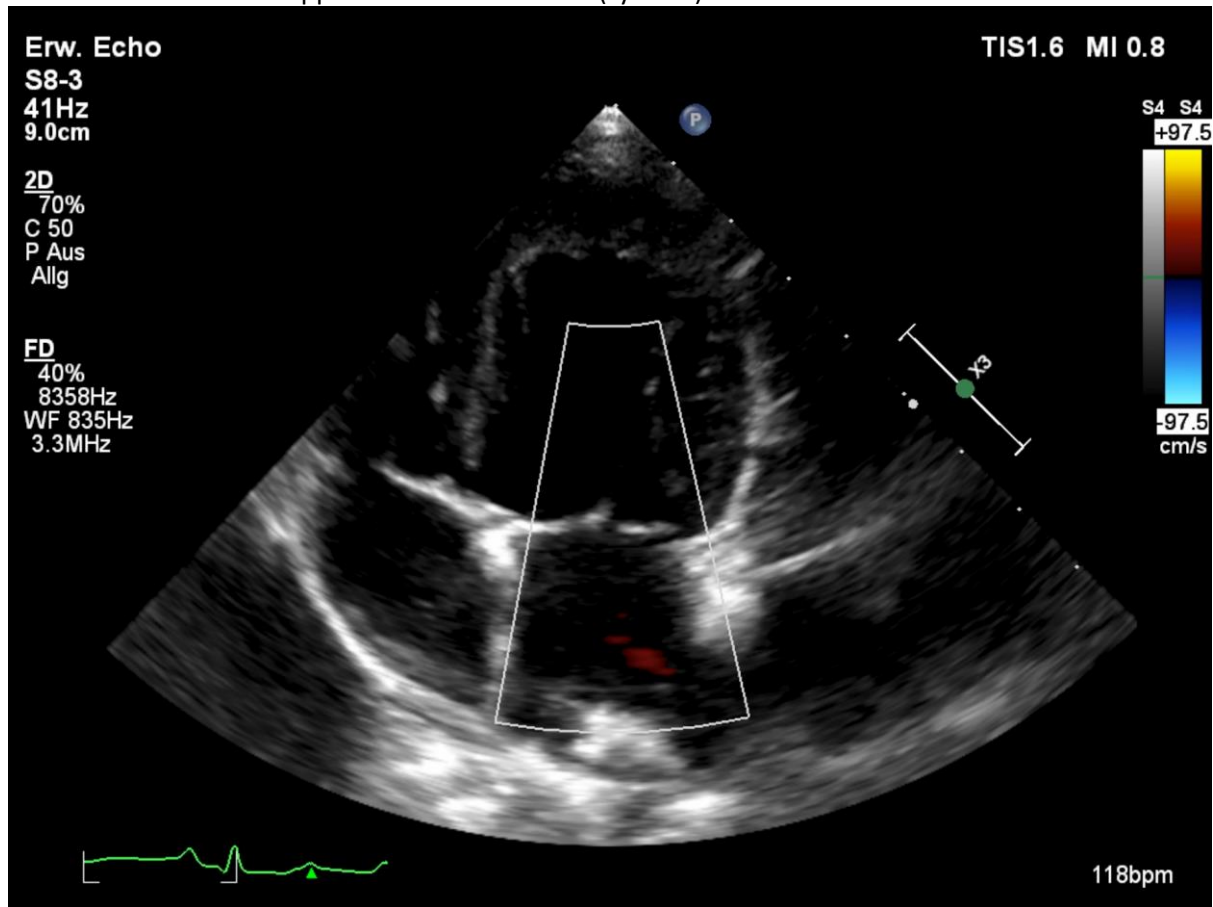
Left Apical

- 4 chamber

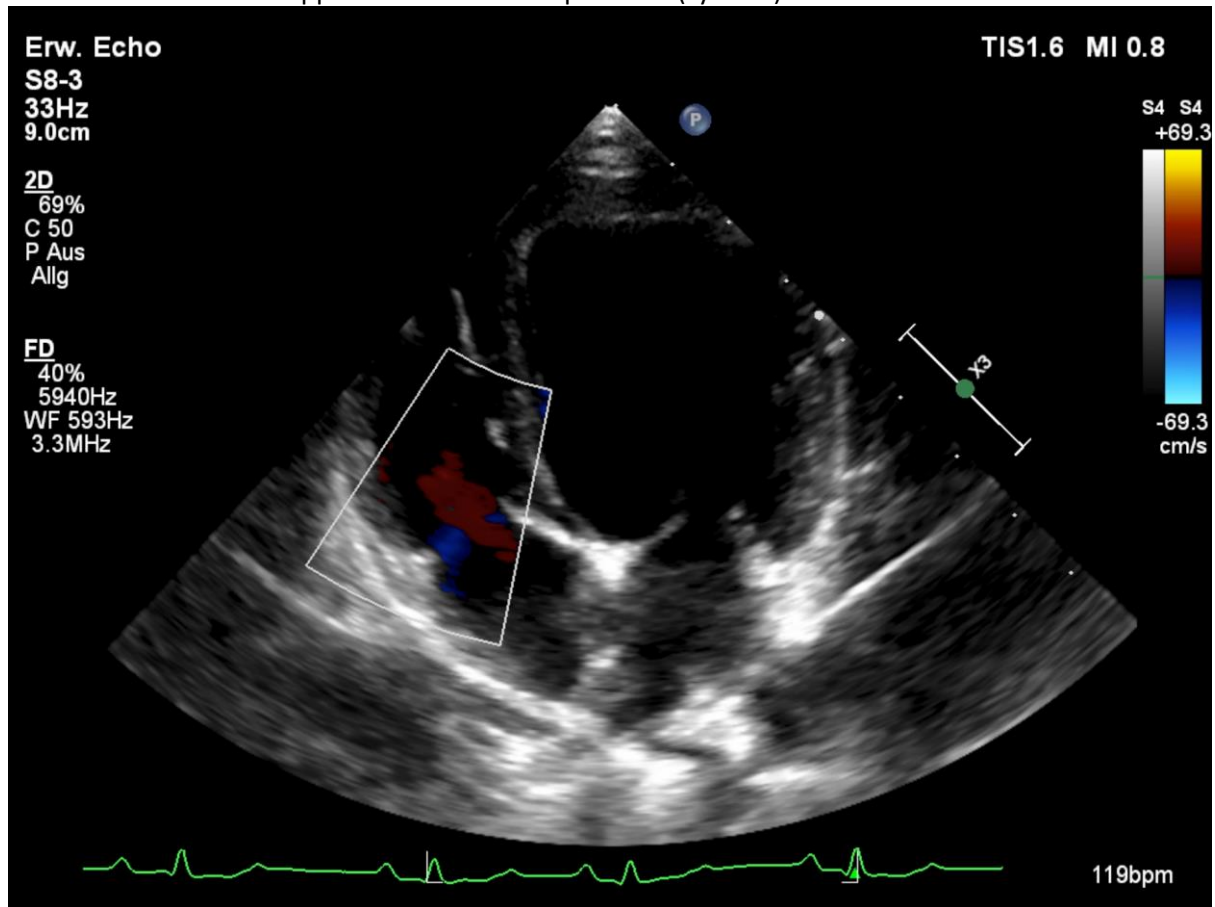


- mitral inflow profile (sample gate between and at the level of the tips of the opened mitral valve leaflets; correct identification of E- and A-wave (E-wave precedes, A-wave follows the P-wave on the ECG), E- and A-wave velocities.

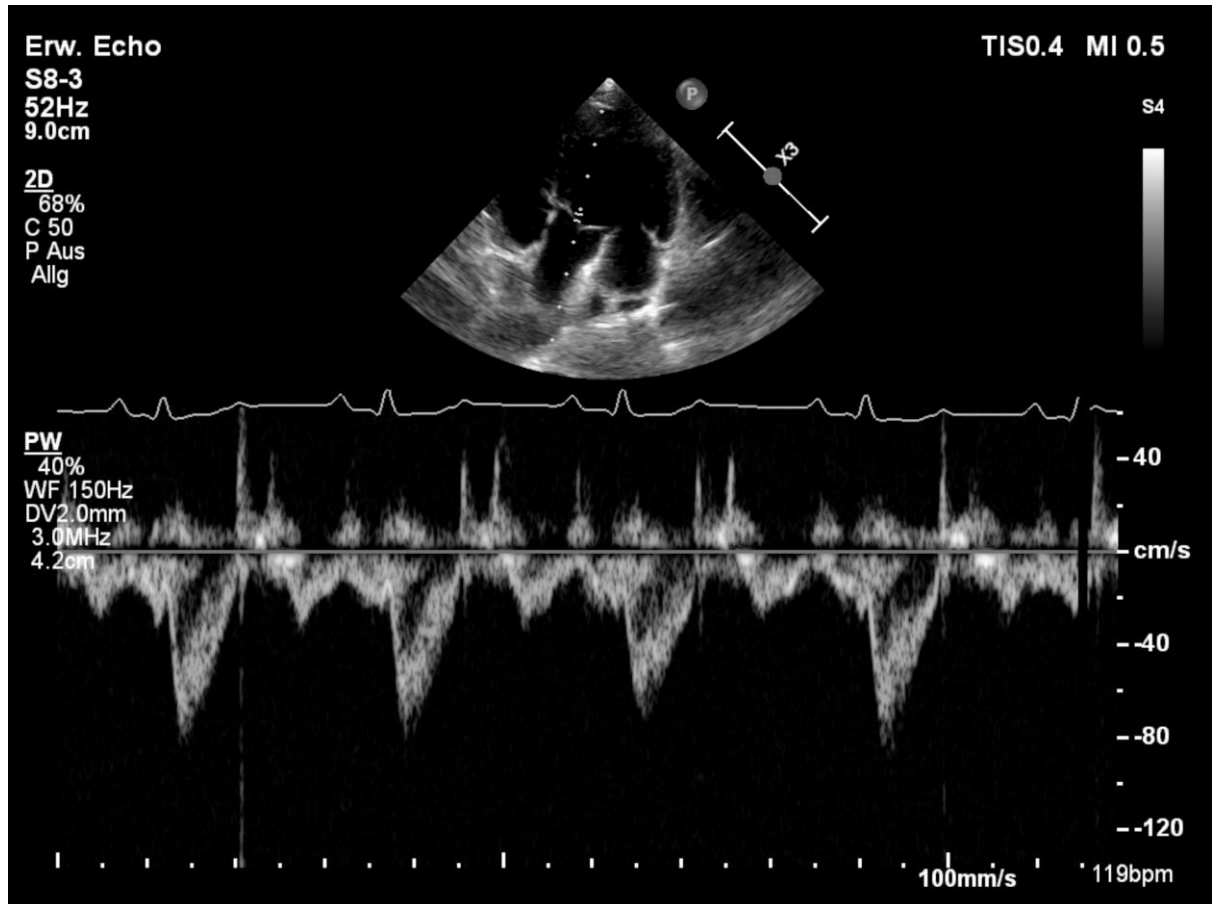
- color Doppler across mitral valve (systolic)



- color Doppler across the tricuspid valve (systolic)



- 5 chamber
 - LVOT color doppler
 - PW-Doppler below and above the aortic valve, CW-Doppler with measurement of v_{max}



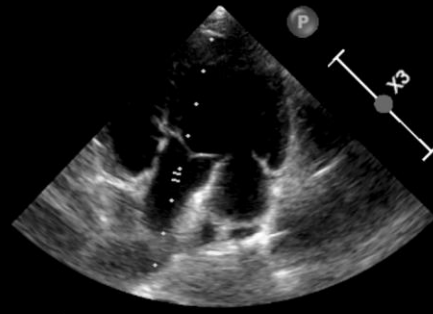
Erw. Echo

S8-3
52Hz
9.0cm

2D
68%
C 50
P Aus
Allg

TIS0.5 MI 0.4

S4



PW
40%
WF 150Hz
DV2.0mm
3.0MHz
5.2cm

-40

cm/s

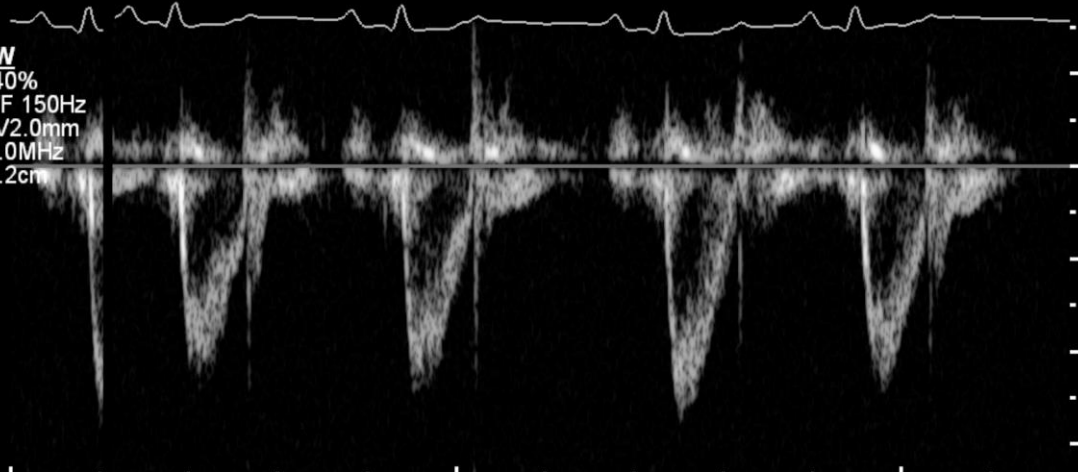
-40

-80

-120

100mm/s

115bpm



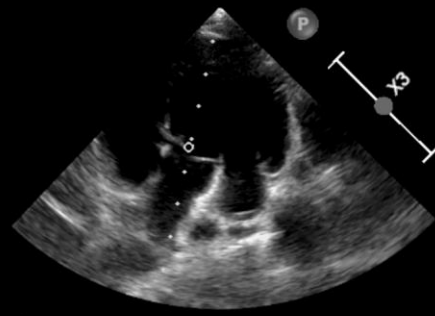
Erw. Echo

S8-3
52Hz
9.0cm

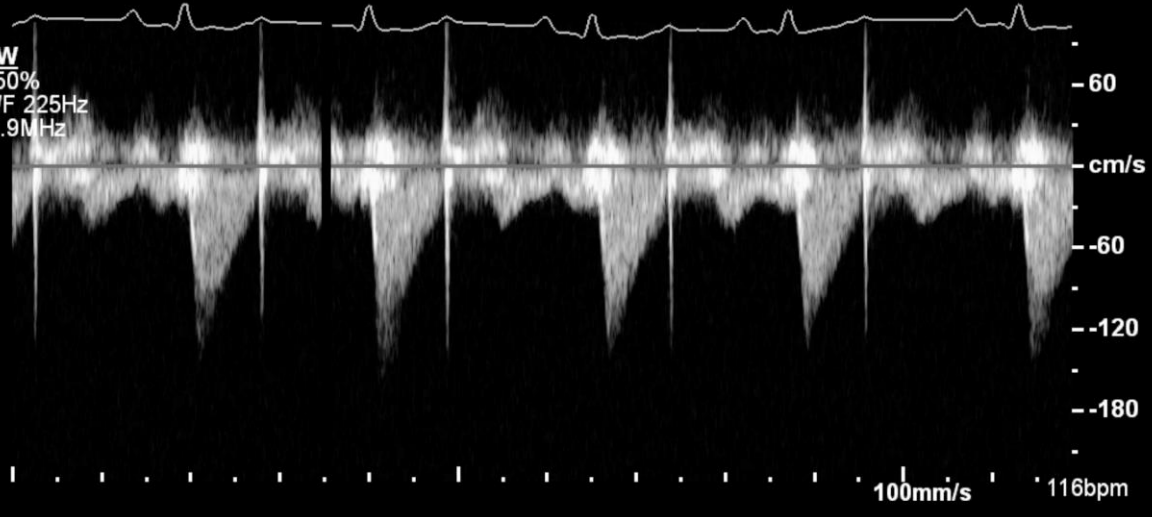
2D
68%
C 50
P Aus
Allg

TIS0.5 MI 0.1

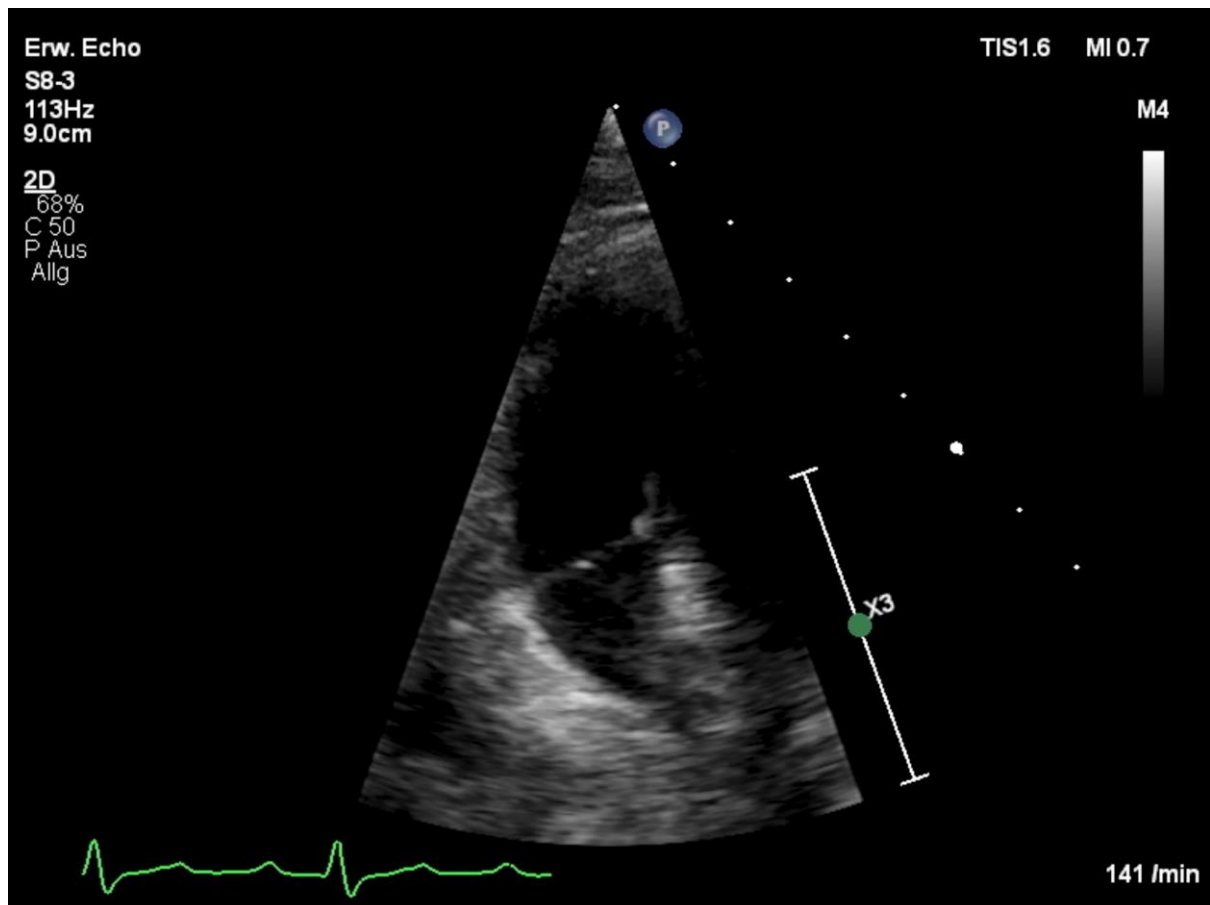
S4



CW
50%
WF 225Hz
2.9MHz



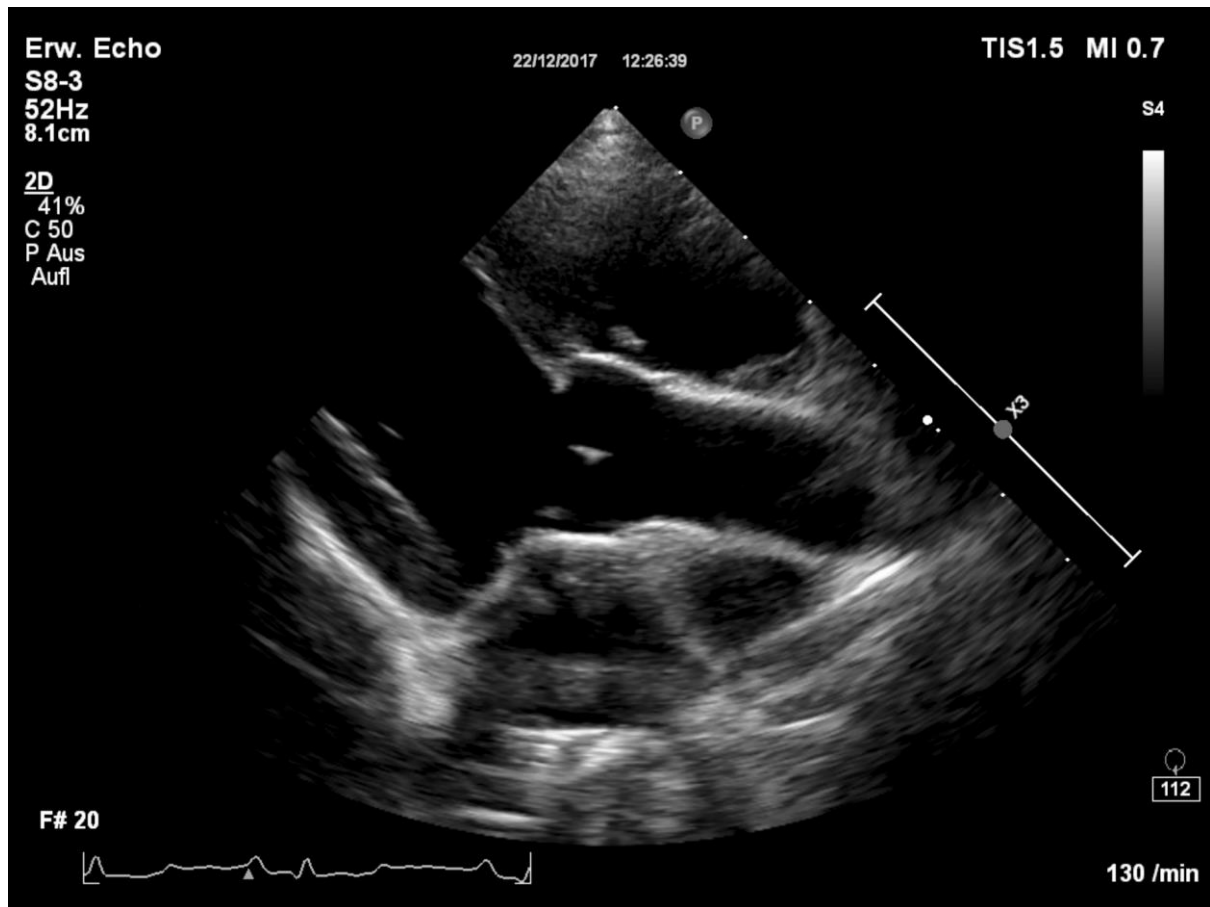
Left cranial view of the RVOT/pulmonic valve and main pulmonary artery (alternatively left parasternal view)



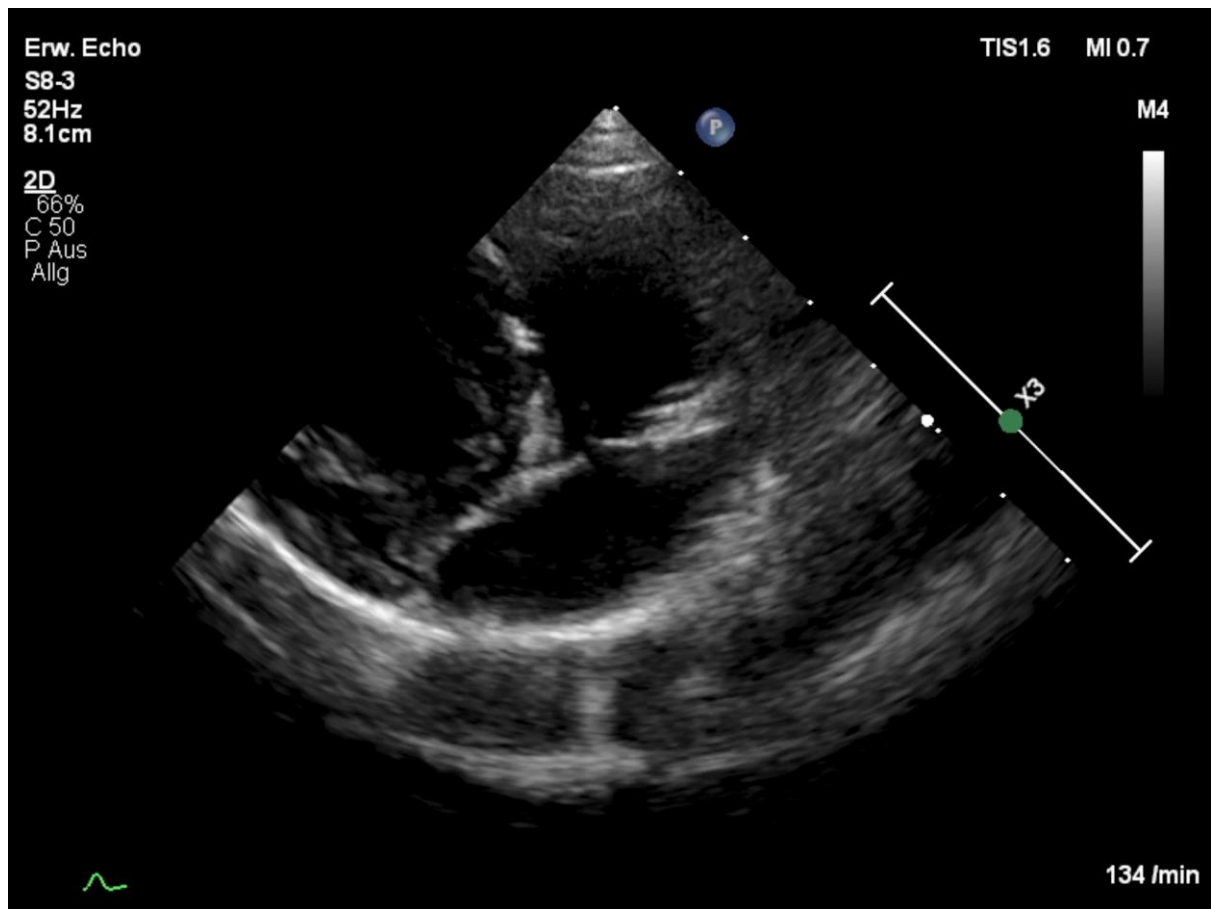
- color flow with appropriate setting
- if Spectral Doppler recordings on the right side were sub-optimal, repeat in this view.

Left parasternal Views

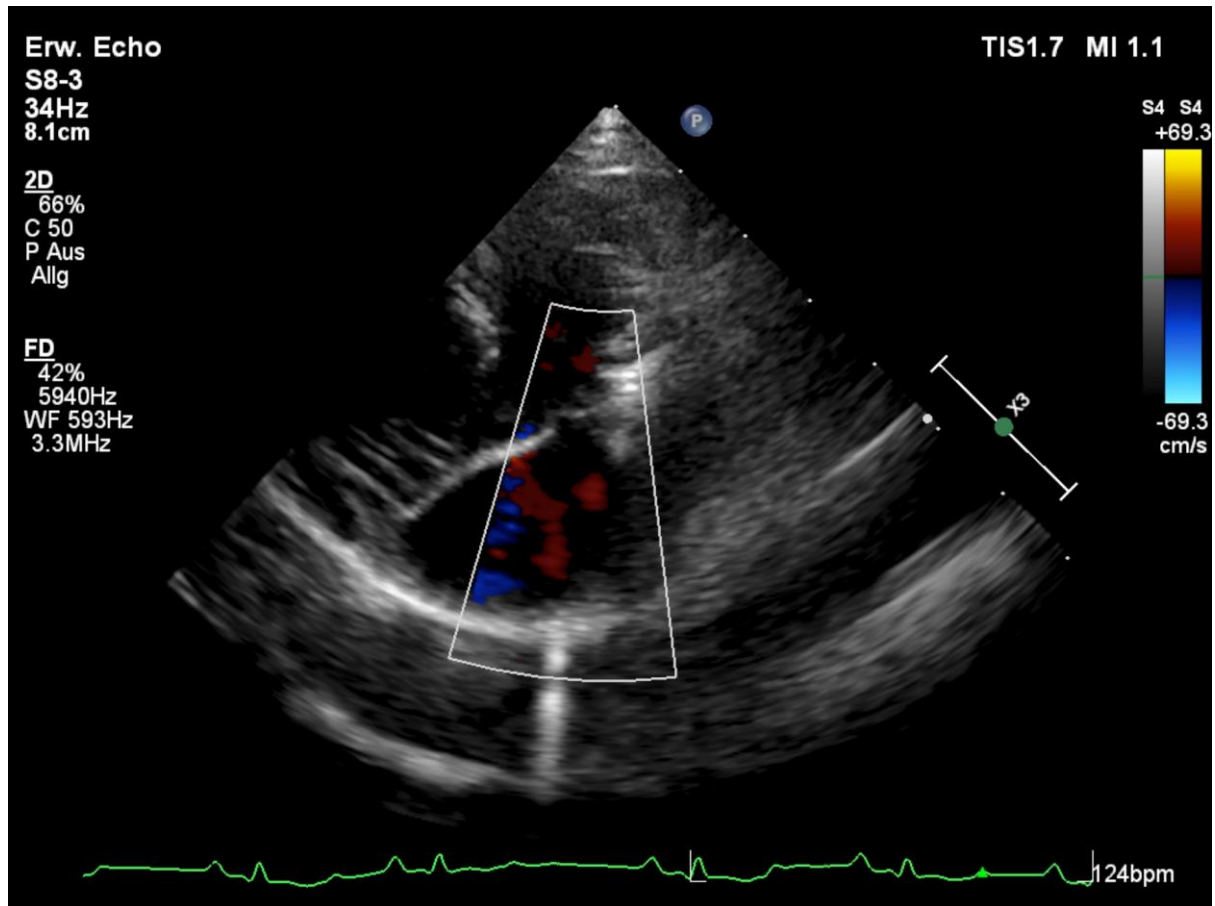
- LVOT/aortic valve/aortic root (long axis)



- Optimized for the tricuspid valve and right auricle



- optimised for the tricuspid valve with correct color Doppler recording



Summary of Cardiology images

Right parasternal Views

Short axis

- LV with papillary muscles
- LV M mode
- Mitral valve M mode and EPSS
- LA/AO 2D with measurements
- PA with right and left branches
- PA color flow
- PA spectral – PW above valve and below valve and CW Vmax

Long axis

- 4 chamber
 - measurement of the AO
 - M mode of the mitral valve
 - Color across MV and TV
- 5 chamber
 - With and without color flow of the LVOT and aortic valve
 - M mode of the AO/LA with measurements

Subcostal (Sub-xiphoid) view of LVOT and aorta

- CW across the LVOT and aortic root with measurement of v_{max}

Left Parasternal Views

Apical 4 chamber

- Mitral inflow profile
- Color flow across MV and TV

Apical 5 chamber

- LVOT color doppler
- PW-Doppler below and above the aortic valve, CW-Doppler with measurement of v_{max}

Cranial long axis view

- LVOT/aortic valve/aortic root (long axis)
- Optimized for the right auricle and TV with and without color

Cranial short axis view

- Left cranial view of the RVOT/pulmonic valve and main pulmonary artery (color flow with appropriate setting)
- if Spectral Doppler recordings on the right side were sub-optimal, repeat in this view.

