

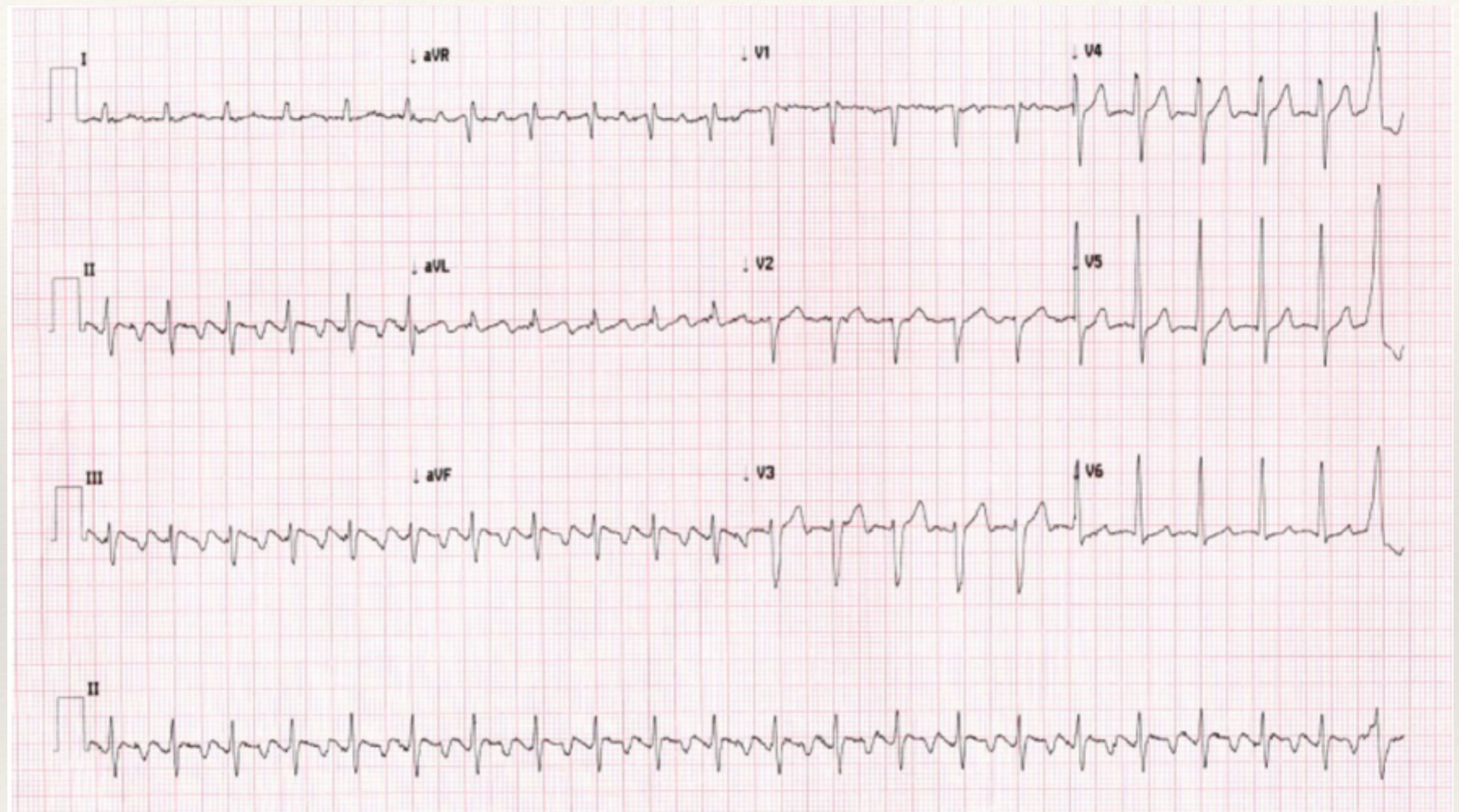
Case Study ED Dept Echo Portable

AFL / DCM

Anthony Ryan
Chief Cardiac Physiologist
Sligo University Hospital

ED admission 7/1/16 MOH

- ❖ MOH Male aged 60 yrs
- ❖ GP Referral to ED with Left sides chest pain, SOB and Palpitations. Excessive sweating. ?ACS.
- ❖ Small Pericardial Effusion 2007
- ❖ ECG and Echo in ED



MOH Lipid Screen

- ❖ Cholesterol 6.5
- ❖ LDL 4.46
- ❖ Smoker 25 per day cigs
- ❖ Grossly elevated d-dimer.
- ❖ CTPA ordered

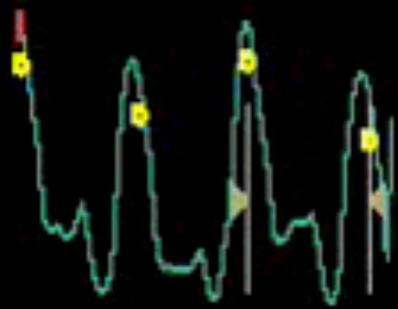
Freq.: 1.7 MHz/3.4 MHz
FPS: 48.1

C10

V

10

20

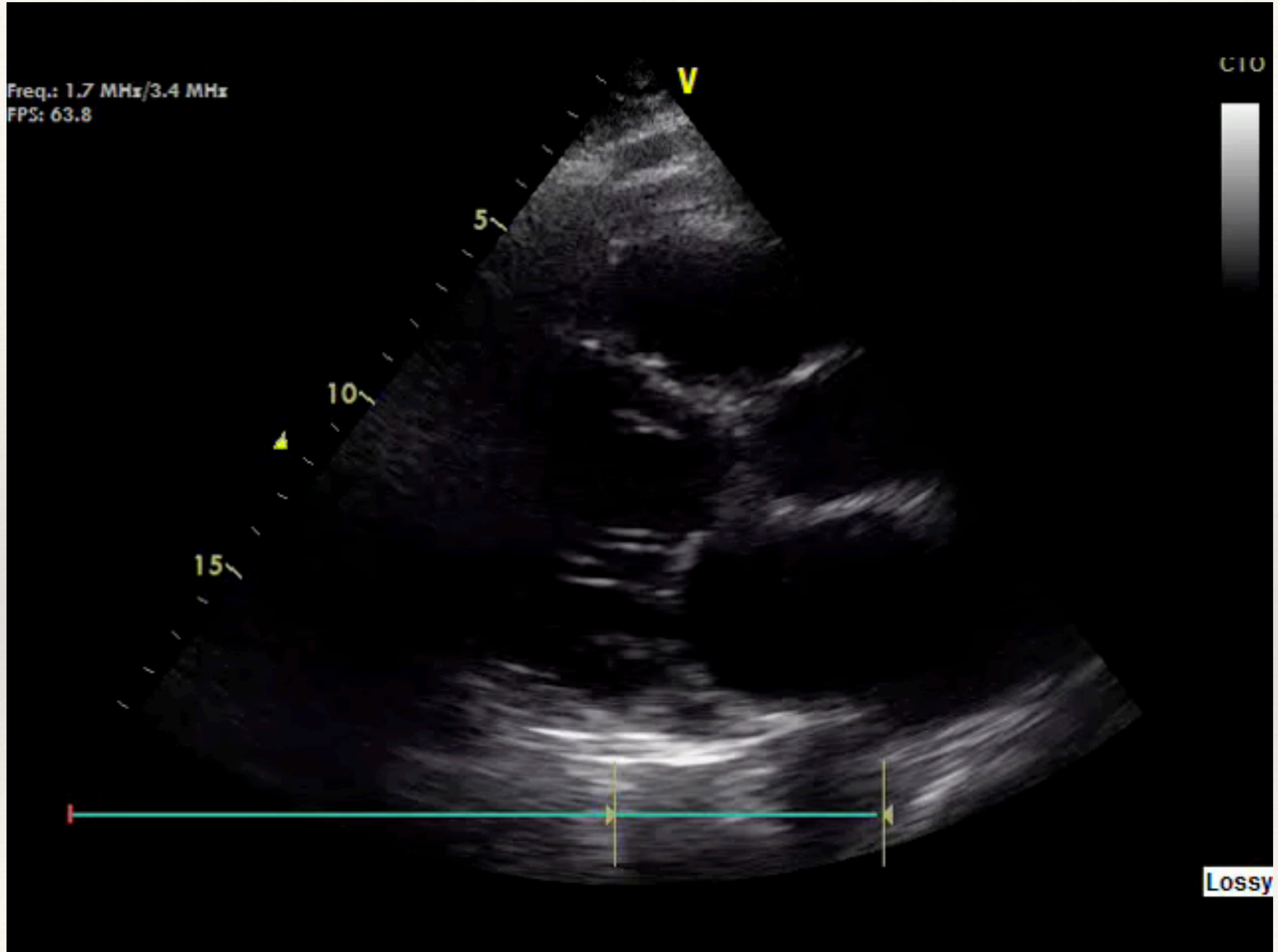


258

Lossy

Freq.: 1.7 MHz/3.4 MHz
FPS: 63.8

C10

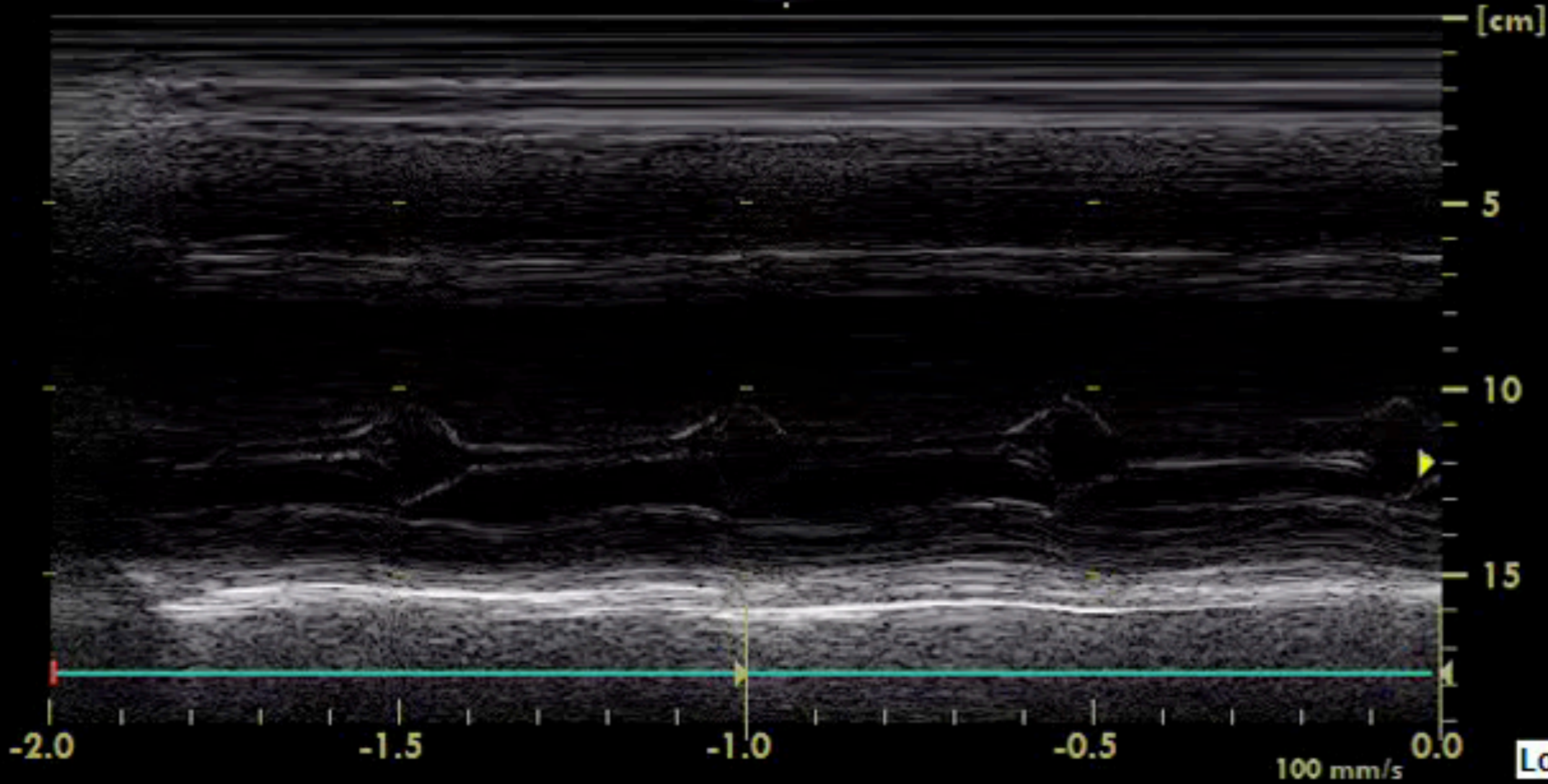


Lossy

Freq.: 1.7 MHz/3.4 MHz
FPS: 35.8



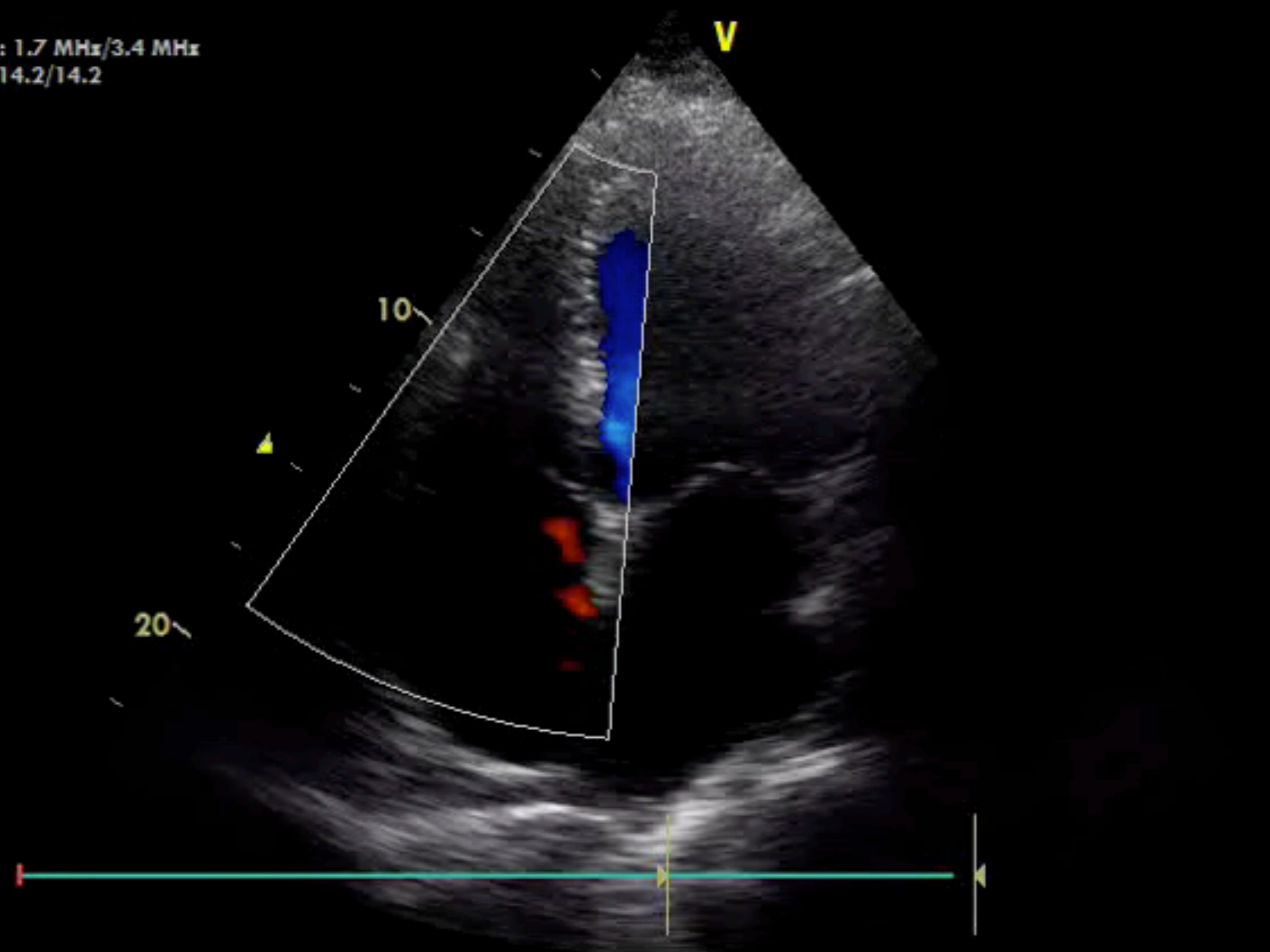
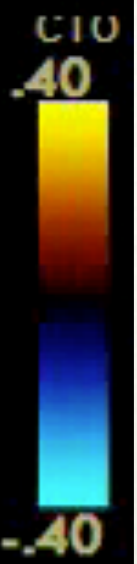
C10



Lossy

Freq.: 1.7 MHz/3.4 MHz
FPS: 14.2/14.2

V



Lossy

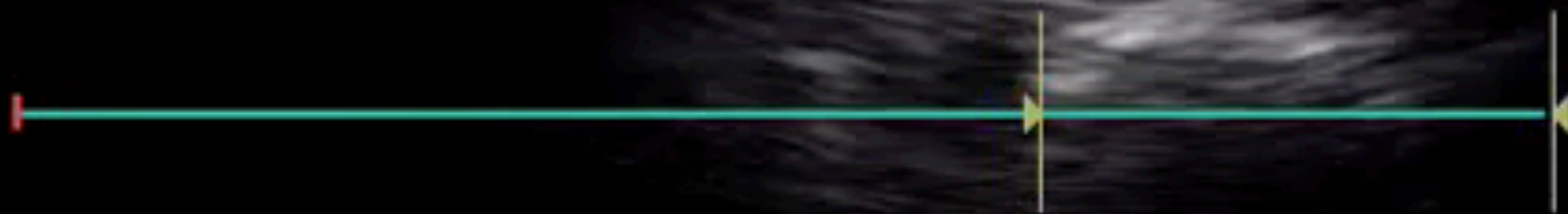
Freq.: 1.7 MHz/3.4 MHz
FPS: 56.0

C10

V

10

20



Lossy

MOH ED Echo portable

- ❖ Bi-atrial enlargement, LA 5.9cm
- ❖ Dilated LV, LVIDd 6.5cm.
- ❖ Dilated RV and severely dilated RA at 6.4cm
- ❖ No thrombus seen
- ❖ Global LV impairment , EF 20%
- ❖ CTPA 7/1/2016. No PE, Prominence of LV with bowing of the septum. Marked reflux of contrast into IVC and Liver

PHILIPS

08/01/2016 02:32:17PM TIS1.2 MI 0.8

S7-2omni/Adult

FR 41Hz
17cm

M3

2D
47%
C 50
P Off
Gen



JPEG

170 bpm

Lossy

Angio Dublin MP 11/1/2016

- ❖ Right Dominant Circulation
- ❖ RCA dominant, Large vessels, slightly ectatic scattered diffuse 10% irregularities. Nil focal or high grade.
- ❖ Left main - Normal
- ❖ Cx- Non dominant, slightly ectatic 10-30% plaque
- ❖ LAD- proximal ectasia. 20% at 1st septal perforator, minor irregularities

Angio Final Diagnosis

- ❖ Dilated LV
- ❖ impaired systolic function EF 20%
- ❖ Non-obstructive Coronary Disease.
- ❖ Medical treatment
- ❖ If EF doesn't improve consider prophylactic ICD

PHILIPS

12/01/2016 11:36:47AM TIS0.5 MI 1.3

S5-1/ANTHONY

FR 39Hz
22cm

M3

2D
70%
C 50
P Low
HGen



JPEG

57 bpm
Lossy

Departmental Echo 12/1/16

- ❖ NSR
- ❖ DCM with restrictive filling pattern
- ❖ Dilated LV 6.5cm
- ❖ Global LV impairment
- ❖ EF 20-25%
- ❖ Mild RV impairment, Severely Dilated Right Heart
- ❖ Diastolic Dysfunction E/E' 14 and Pulm Vein flow

PHILIPS

12/01/2016 11:50:02AM TIS1.1 MI 1.0

560539SGH

Sligo University Hospital

S5-1/ANTHONY

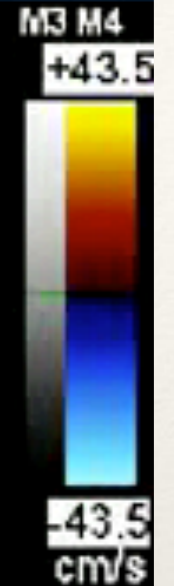
FR 17Hz
26cm

2D
72%
C 50
P Low
HGen

CF
66%
2.5MHz
WF High
Med



PW
50%
1.8MHz
WF 125Hz
SV 4.0mm
18.9cm



:: Pulm Dias Vel
 Vel 74.8 cm/s
 PG 2 mmHg
 + Pulm Sys Vel
 Vel 16.2 cm/s
 PG 0 mmHg

 Pulm S/D 0.2

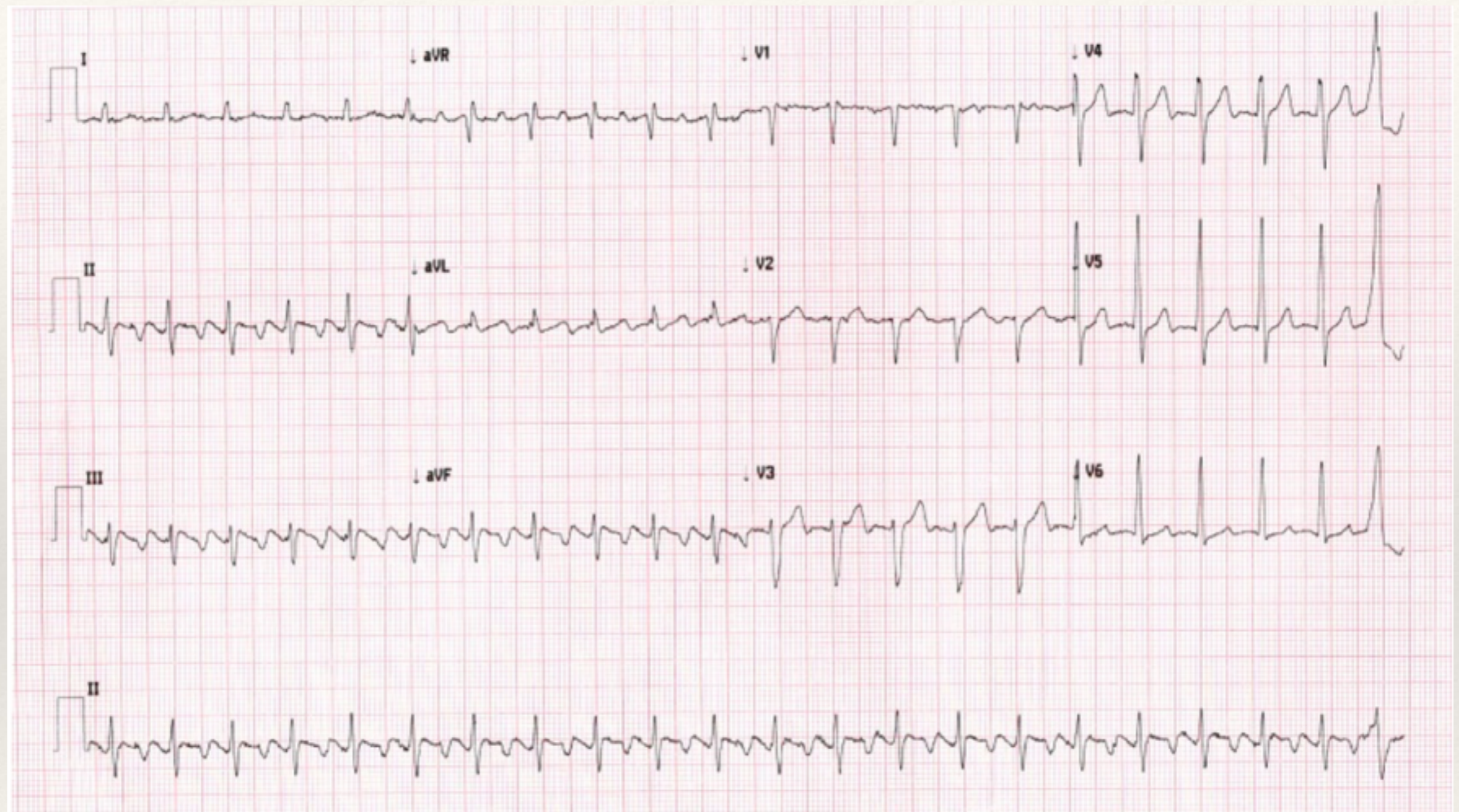
-80
-60
-40
-20
-cm/s
-20
-40

75mm/s

58bp Lossy

MOH discharge meds

- ❖ Statin
- ❖ Amiodarone
- ❖ Bisop
- ❖ Apixaban
- ❖ Eltroxin
- ❖ Ramipril
- ❖ Furosemide
- ❖ Humira



Atrial Flutter

- ❖ Is the expression of a *rapid* and *regular* atrial excitation.
- ❖ May be due to either two mechanisms.
 - ❖ 1. A circus movement that results from a continuous, self-perpetuating circular path of excitation coursing around the orifices of the SVC and IVC. This is the most likely mechanism.
 - ❖ 2. A focal discharge-rapid discharge of an ectopic atrial focus; similar to that extrasystolic-paroxysmal-atrial tachycardia.

Atrial Flutter

- ❖ The ventricular response to the rapid atrial activity depends upon the efficacy of A-V conduction.
- ❖ Occasionally, every atrial impulse or excitatory circuit is conducted to the ventricles - a 1:1 response-resulting in a very fast ventricular rate.
- ❖ More commonly, second degree AV block is present e.g in a ratio of 2:1, 4:1, 6:1 or 8:1. which results in a relatively slow ventricular rate.

Atrial Flutter

- ❖ Even ratios of 2:1, 4:1 or 6:1 are commoner than odd ratios of 3:1 or 5:1.
- ❖ Sometimes the conduction ratio fluctuates, e.g from 4:1 to 6:1 to 2:1 ratios etc. this results in completely irregular ventricular rhythm.
- ❖ Regular 3:2 conduction ratios will result in ventricular bigeminal rhythm. Alternating 4:1 and 2:1 conduction ratios will also result in bigeminal rhythm.

Atrial Flutter

- ❖ Atrial Flutter may also be complicated by complete AV Block. Intraventricular conduction of the flutter impulses may at times be associated with phasic aberrant ventricular conduction.

ECG Characteristics

- ❖ Cardinal sign of AFL is the presence of regular, undulating closely spaced but relatively wide atrial deflections or flutter-“F” - waves affecting the whole baseline and resulting in a regular, corrugated or saw-tooth appearance.
- ❖ The isoelectric level between flutter waves is much shortened and is frequently not discernible.

AFL

- ❖ The manifestation of AFL is usually seen in the frontal leads, especially standard leads 2 and 3 and lead AVF.
- ❖ The F waves are usually negative in these leads, thereby reflecting a superior F wave axis.
- ❖ Lead V1 in contrast shows no iso-electric shelf and the F waves tend to be narrow. The T waves are usually masked or deformed by the flutter waves.

AFL

- ❖ The flutter waves are best seen in standard leads 2 and lead V1.
- ❖ The QRS complex's are normal unless there is coincidental bundle branch block, or a complicated phasic aberrant ventricular conduction.
- ❖ When the saw tooth appearance shows some irregularity or distortion suggestive of AF, the condition is sometimes referred to as flutter-fibrillation.
- ❖ Digoxin often converts AFL to AF due to a shortening of the atrial refractory period. This may convert to NSR when Digoxin is stopped.

Significance

- ❖ AFL is commonly associated with chronic rheumatic valvular disease and ischaemic, hypertensive and pulmonary heart disease. Like paroxysmal atrial tachycardia, it has an abrupt onset and termination.
- ❖ Succeeding attacks of AFL tend to last longer and frequently precede permanent AF.
- ❖ AFL is more responsive to electrical conversion than any other tachyarrhythmia.