



UNIUNEA EUROPEANĂ



GUVERNUL ROMÂNIEI



Fondul Social European
POSDRU 2007-2013



Instrumente Structurale
2007-2013



GUVERNUL ROMÂNIEI
MINISTERUL MUNCII, FAMILIEI,
PROTECȚIEI SOCIALE
ȘI PERSOANELOR VÂRSTNICE
OIRPOSDRU REGIUNEA CENTRU



UNIVERSITATEA DE MEDICINĂ ȘI
FARMACIE "CAROL DAVILA"
BUCUREȘTI

AD-COR Program inovativ de formare in domeniul cardiologiei pediatrice POSDRU/179/3.2/S/152012

Noiembrie 2015

MODUL TEORETIC

CURS RECAPITULATIV - EXEMPLIFICARI

Continut documentat/ validat/ prezentat de:

- ⇒ Expert formare medici: NICOLESCU Alin
- ⇒ Expert formare medici: VEDUTA Alina

A4 – Planificarea, organizarea si desfasurarea activitatilor de formare a medicilor in domeniul cardiologiei pediatrice

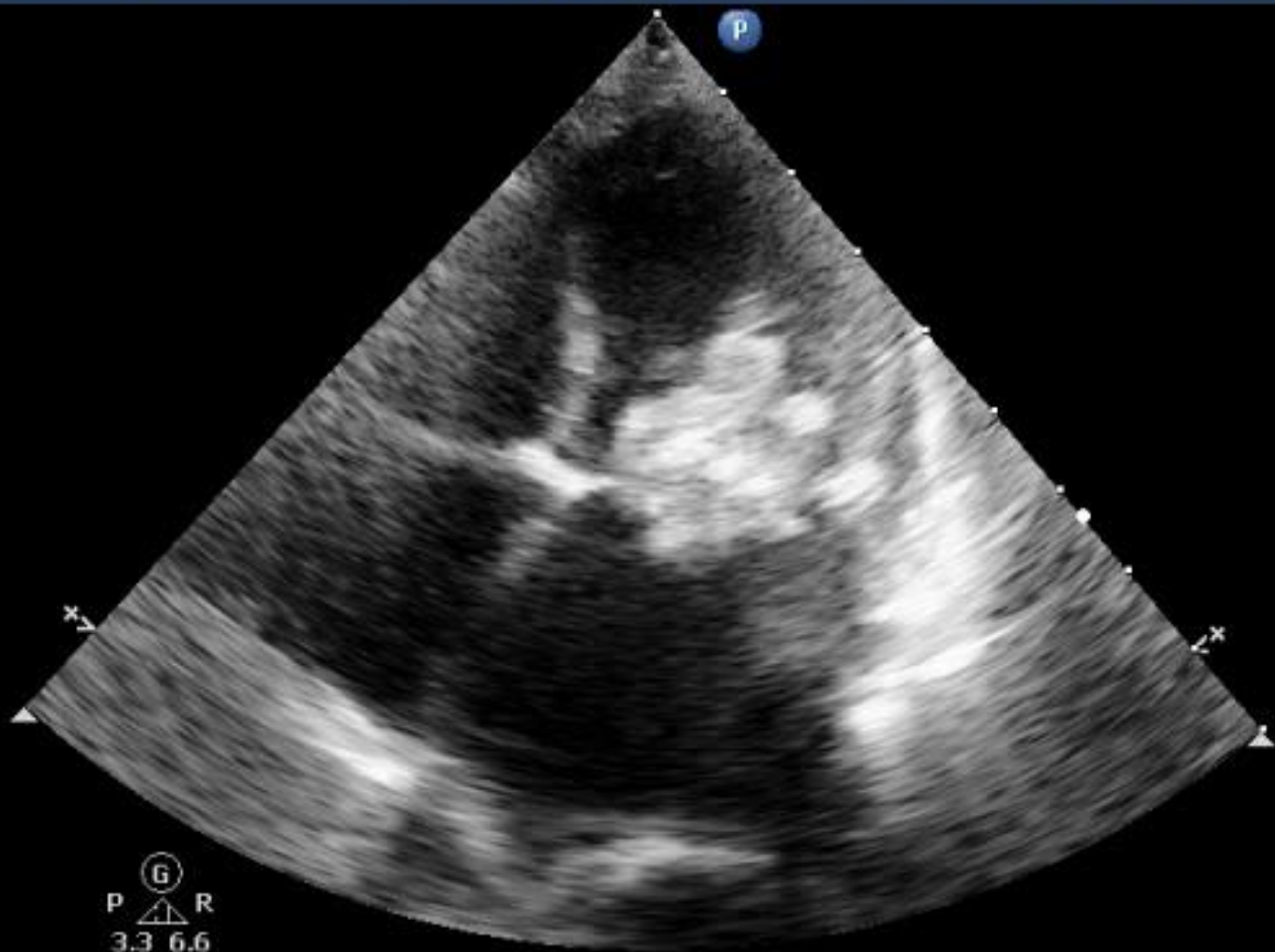
1



CORD 10-14
S8-3
105 Hz
9.0cm

2D
HGen
Gn 55
C 46
2/2/0
75 mm/s

70



⊙
P △ R
3.3 6.6

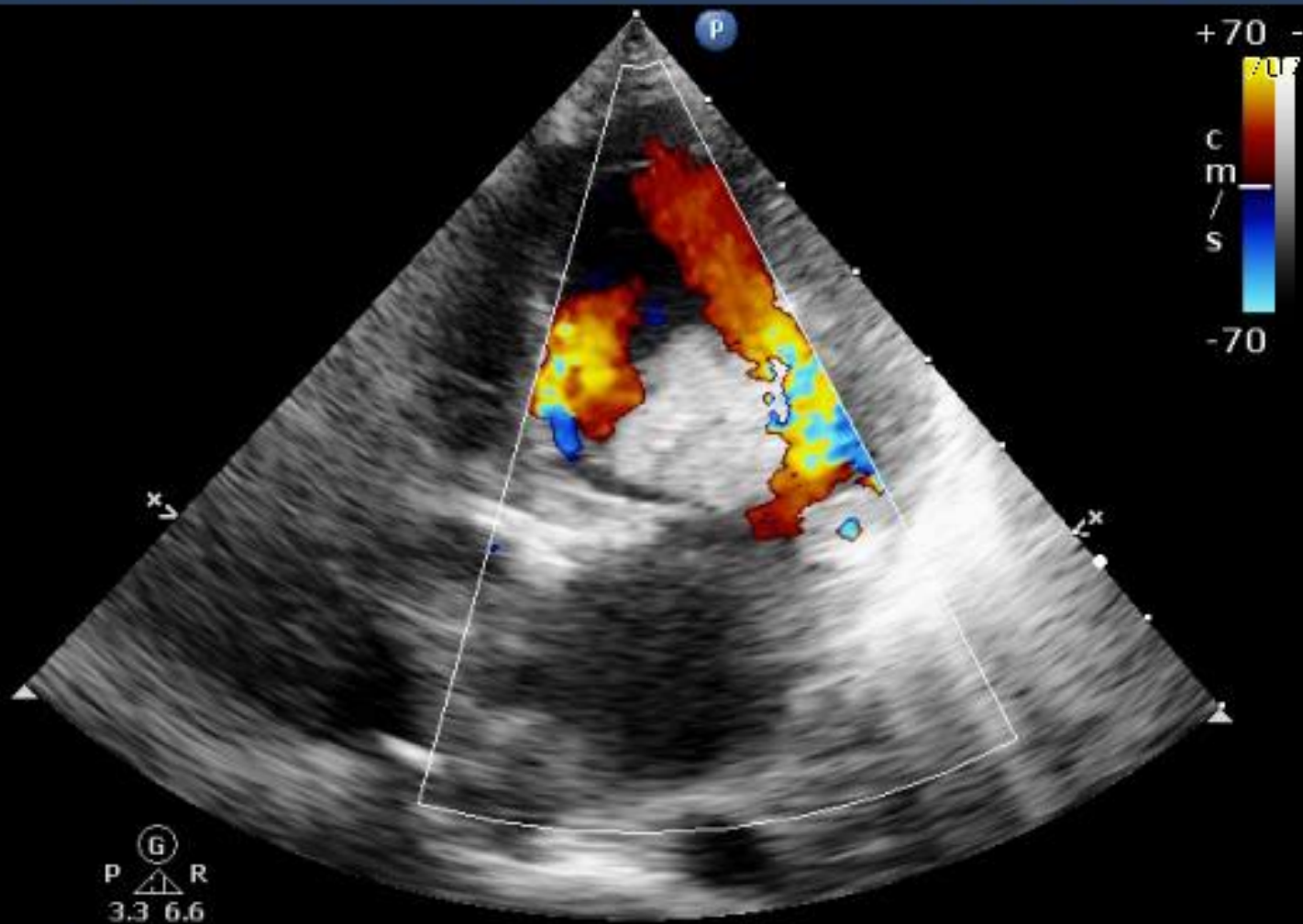
WL: 128 WW: 256 [D]

3/12/2014 1:48:17 AM

CORD 10-14
S8-3
26 Hz
8.0cm

2D
HGen
Gn 55
C 46
2/2/0
75 mm/s

Color
3.1 MHz
Gn 86
4/7/2
Fltr High



Ⓞ
P △ R
3.3 6.6

WL: 128 WW: 256 [D]

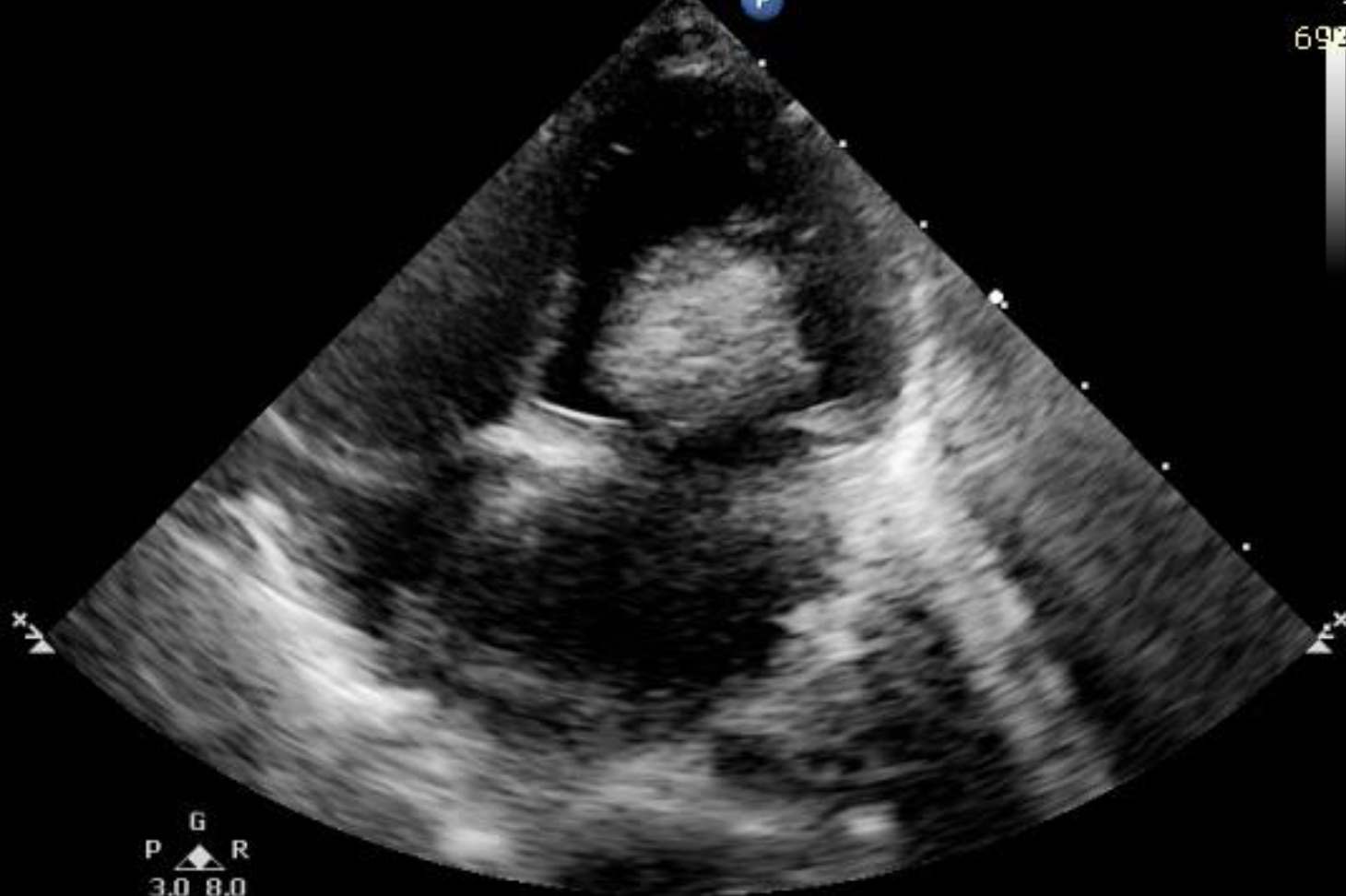
3/12/2014 1:48:46 AM

Ped Echo
S8-3
74 Hz
8.0cm

692

2D

Gen
Gn 29
C 50
6 / 3 / 0
100 mm/s



G
P R
3.0 8.0

WL: 128 WW: 256 [D]

3/10/2014 6:11:25 AM

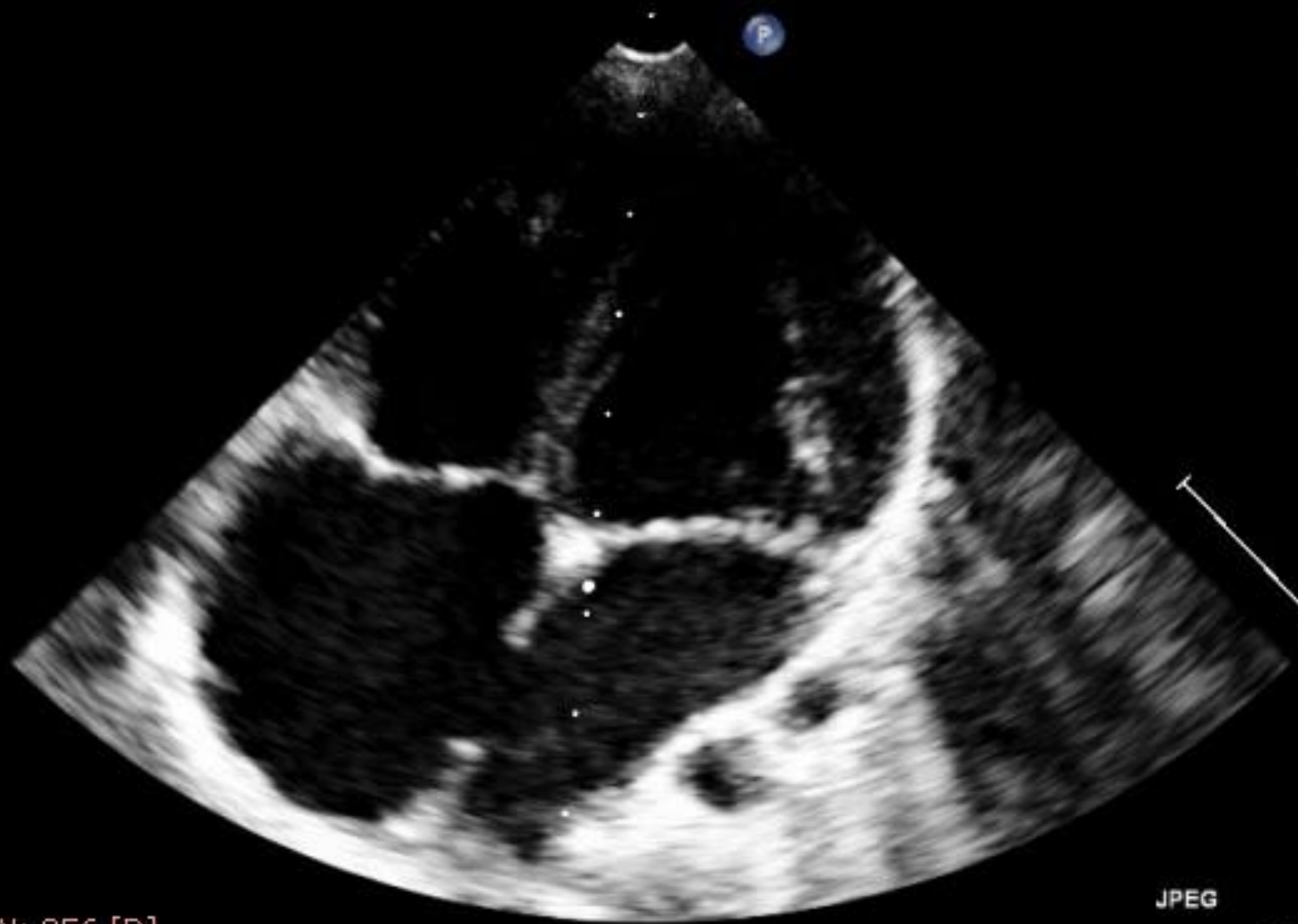
2

Lossy compression (JPG)

FR 68Hz
9.0cm

Spitalul Marie Curie
20140918.122802

2D
56%
C 50
P Low
HGen



WL: 128 WW: 256 [D]

JPEG

*** bpm
9/18/2014 12:28:02 PM

FR 50Hz
15cm

M3

2D
52%
C 50
P Low
HGen



P

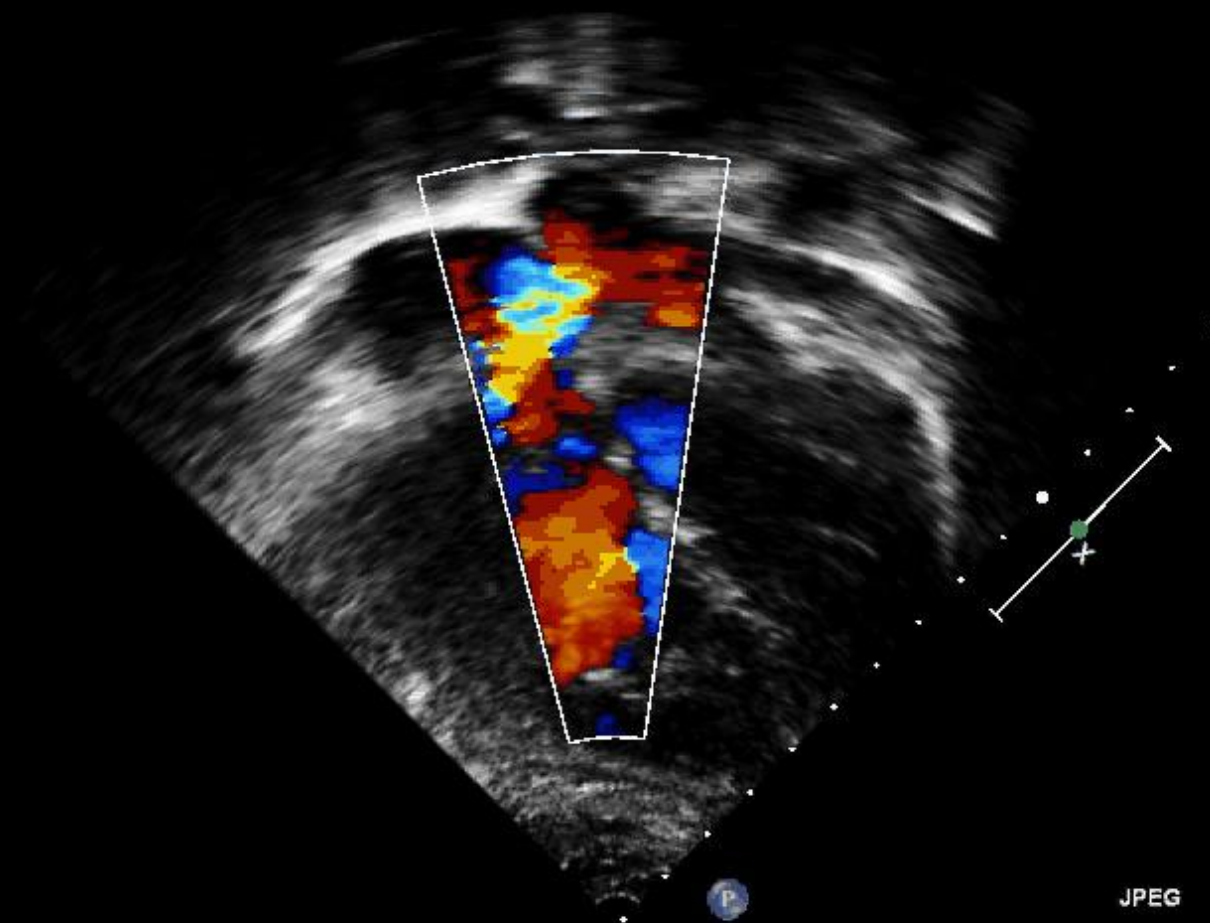
JPEG

*** bpm

FR 22Hz
15cm

2D
51%
C 50
P Low
HGen

CF
66%
2.5MHz
WF High
Med



P

JPEG

*** bpm

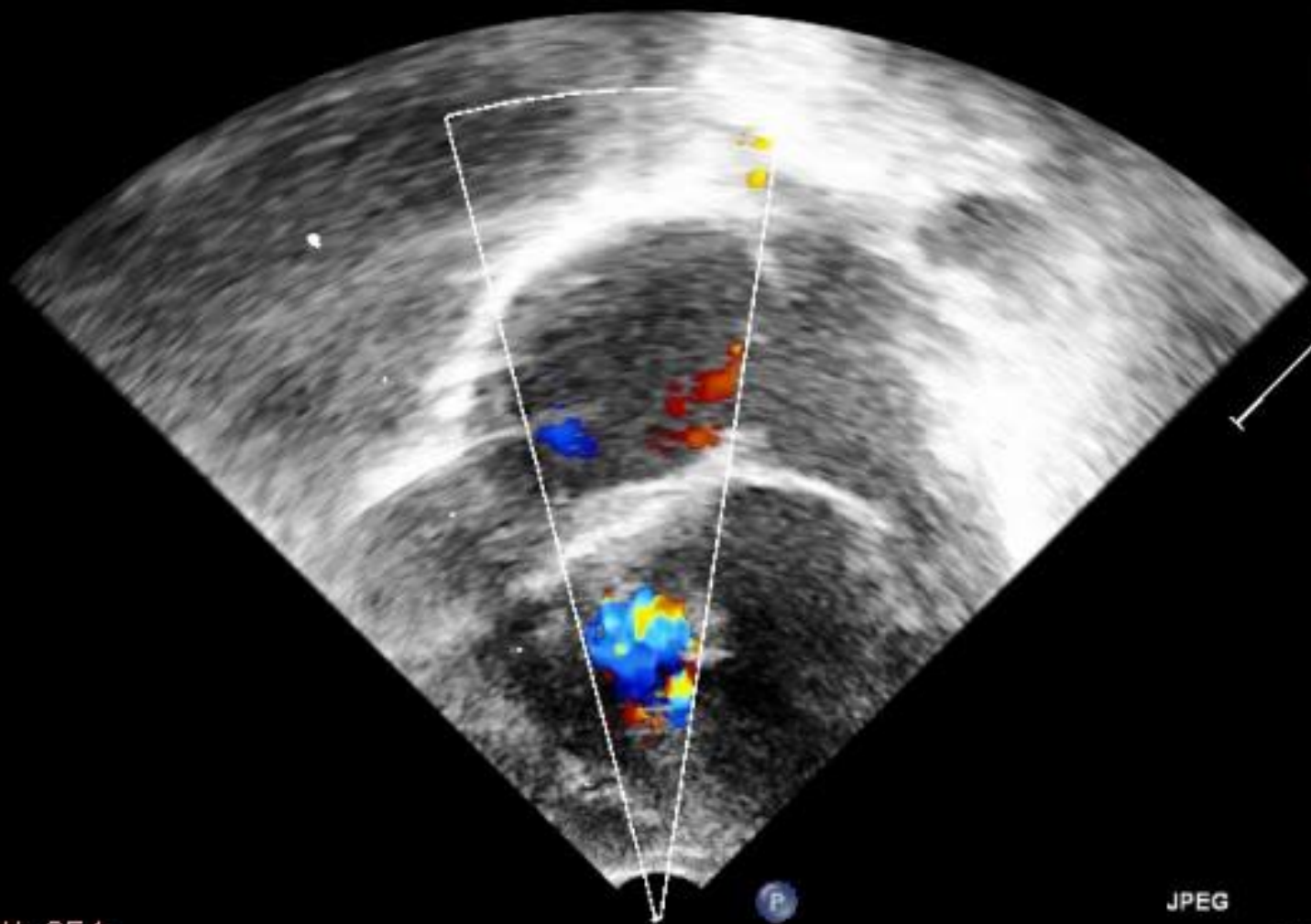
3



FR 48Hz
6.0cm

2D
66%
C 50
P Off
Res

CF
77%
3.0MHz
WF High
Med



WL: 128 WW: 254

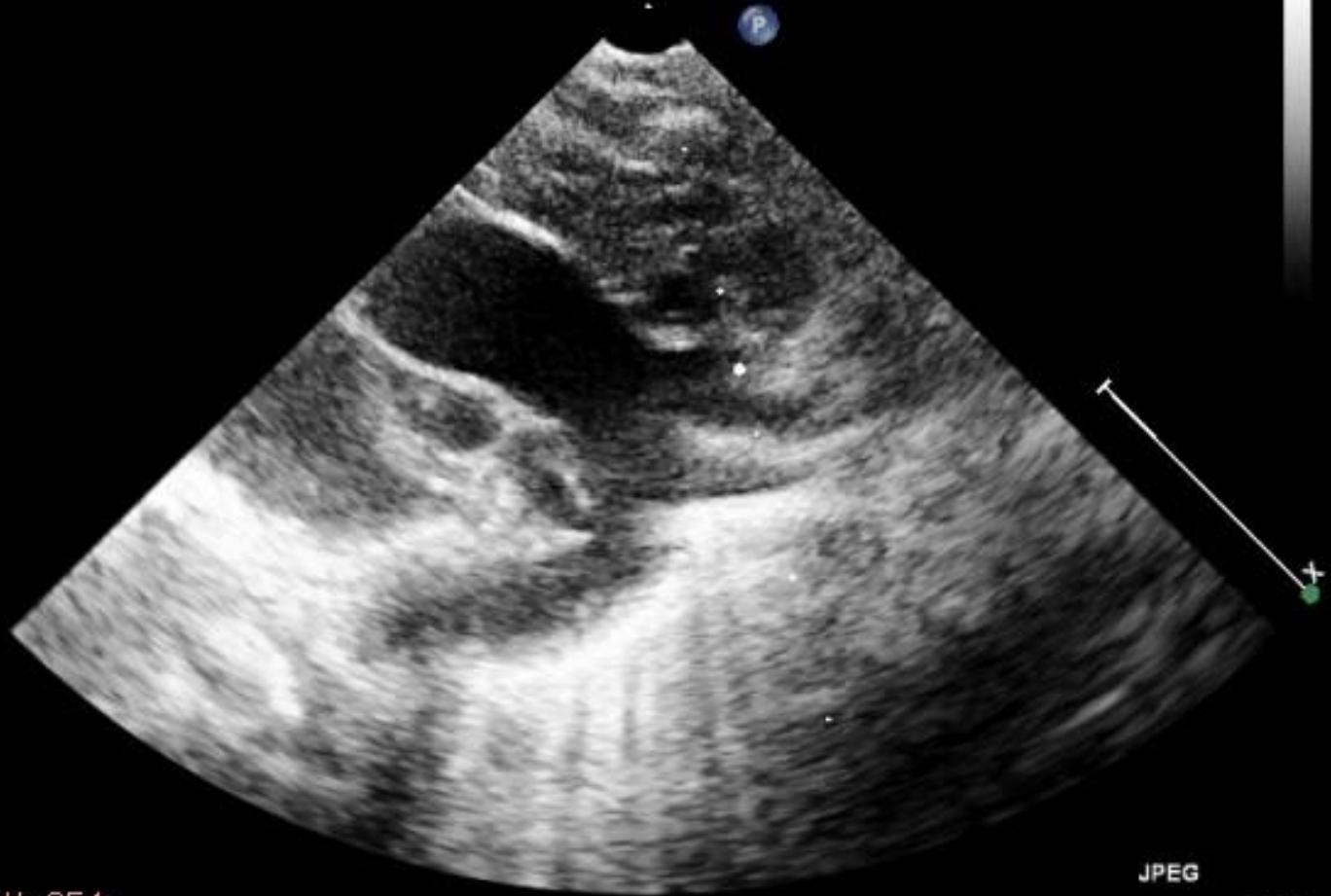
JPEG

*** bpm
4/23/2015 9:58:49 AM

FR 61Hz
6.0cm

Spitalul Marie Curie
20150423.095849

2D
56%
C 50
P Off
Res



WL: 128 WW: 254

JPEG

*** bpm
4/23/2015 9:58:49 AM

FR 78Hz
8.1cm

Spitalul Marie Curie
20150423.095849

2D
86%
C 51
P Off
Gen



WL: 128 WW: 256 [D]

JPEG

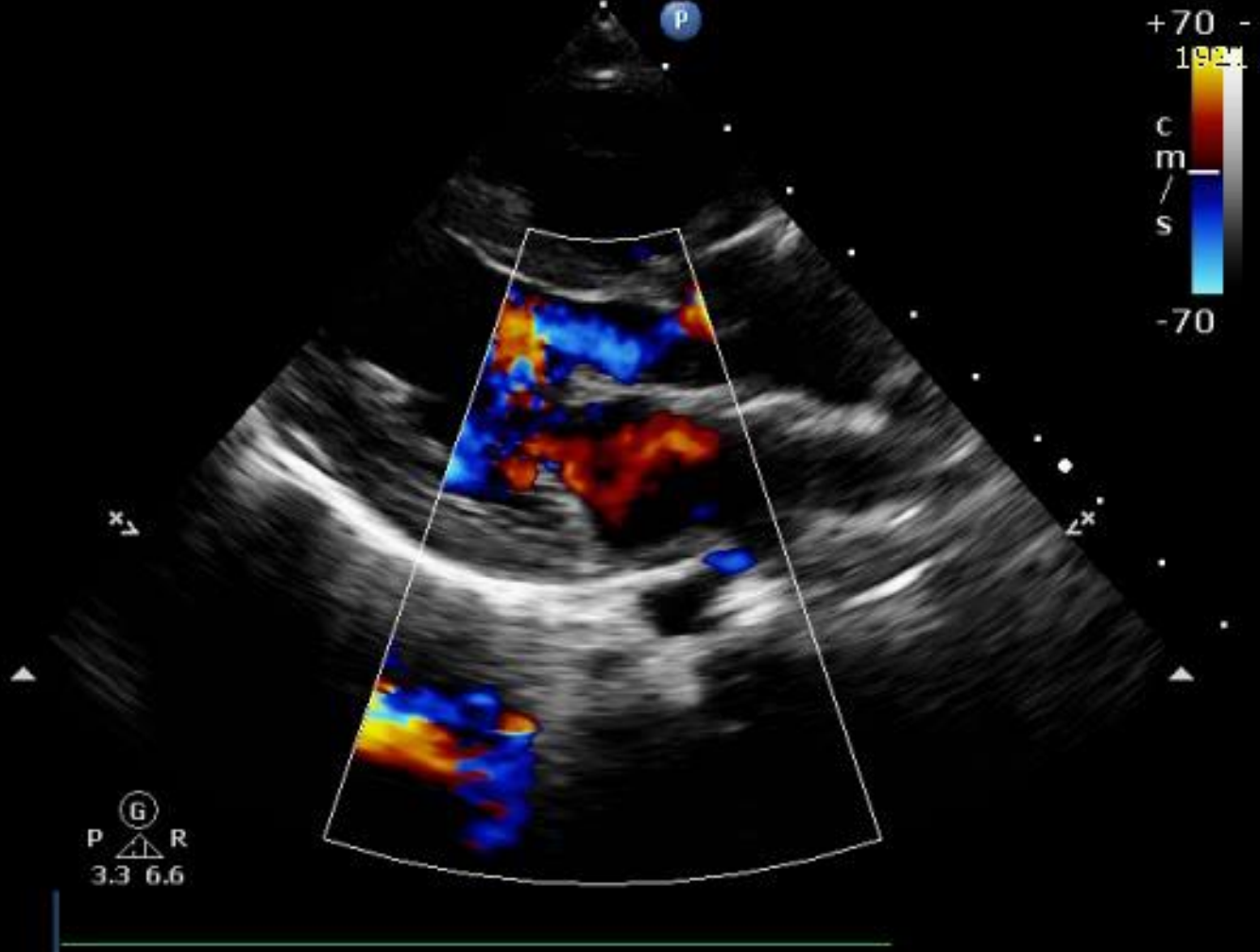
*** bpm
4/23/2015 9:58:49 AM

4

CORD 10-14
S8-3
27 Hz
10.0cm

2D
HGen
Gn 37
C 46
2/2/0
75 mm/s

Color
3.1 MHz
Gn 60
4/7/2
Fltr High



+70 -
1904
cm
/
s
-70

Ⓞ
P △ R
3.3 6.6

WL: 128 WW: 256 [D]

10/24/2014 11:07:28 AM

CORD 10-14
S8-3
89 Hz
11.0cm

192

2D
HGen
Gn 59
C 46
2/2/0
75 mm/s



x7



P

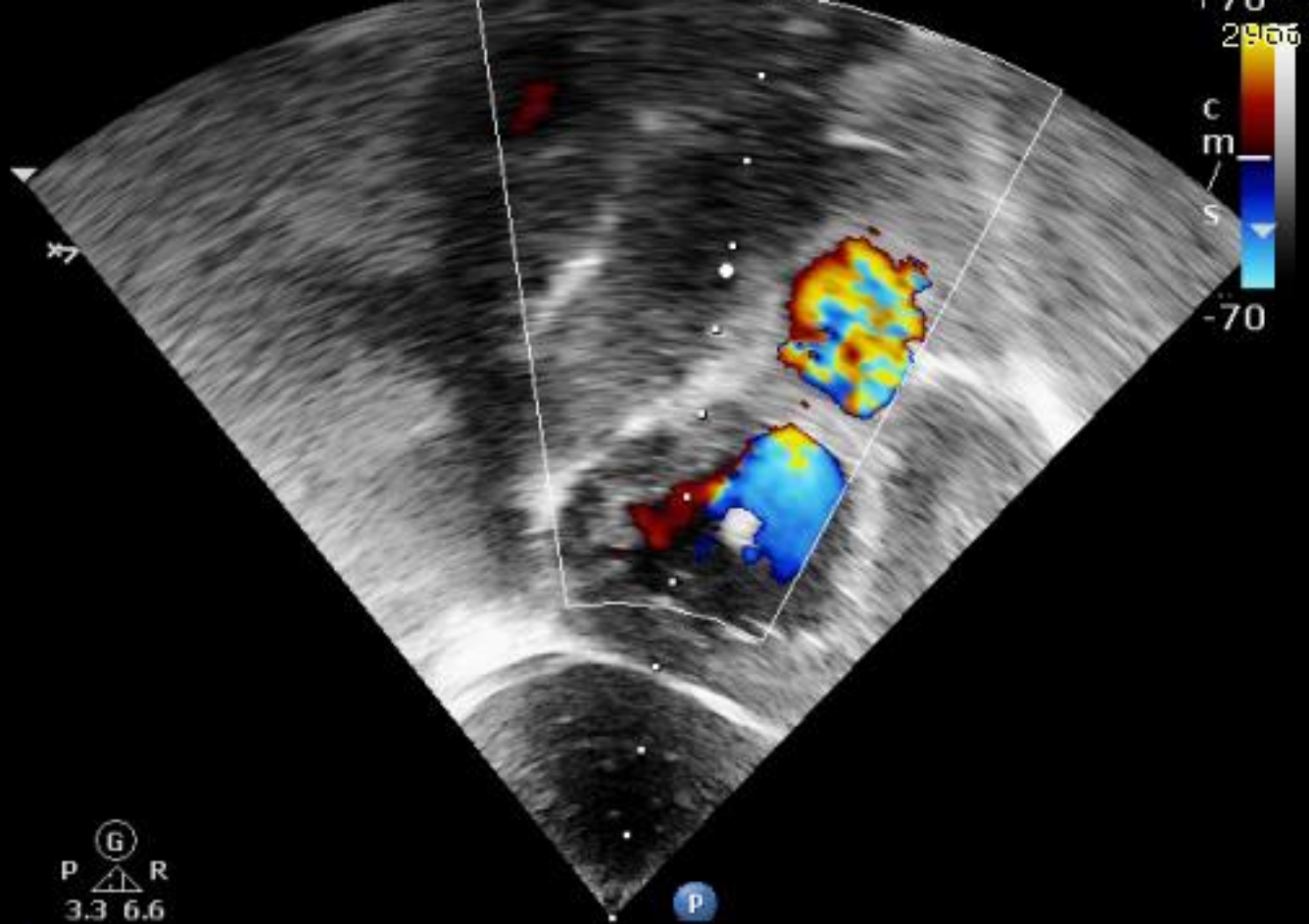
WL: 128 WW: 256 [D]

10/24/2014 11:11:59 AM

D 10 14
-3
Hz
.0cm

Gen
n 58
46
/2/0
5 mm/s

lor
1 MHz
n 63
/7/2
tr High



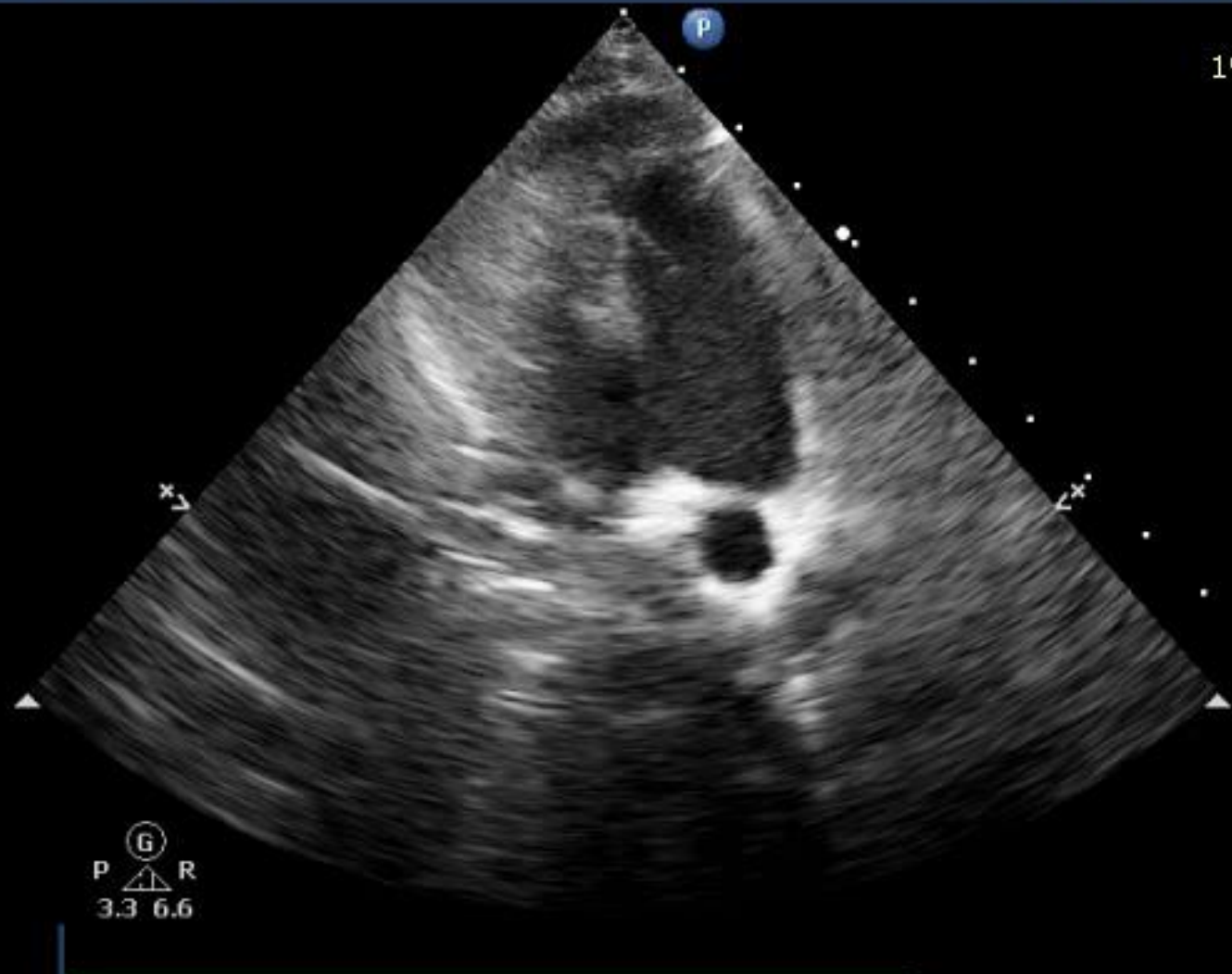
L: 128 WW: 256 [D]

3/17/2015 6:29:30 PM

CORD 10-14
S8-3
92 Hz
11.0cm

2D
HGen
Gn 59
C 46
2/2/0
75 mm/s

1921



WL: 128 WW: 256 [D]

10/24/2014 11:10:08 AM

5

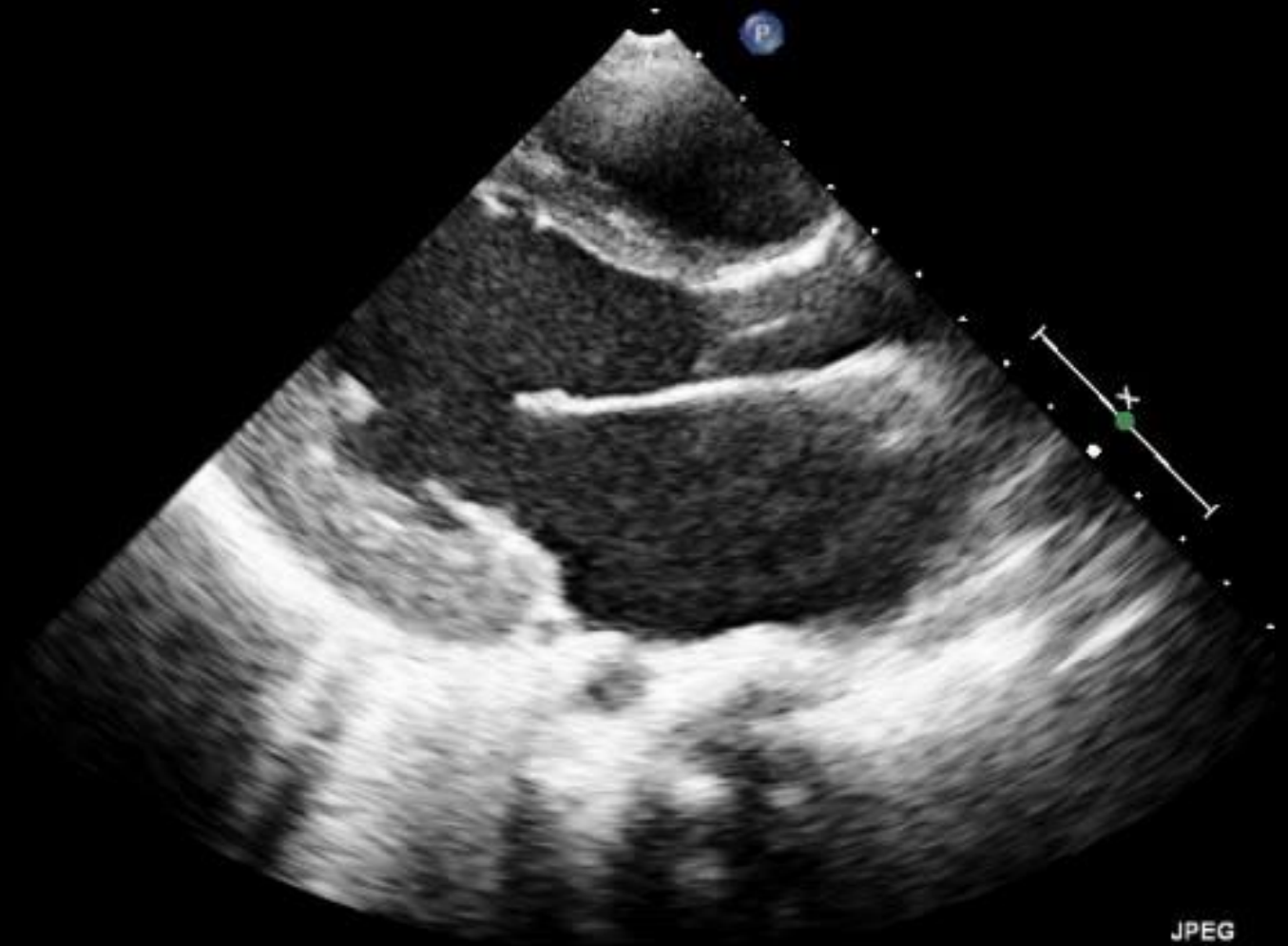


Lossy compression (JPEG)

FR 50Hz
15cm

Spitalul Marie Curie
20150903.121012

2D
70%
C 50
P Low
HGen



WL: 128 WW: 256 [D]

JPEG

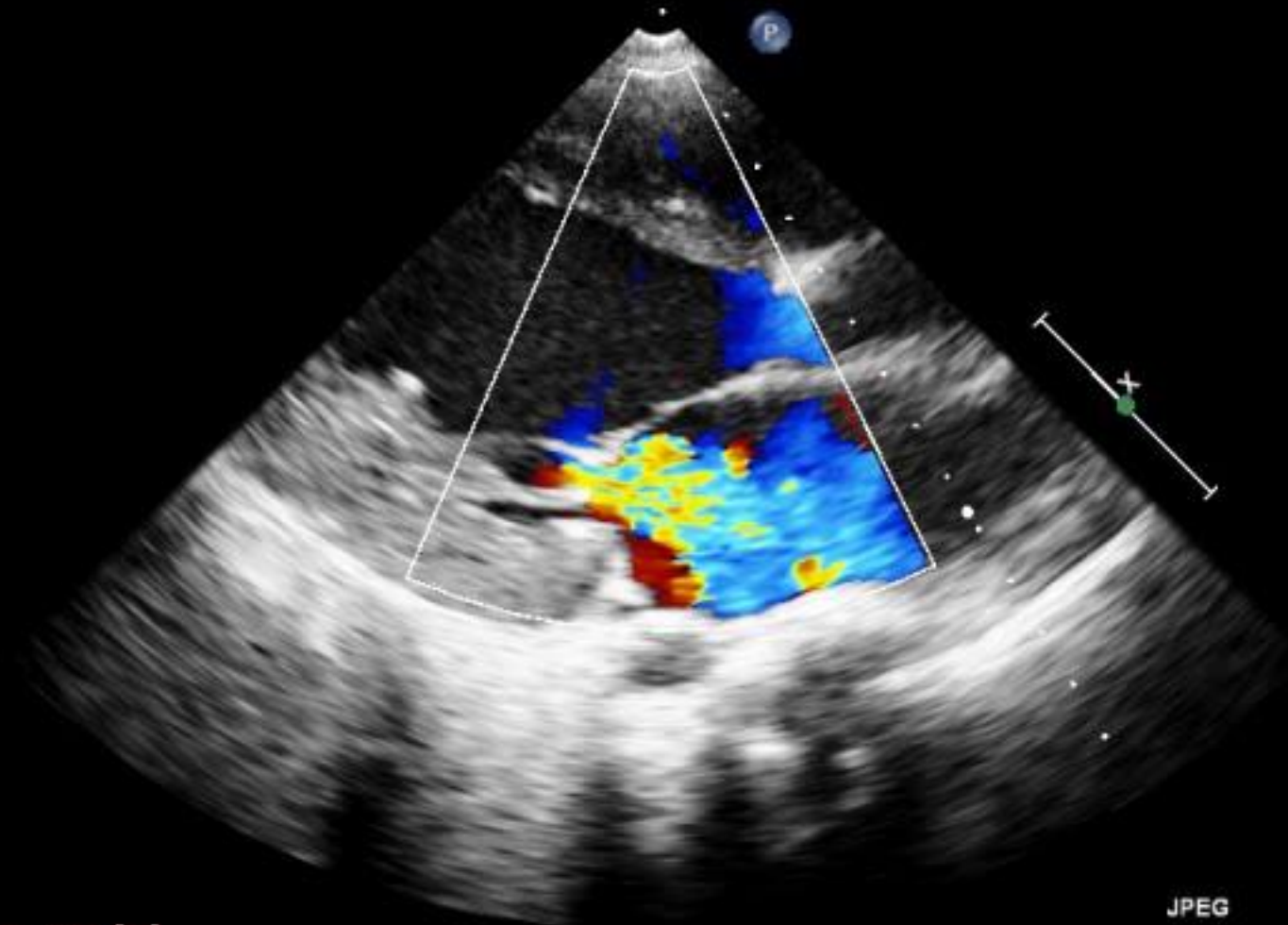
*** hpm
9/3/2015 12:10:12 PM

PR 12Hz
15cm

Spitalul Marie Curie
20150903.12:10:12

2D
70%
C 50
P Low
HGen

CF
66%
2.5MHz
WF High
Med



-61.6
cm/s

WL: 128-WW: 256 [D]

JPEG
*** bpm
9/3/2015 12:10:12 PM

Lossy compression (JPEG)

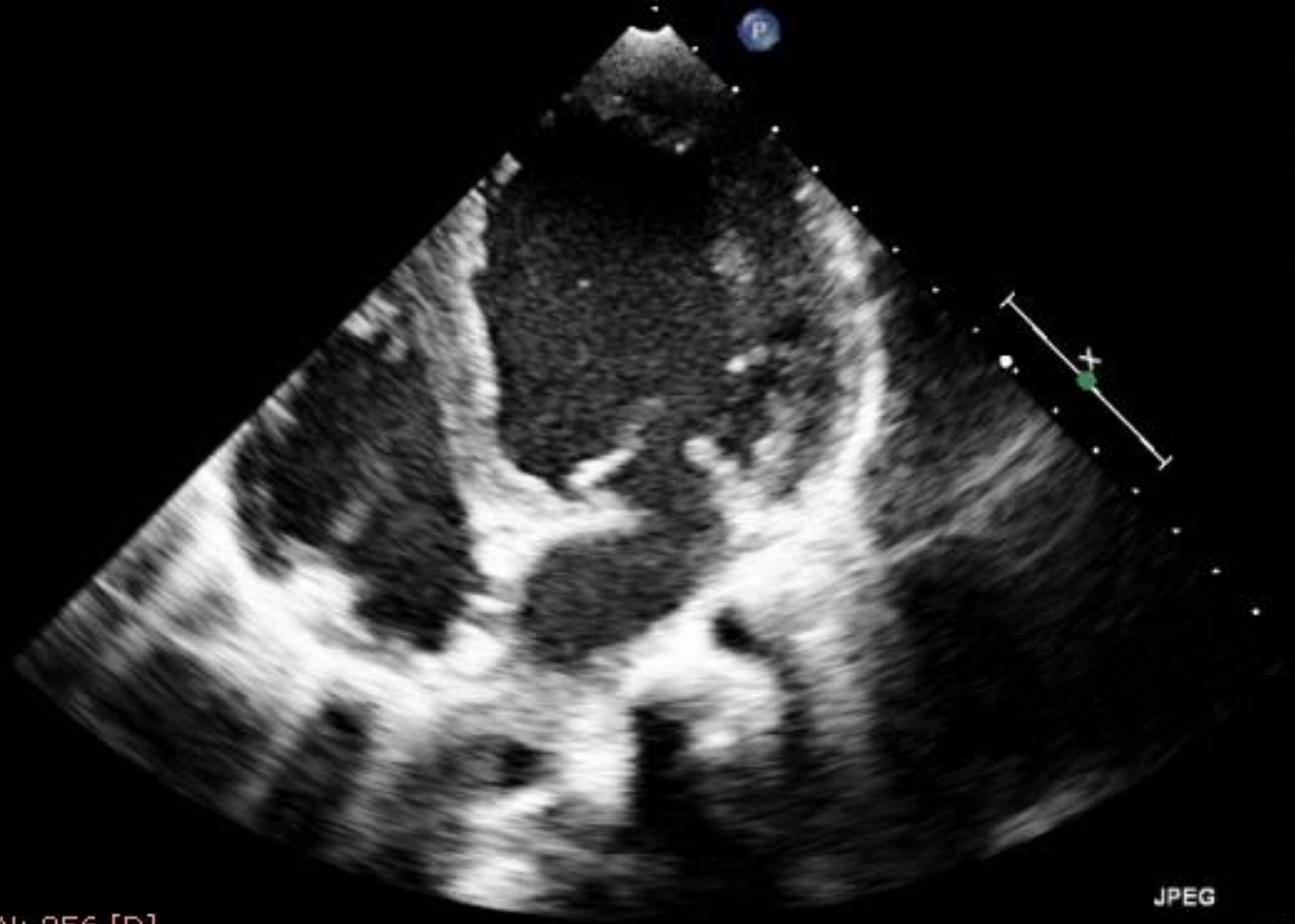
20150903.121012

S9-17Ped-CHD

FR 49Hz
16cm

Spitalul Marie Curie
20150903.121012

2D
70%
C 50
P Low
HGen



WL: 128 WW: 256 [D]

JPEG

*** bpm
9/3/2015 12:10:12 PM

Lossy compression (JPEG)

FR 49Hz
16cm

Spitalul Marie Curie
20150903.121012

2D
70%
C 50
P Low
HGen



WL: 128 WW: 256 [D]

JPEG

*** hpm
9/3/2015 12:10:12 PM

12101220150903

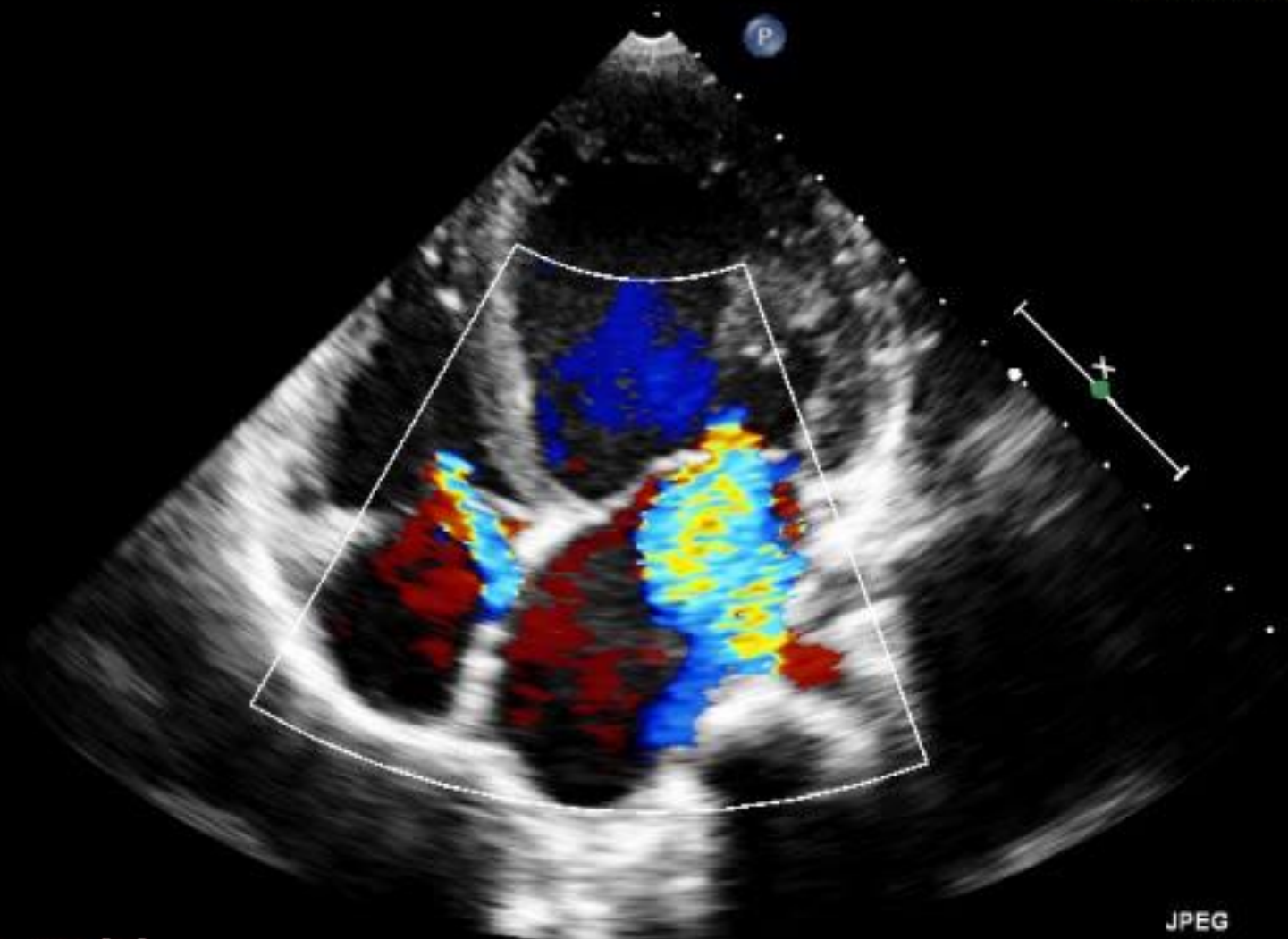
S5-17/Ped-CHD

FR 12Hz
16cm

Spitalul Marie Curie
20150903.121012

2D
67%
C 50
P Low
HGen

CF
66%
2.5MHz
WF High
Med



JPEG

WL: 128.WW: 256 [D]

*** bpm
9/3/2015 12:10:12 PM

6

Lossy compression (JPEG)

18/10/2014

FR 61Hz
10cm

Spitalul Marie Curie
20150219.131016

2D
70%
C 50
P Off
Res



JPEG

WL: 128 WW: 256 [D]

*** bpm
2/19/2015 1:10:16 PM

Lossy compression (JPG)

FR 24Hz

10cm

18/10/2014

Spitalul Marie Curie
20150219.131016

2D

76%

C 50

P Off

Res

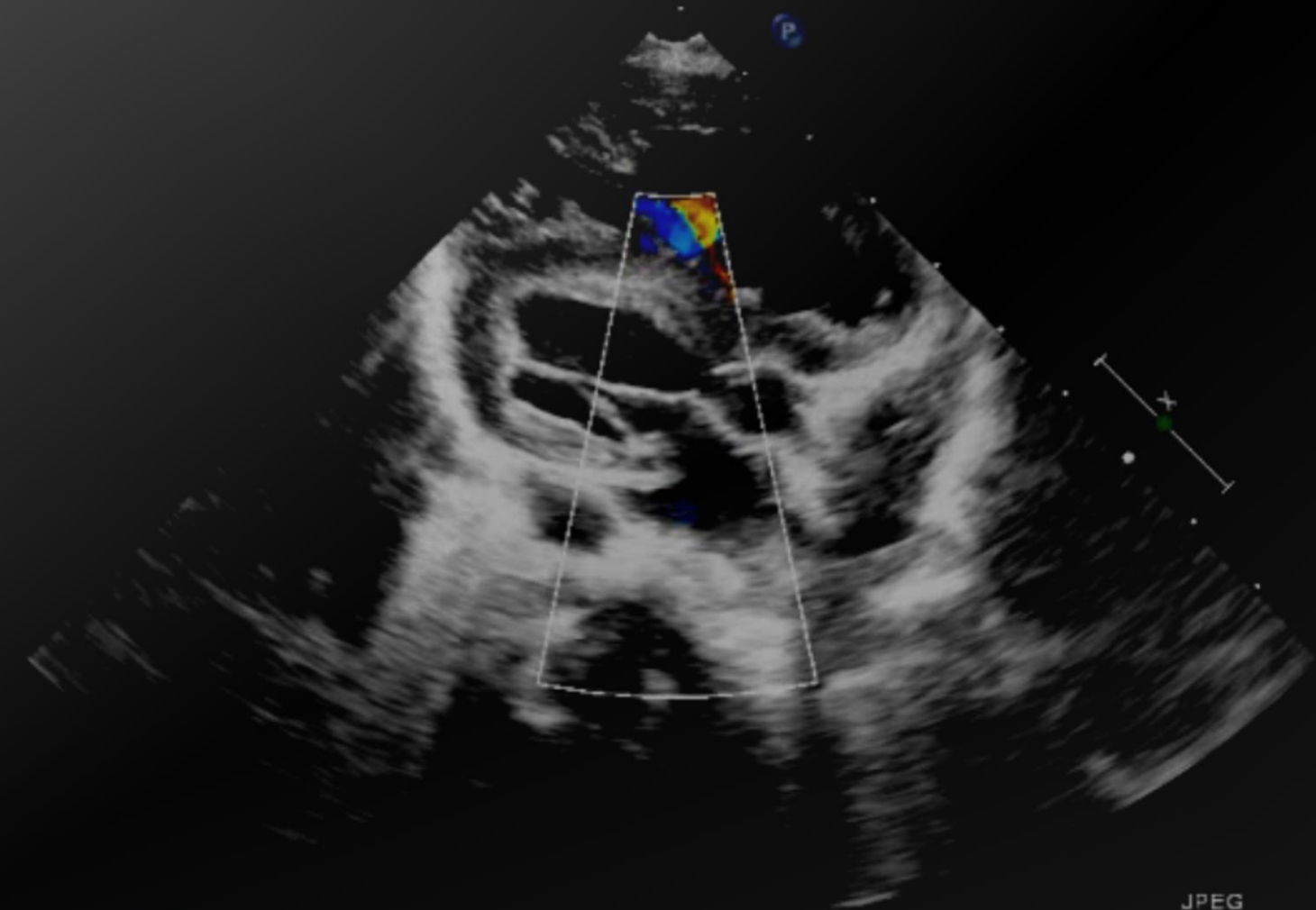
CF

77%

3.0MHz

WF High

Med



JPEG

WL: 128-WW: 256 [D]

*** bpm
2/19/2015 1:10:16 PM

S8-3 16101320150219

Lossy compression (JPEG)

FR 61Hz
10cm

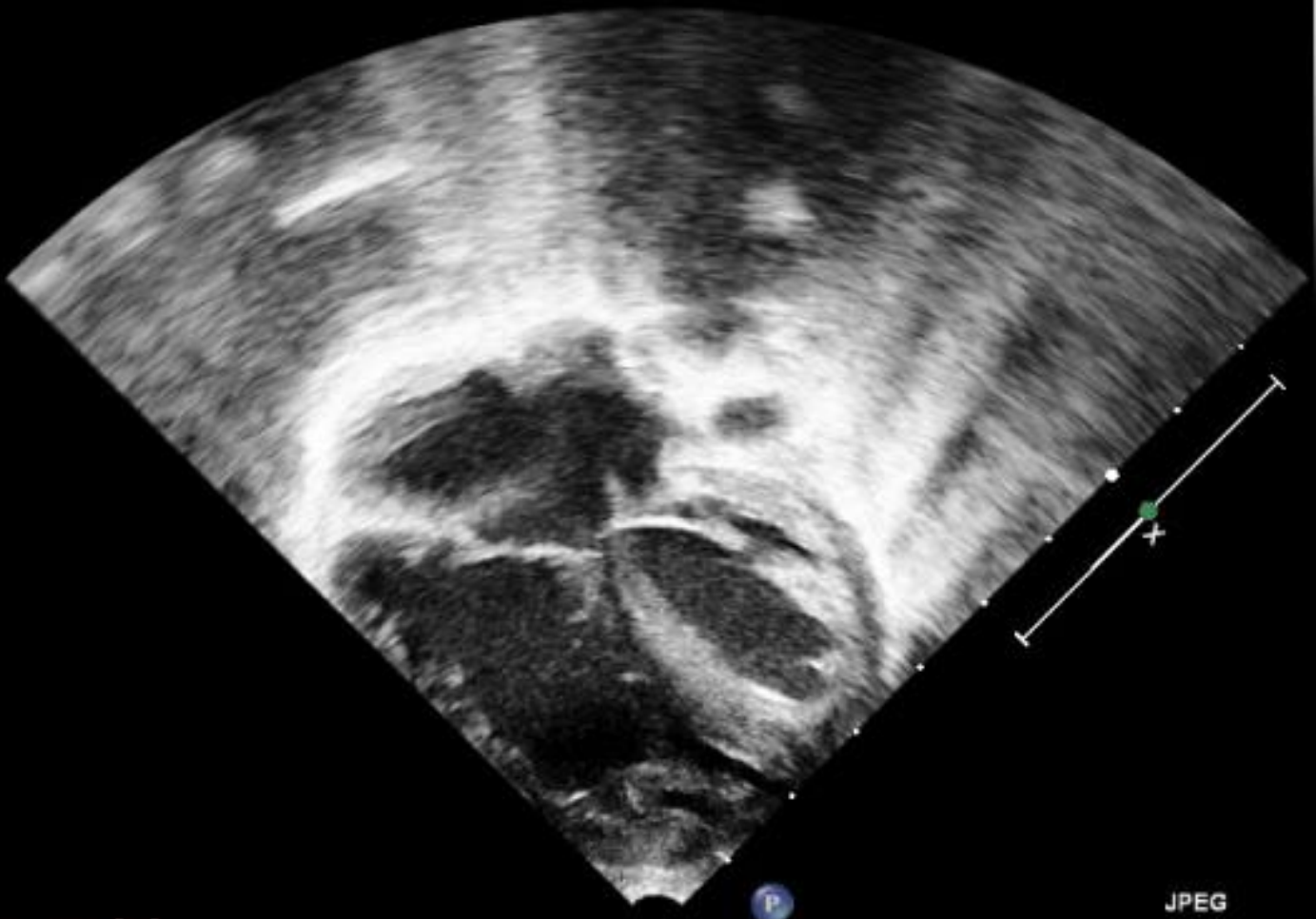
S8-3/Ped-CHD

10/15/2014

Spitalul Marie Curie

20150219.131016

2D
70%
C 50
P Off
Res



WL: 128 WW: 256 [D]

JPEG

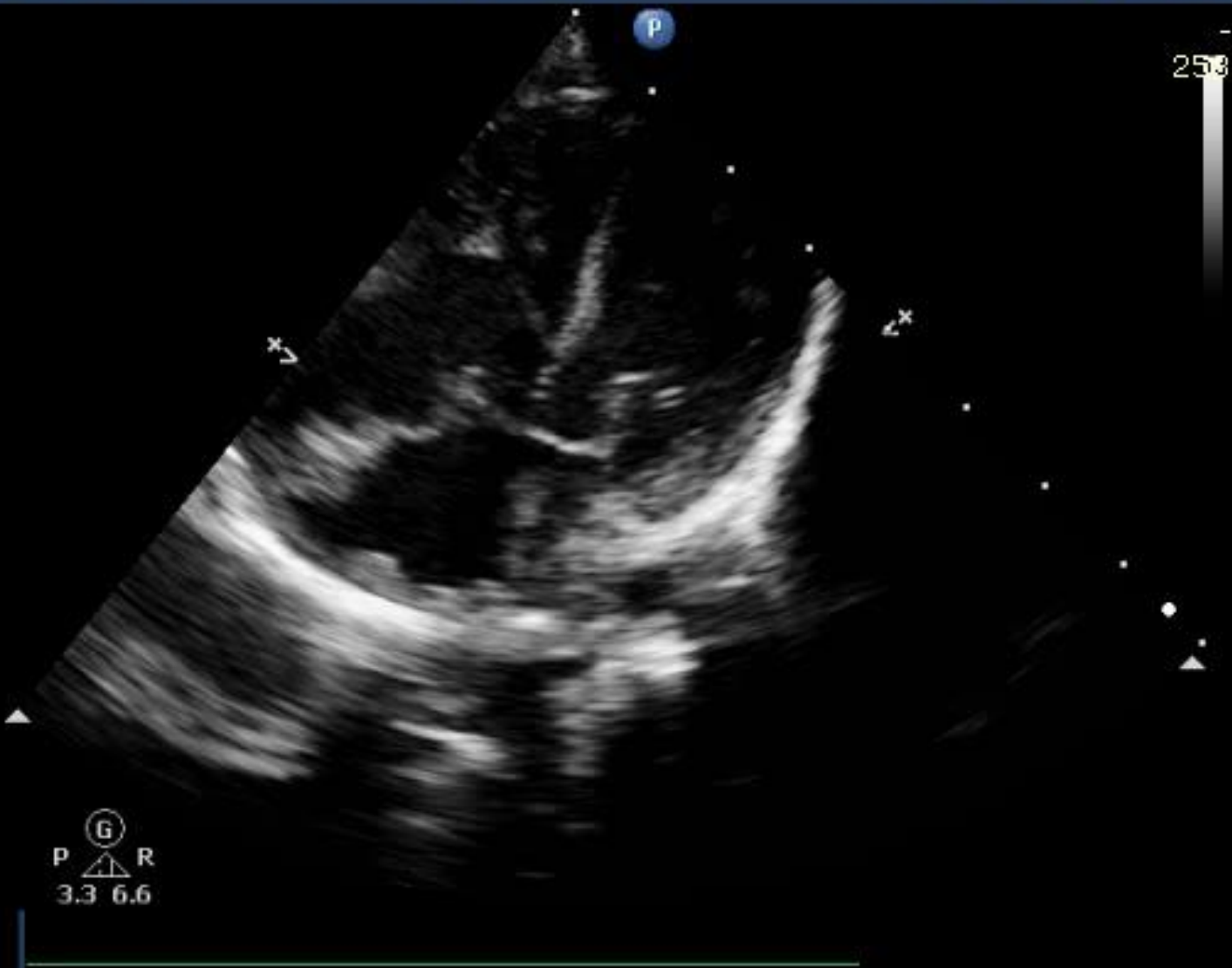
*** bpm
2/19/2015 1:10:16 PM

7



CORD 10-14
S8-3
111 Hz
8.0cm

2D
HGen
Gn 40
C 46
2/2/0
75 mm/s



WL: 128 WW: 256 [D]

11/11/2013 12:24:55 AM

CORD 10-14

S8-3

111 Hz

8.0cm

2D

HGen

Gn 24

C 46

2/2/0

75 mm/s

250



⊙
P △ R
3.3 6.6

WL: 128 WW: 256 [D]

11/11/2013 12:24:33 AM

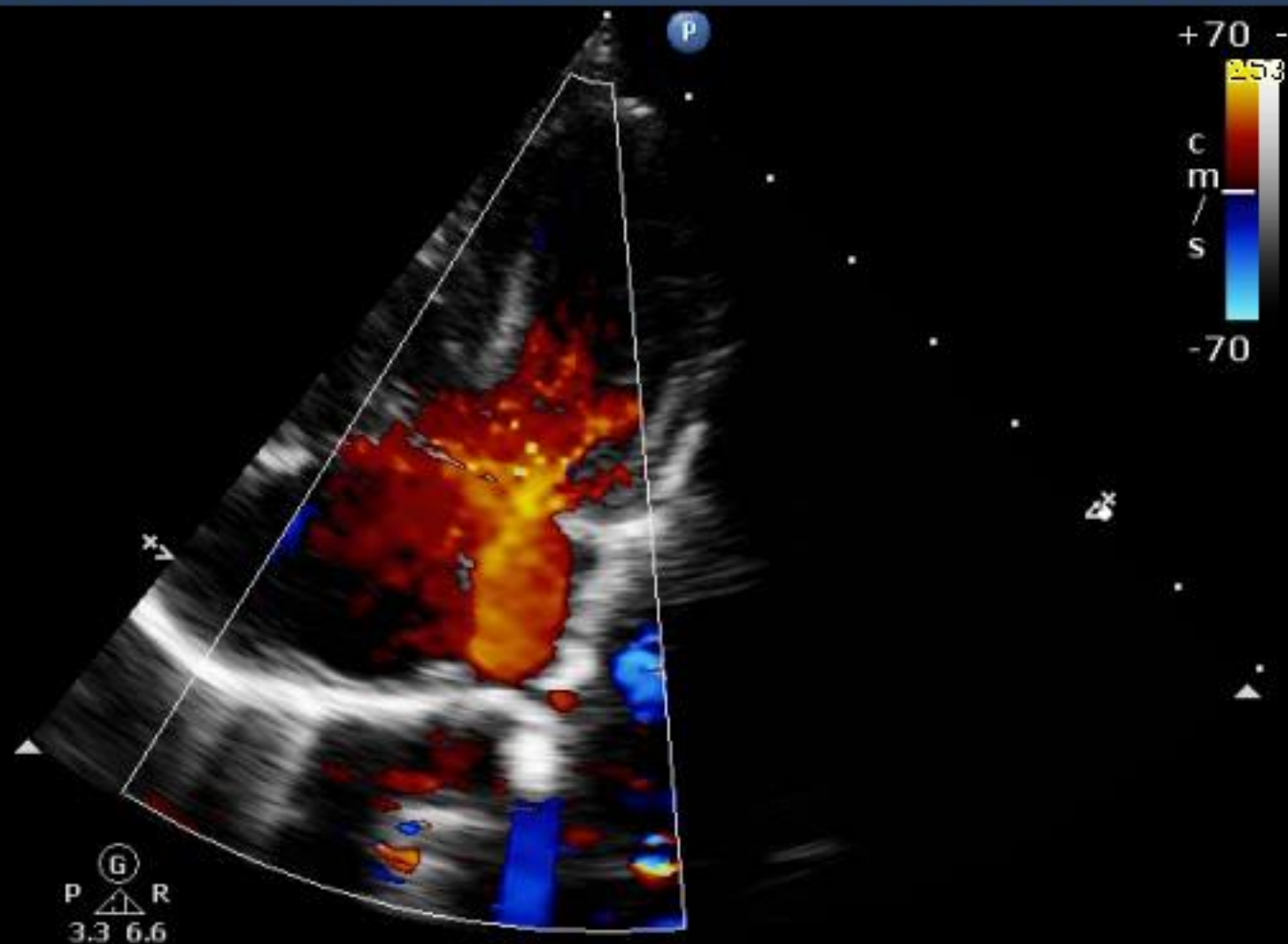
CORD 10-14
S8-3
28 Hz
8.0cm

2D

HGen
Gn 40
C 46
2/2/0
75 mm/s

Color

3.1 MHz
Gn 86
4/7/2
Fltr High



WL: 128 WW: 256 [D]

11/11/2013 12:26:57 AM

8

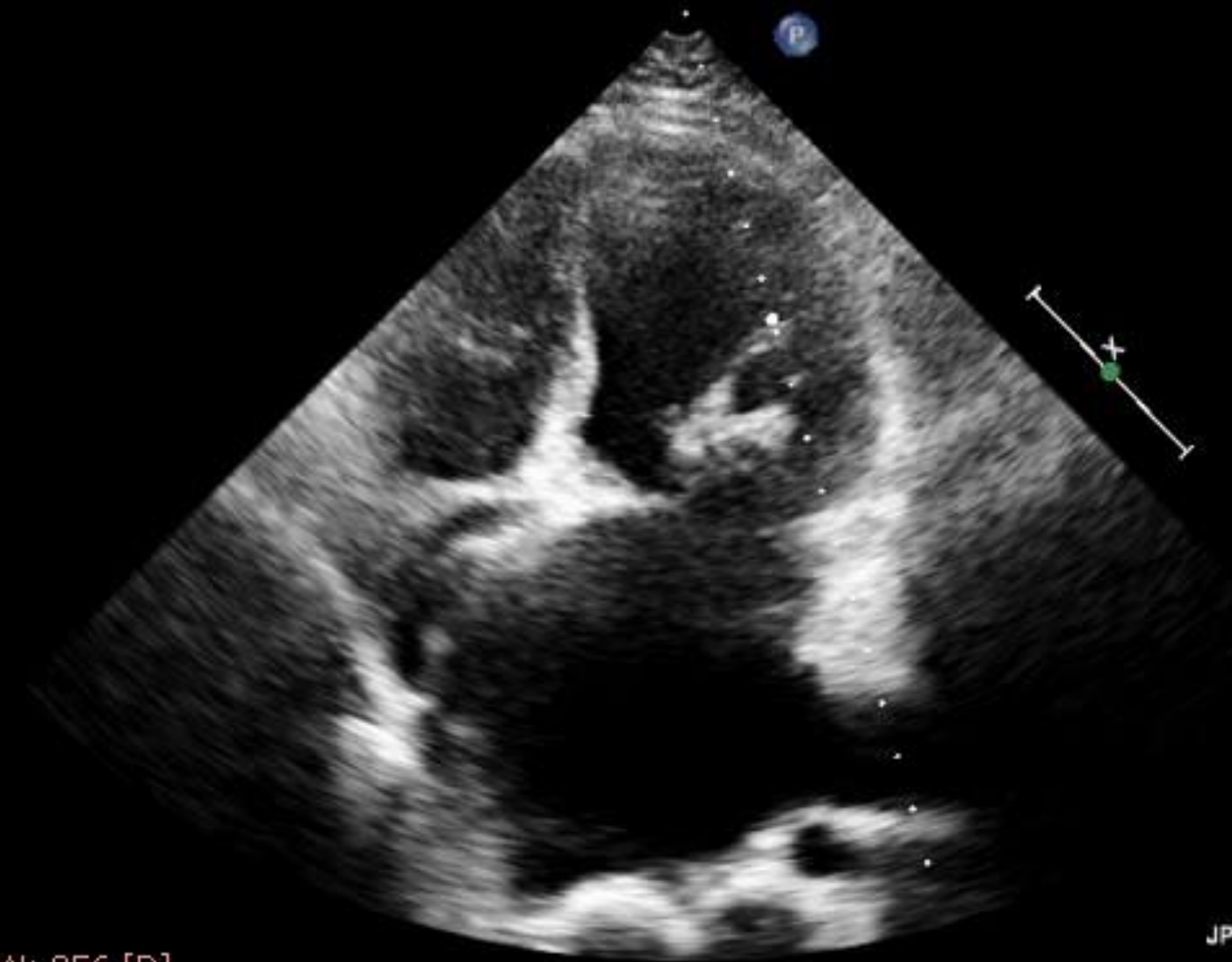
Lossy compression (JPEG)

10/3/2004

FR 47Hz
17cm

Spitalul Marie Curie
20150122.100912

2D
61%
C 50
P Low
HGen



WL: 128 WW: 256 [D]

JPEG

*** bpm
1/22/2015 10:09:12 AM

PR 50HZ
15cm

Spitalul Marie Curie
20151009.090832
ST MI SEVRA

2D
69%
C 50
P Low
HGen



WL: 128 WW: 256 [D]

JPEG

*** hpm
10/9/2015 9:08:32 AM

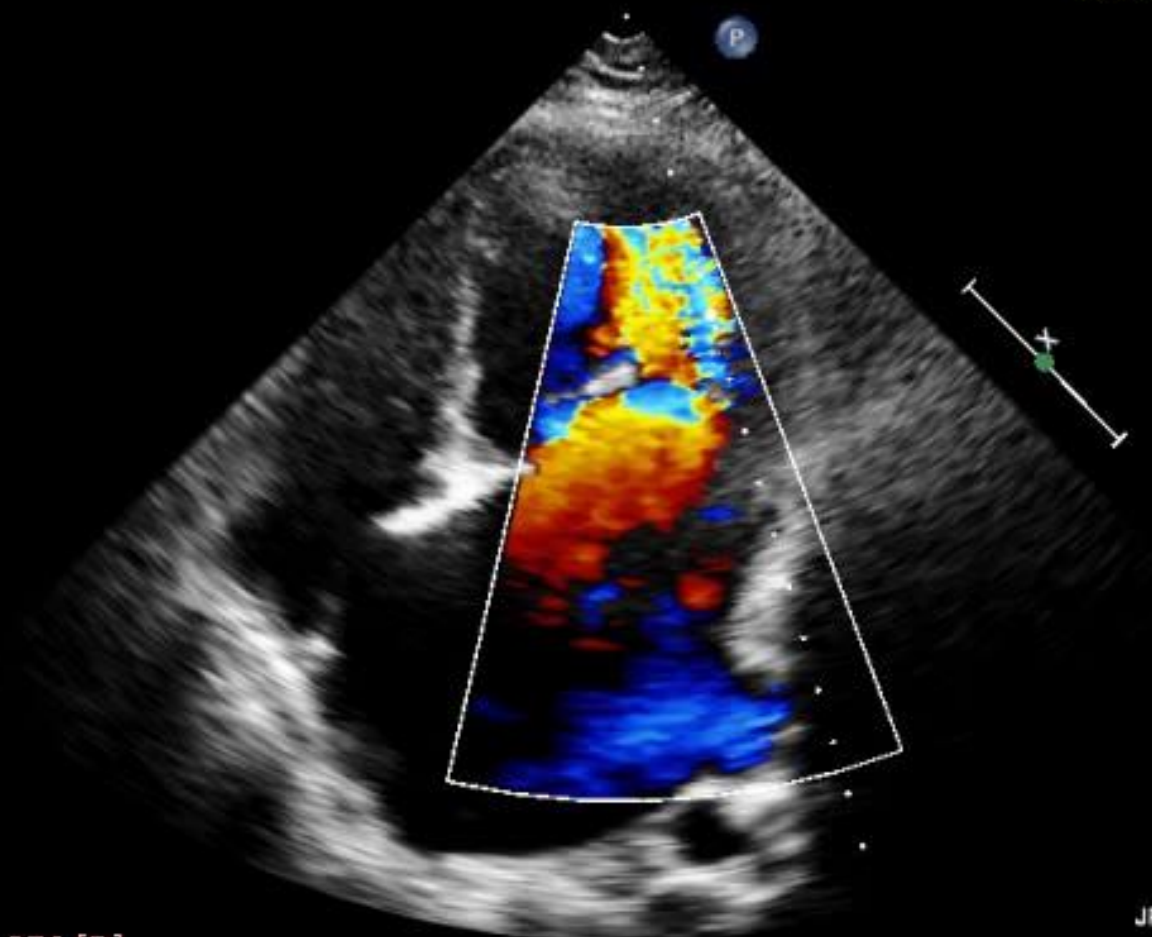
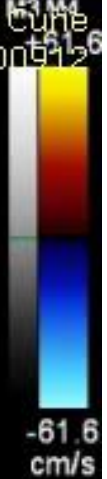
FR 16Hz
17cm

2D
60%
C 50
P Low
HGen

CF
66%
2.5MHz
WF High
Med



Spitalul Marie Curie
20150122.100912



WL: 128 WW: 256 [D]

JPEG

*** hpm
1/22/2015 10:09:12 AM

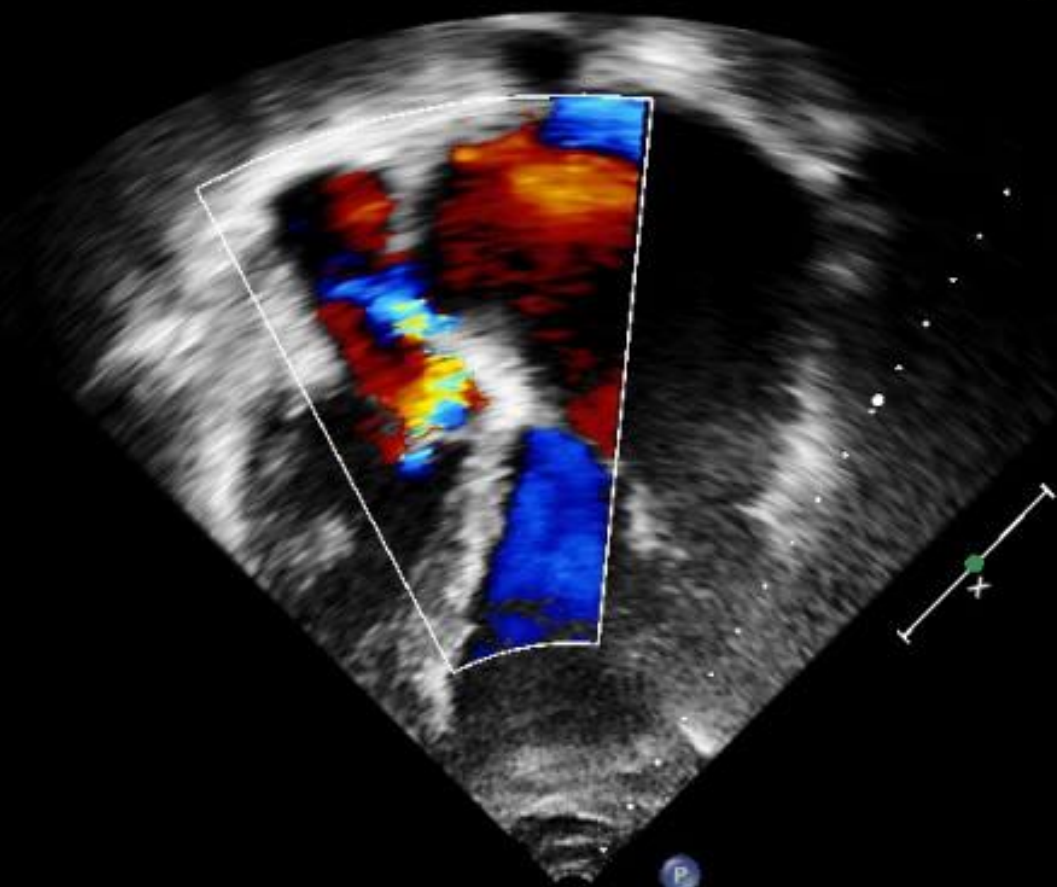
17cm

2D

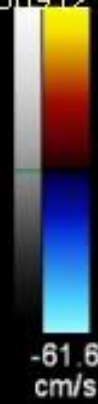
60%
C 50
P Low
HGen

CF

66%
2.5MHz
WF High
Med



Spitalul Marie Curie
20150122.100912



WL: 128 WW: 256 [D]

JPEG

1/22/2015 10:09:12 AM *** bpm

9



Ped Heart
S5-1
27 Hz
19,0cm

2D
HGen
Gn 31
C 50
3 / 2 / 0
75 mm/s

1934



P

WL: 128 WW: 256 [D]

10/8/2015 9:42:17 PM

Ped Heart
S5-1
19 Hz
20,0cm

2D
HGen
Gn 47
C 50
3/2/0
75 mm/s

Color
2,5 MHz
Gn 60
4/5/0
Fltr High



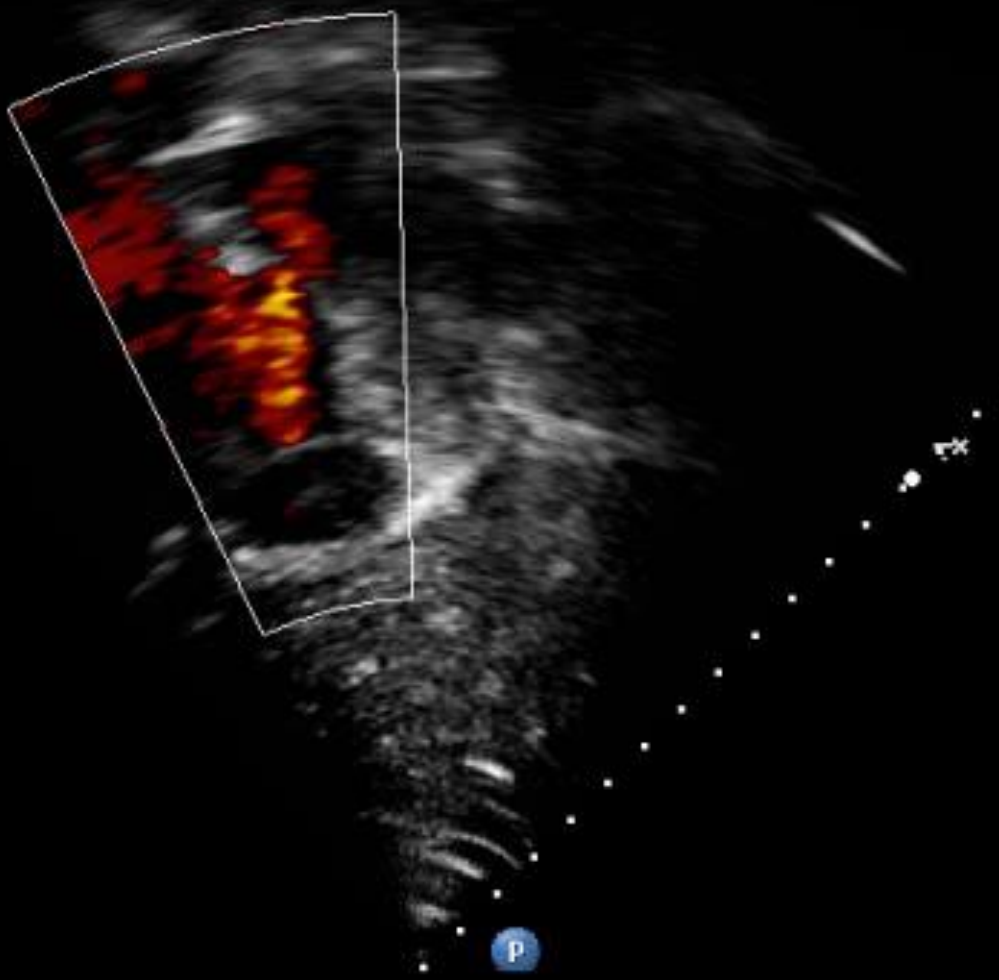
x7



P

WL: 128 WW: 256 [D]

10/8/2015 9:43:02 PM



Ped Heart
S5-1
27 Hz
20,0cm

2D
HGen
Gn 47
C 50
3 / 2 / 0
75 mm/s

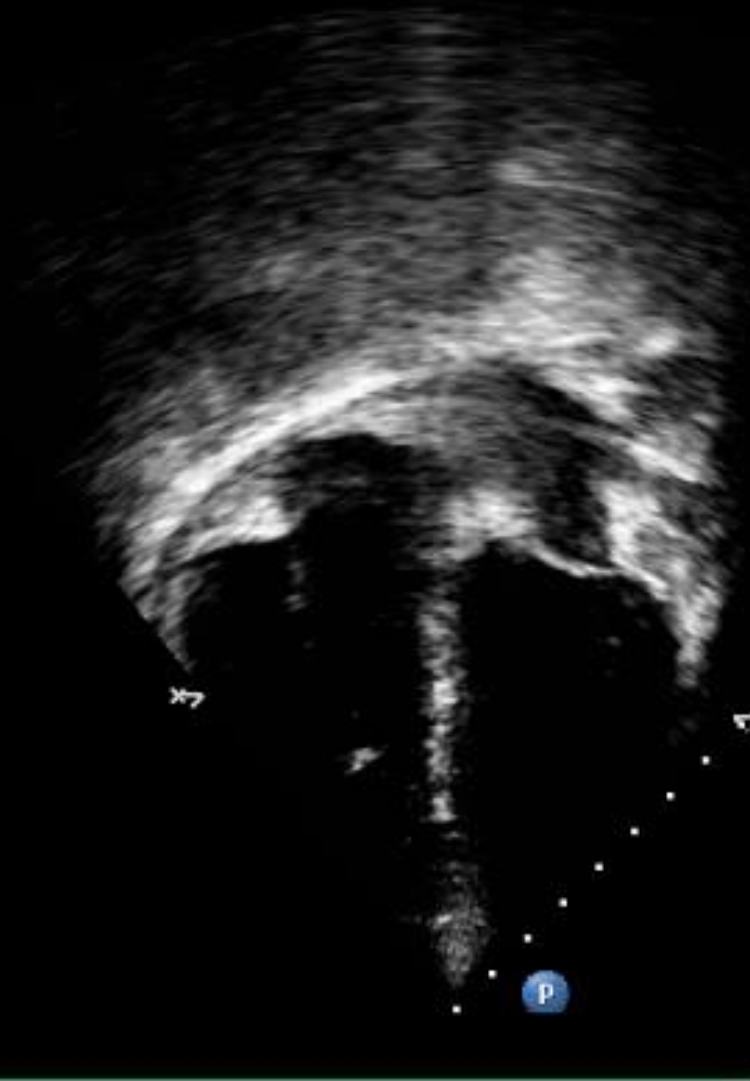
1935



P

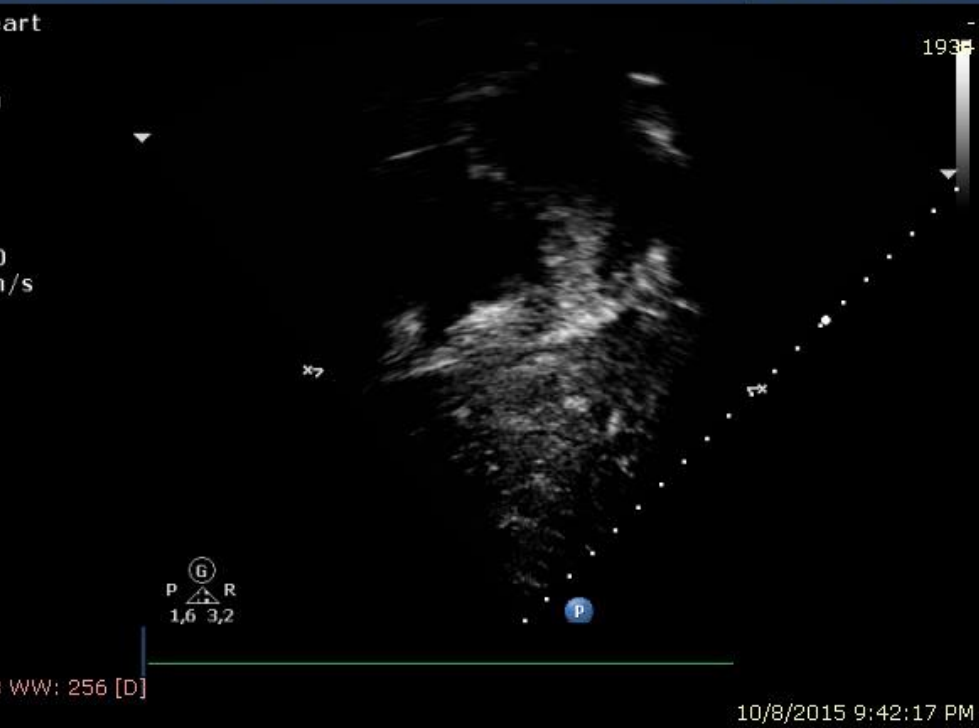
WL: 128 WW: 256 [D]

10/8/2015 9:45:59 PM



S ANDREI, DSA AURELIA
15-10-08-213732

MI 1, ANDREI AURELIA DSA
TIS 0,4 15-10-08-213732



ANDREI AURELIA POST DSA 15/10/2015 09:00:51 ANDREI AURELIA
Se: 1 59580820151015 59580

Lossy compression (JPEG)

S5-1/Ped-CHD

Spitalul
201510



ANDREI, DSA AURELIA
15-10-08-213732

MI 1, ANDREI AURELIA DSA
TIS 0,4 15-10-08-213732
21:49:56



PHILIPS ANDREI AURELIA POST DSA 15/10/2015 09:02:37 ANDREI AURELIA
Se: 1 59580820151015 TUBER
Lossy compression (JPEG) S5-1/Ped-CHD 595808



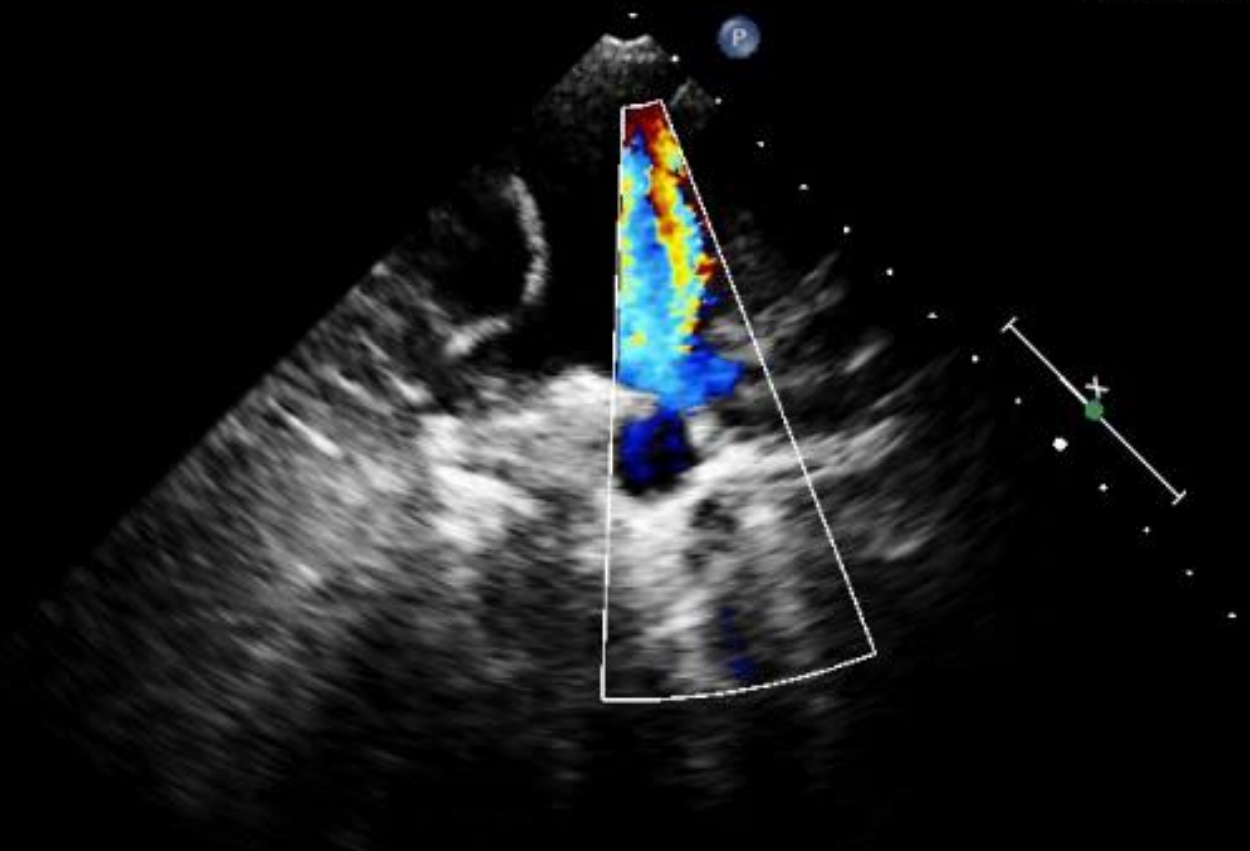
10

FR 22Hz
15cm

Spitalul Marie Curie
20151015.122204

2D
61%
C 50
P Low
HGen

CF
66%
2.5MHz
WF High
Med



WL: 128 WW: 256 [D]

JPEG

*** bpm
10/15/2015 12:22:04 PM

FR 50Hz
15cm

2D
60%
C 50
P Low
HGen



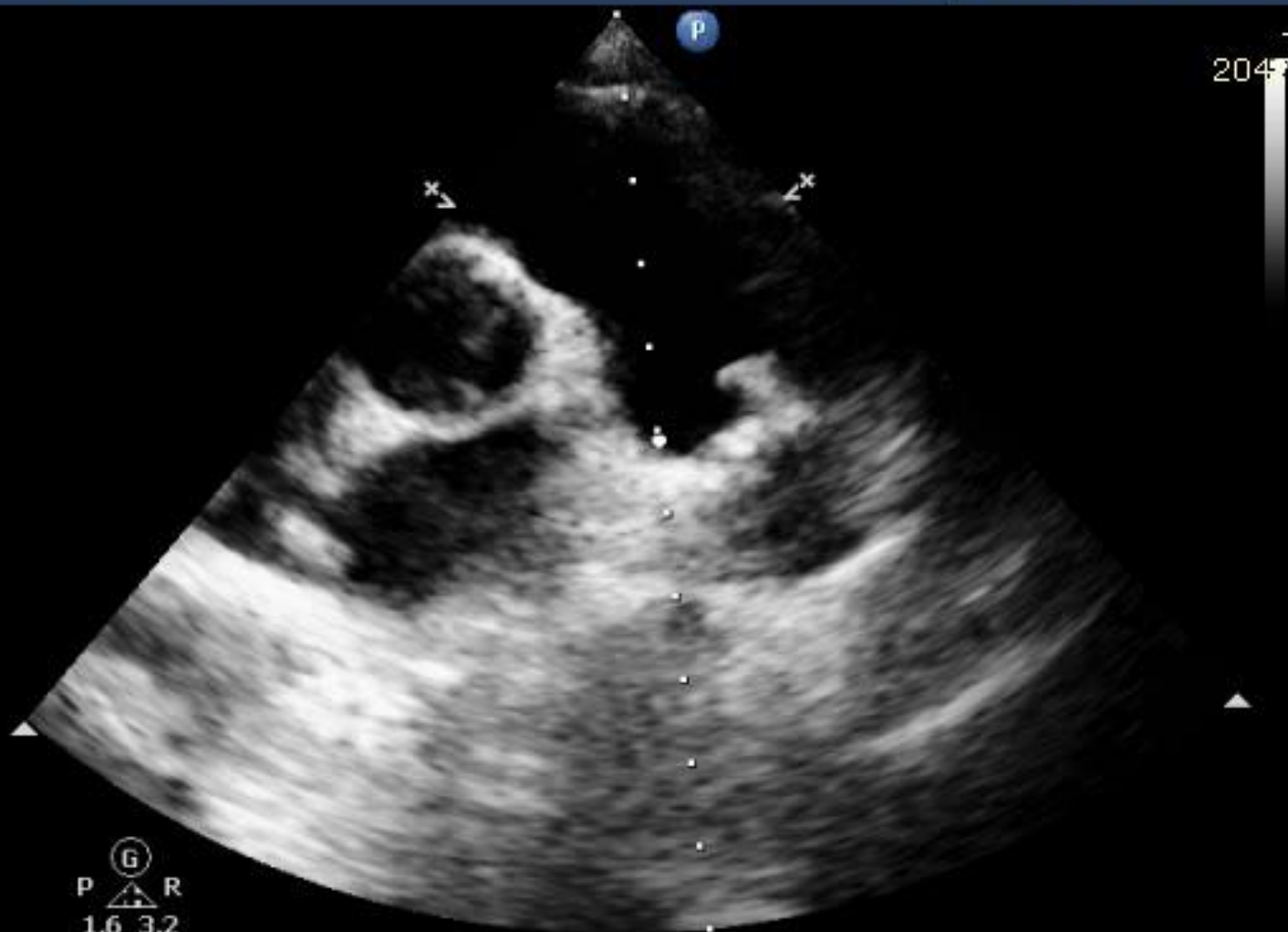
WL: 127 WW: 254 [D]

✦ Dist 0.410 cm

10/15/2015 12:22:04 PM

S5-1 NEW
S5-1
40 Hz
11,0cm

2D
HGen
Gn 41
C 50
2/2/3
75 mm/s



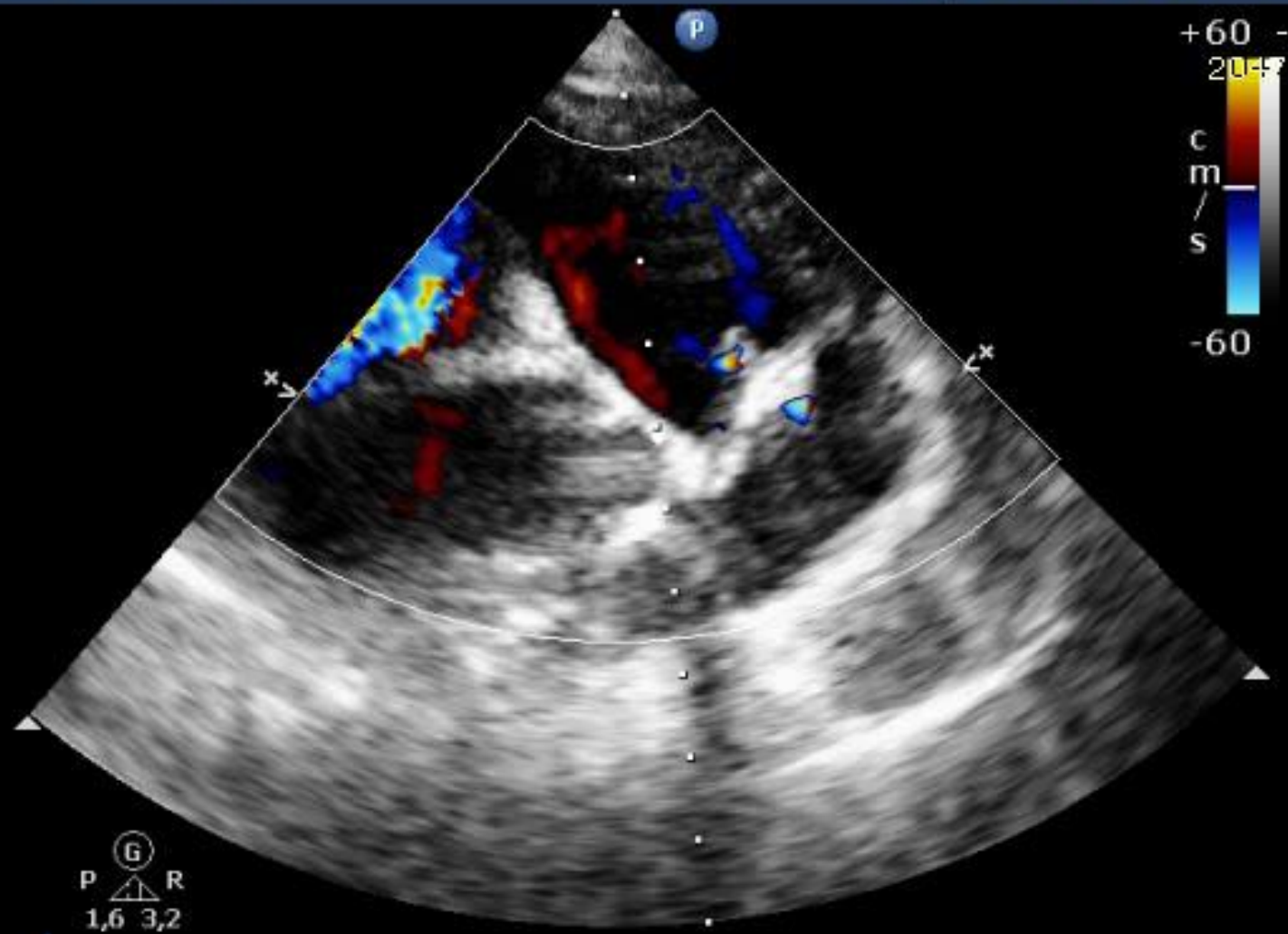
WL: 128 WW: 256 [D]

10/19/2015 9:53:31 PM

S5-1 NEW
S5-1
9 Hz
11,0cm

2D
HGen
Gn 41
C 50
2/2/0
75 mm/s

Color
2,5 MHz
Gn 33
4/7/2
Fltr High



WL: 128 WW: 256 [D]

10/19/2015 9:53:48 PM

11



61Hz
cm

%
0
ff

G
R

Spitalul Marie Curie
20150610.094649
COR TRIARIATUM



128 WW: 256 [D]

P

JPEG

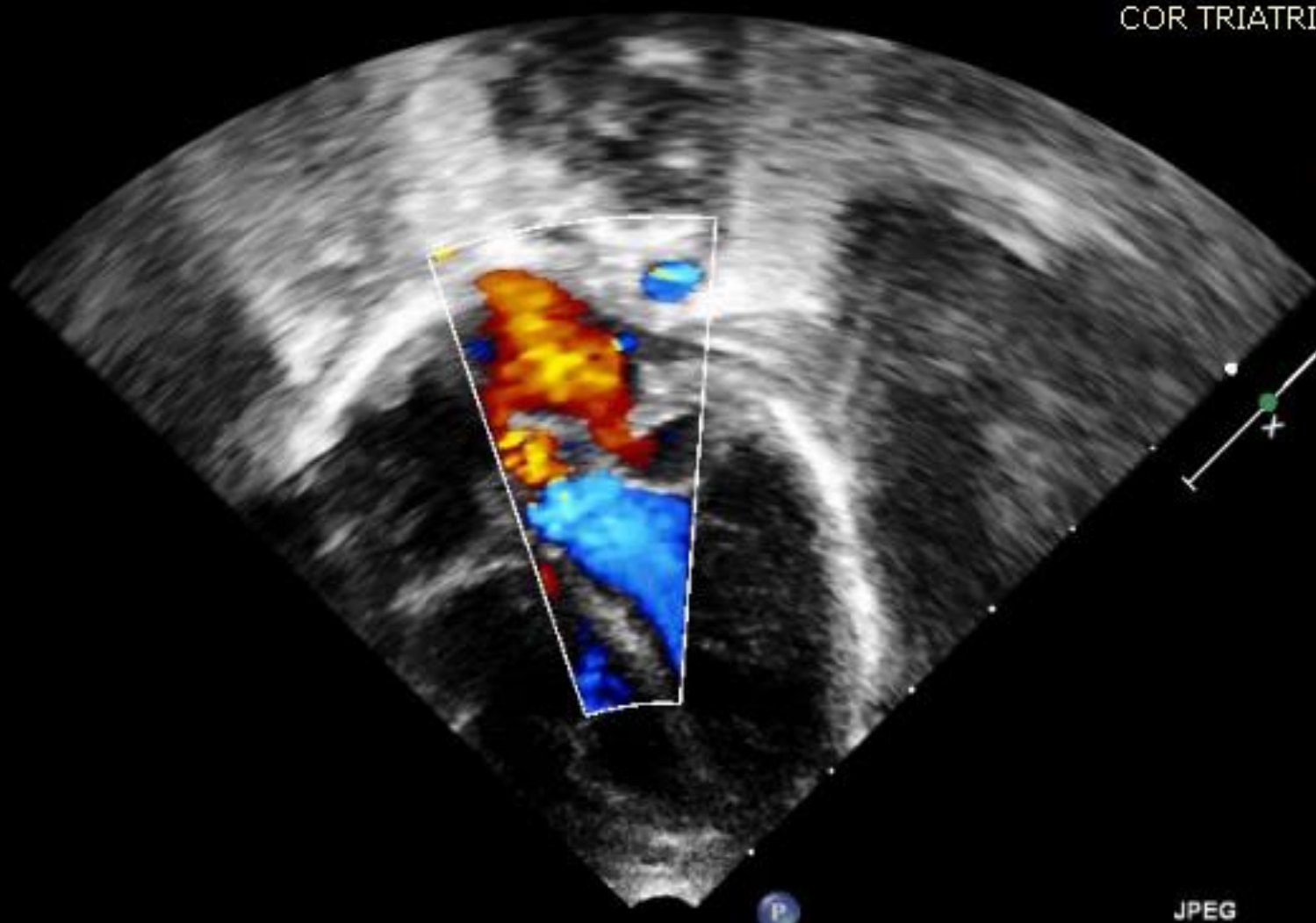
*** bpm
6/10/2015 9:46:49 AM

FR 44Hz
8.1cm

Spitalul Marie Curie
20150610.094649
COR TRIARIATUM

2D
68%
C 50
P Off
Res

CF
77%
3.0MHz
WF High
Med



-61.6
cm/s

P

JPEG

WL: 128 WW: 256 [D]

*** bpm
6/10/2015 9:46:49 AM

Se: 1
49460920150610
Lossy compression (JPEG)

S8-3/PEDCHD3
49460920150610

FR 61Hz
8.1cm

Spitalul Marie Curie
20150610.094649
COR TRIARIATUM

2D
63%
C 50
P Off
Res



WL: 128 WW: 256 [D]

JPEG

6/10/2015 9:46:49 AM
*** bpm

Lossy compression (JPE...)

FR 61Hz
8.1cm

Spitalul Marie Curie
20150610.094649
COR TRIARIATUM

2D
63%
C 50
P Off
Res



WL: 128 WW: 256 [D]

JPEG

*** bpm
6/10/2015 9:46:49 AM

12

61Hz
n

Spitalul Marie Curie
20151020.115527

b
f

R

128 WW: 256 [D]

JPEG

*** hpm
10/20/2015 11:55:27 AM



Lossy compression (JPEG)

CO 2D CA 0ND

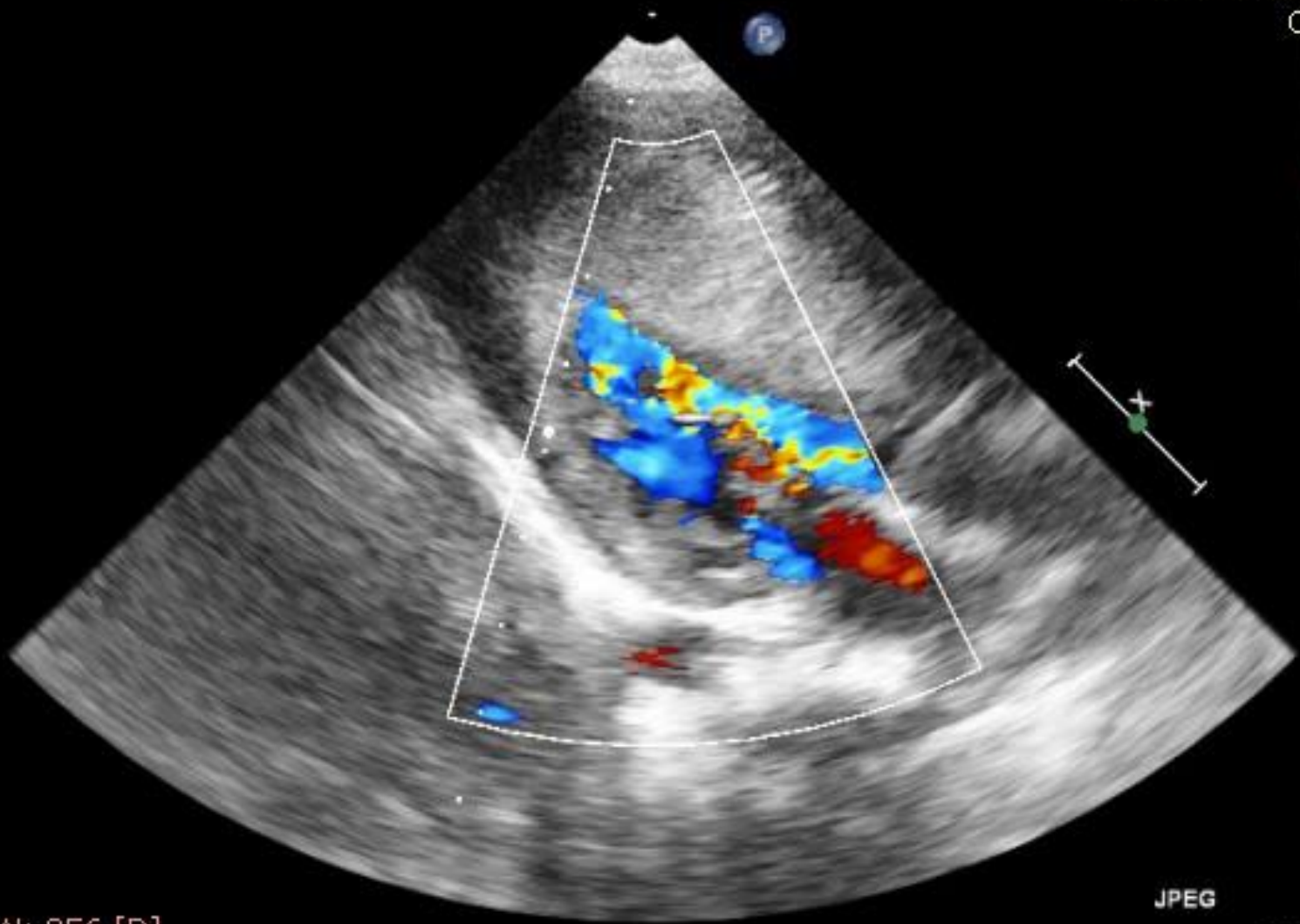
FR 15Hz
10cm

Spitalul Marie Curie
20151020.123557

M3 M4
+61.6
CMHC

2D
79%
C 50
P Off
Res

CF
77%
3.0MHz
WF High
Med



-61.6
cm/s

JPEG

WL: 128_WW: 256 [D]

*** hpm
10/20/2015 12:35:57 PM

FR 61Hz
10cm

Spitalul Marie Curie
20151020.123557
CMHO

2D
65%
C 50
P Off
Res



JPEG

WL: 128 WW: 256 [D]

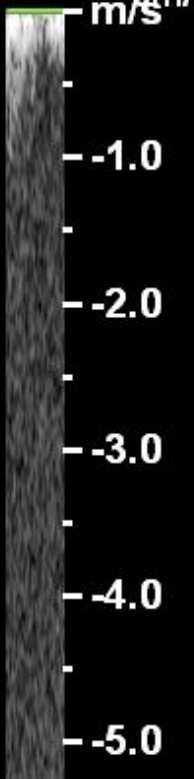
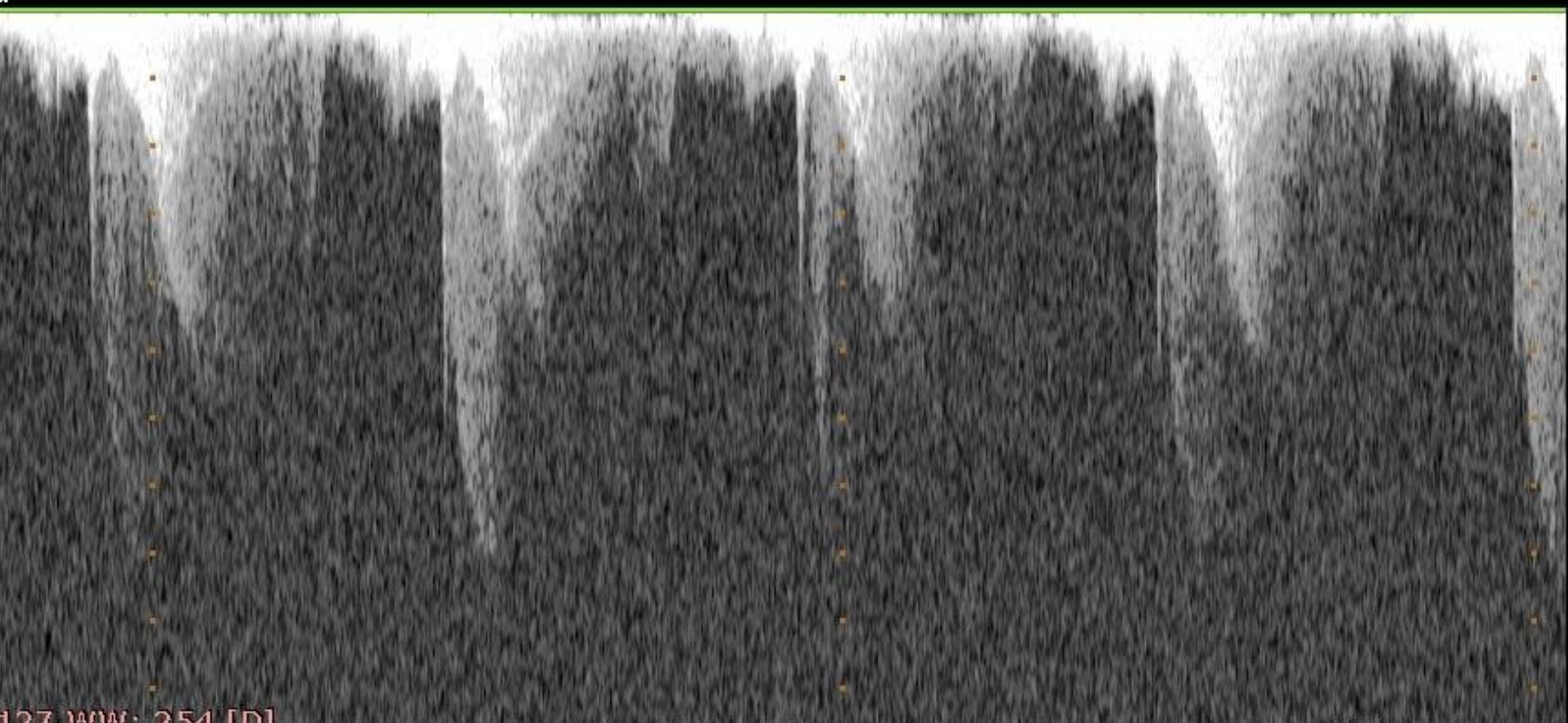
*** hpm
10/20/2015 12:35:57 PM

%
0
ff

%
MHz
High
d



75%
3.3MHz
WF 225Hz



127 WW: 254 [D]

100mm/s

10/20/2015 12:35:57 PM

13

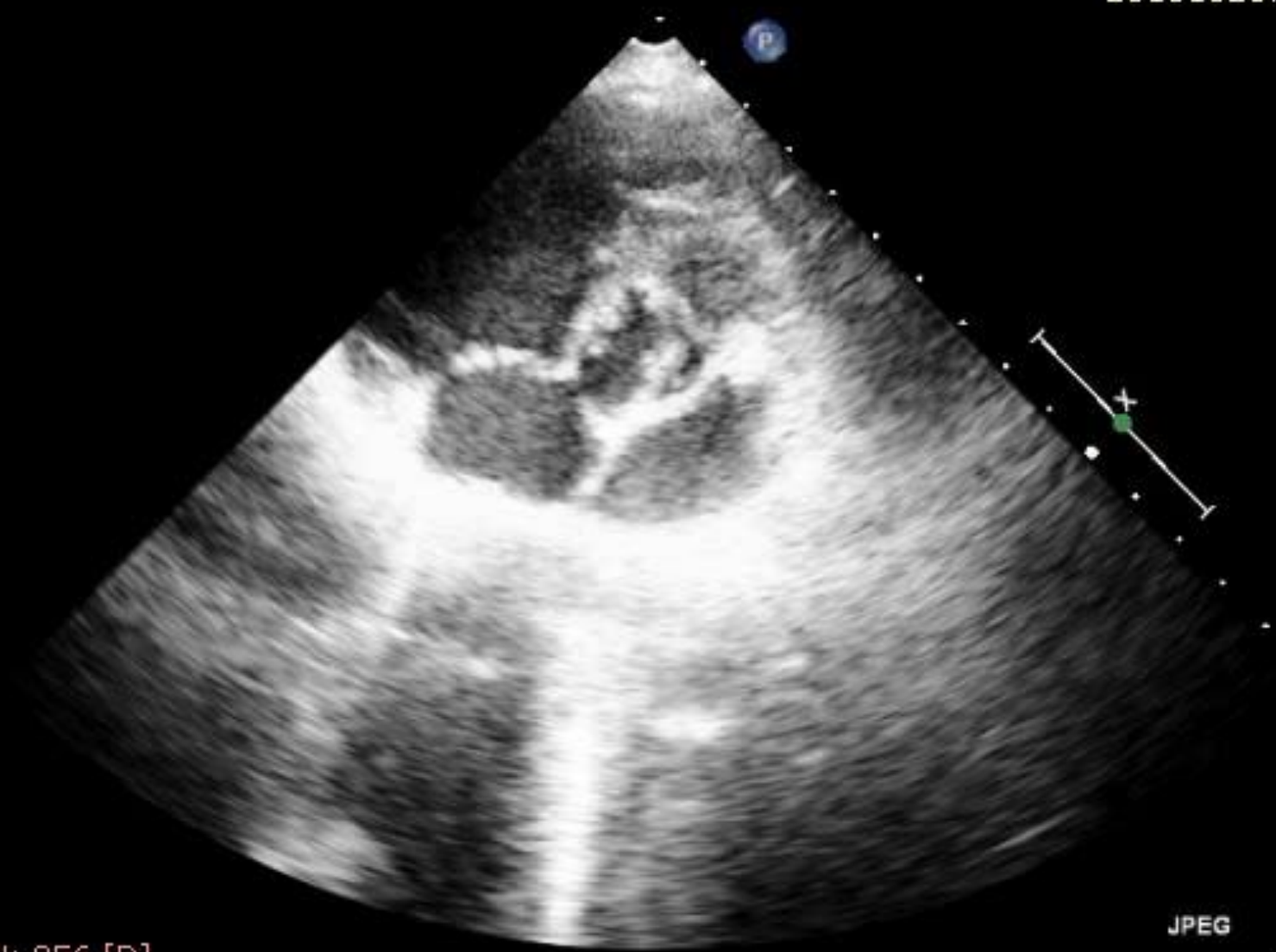


Lossy compression (JPEG)

FR 50Hz
15cm

Spitalul Marie Curie
20151028.124213

2D
71%
C 50
P Low
HGen



JPEG

WL: 128 WW: 256 [D]

*** bpm
10/28/2015 12:42:13 PM

Lossy compression (JPEG)

FR 58Hz
12cm

Spitalul Marie Curie
20151028.124213

2D
59%
C 50
P Low
HGen



WL: 128 WW: 256 [D]

JPEG

10/28/2015 12:42:13 PM *** bpm

14

FR 58Hz
12cm

Spitalul Marie Curie
20150618.100847

2D
76%
C 50
P Low
HGen



WL: 128 WW: 256 [D]



JPEG

*** hpm
6/18/2015 10:08:47 AM

47081020150618

S5-1/PEDICHD 3

Lossy compression (JPEG)

Spitalul Marie Curie
20150618.100847

FR 68Hz
9.0cm

2D
70%
C 50
P Low
HGen



WL: 128 WW: 256 [D]

JPEG

6/18/2015 10:08:47 AM *** hpm

20Hz
m

6
0
ww
en

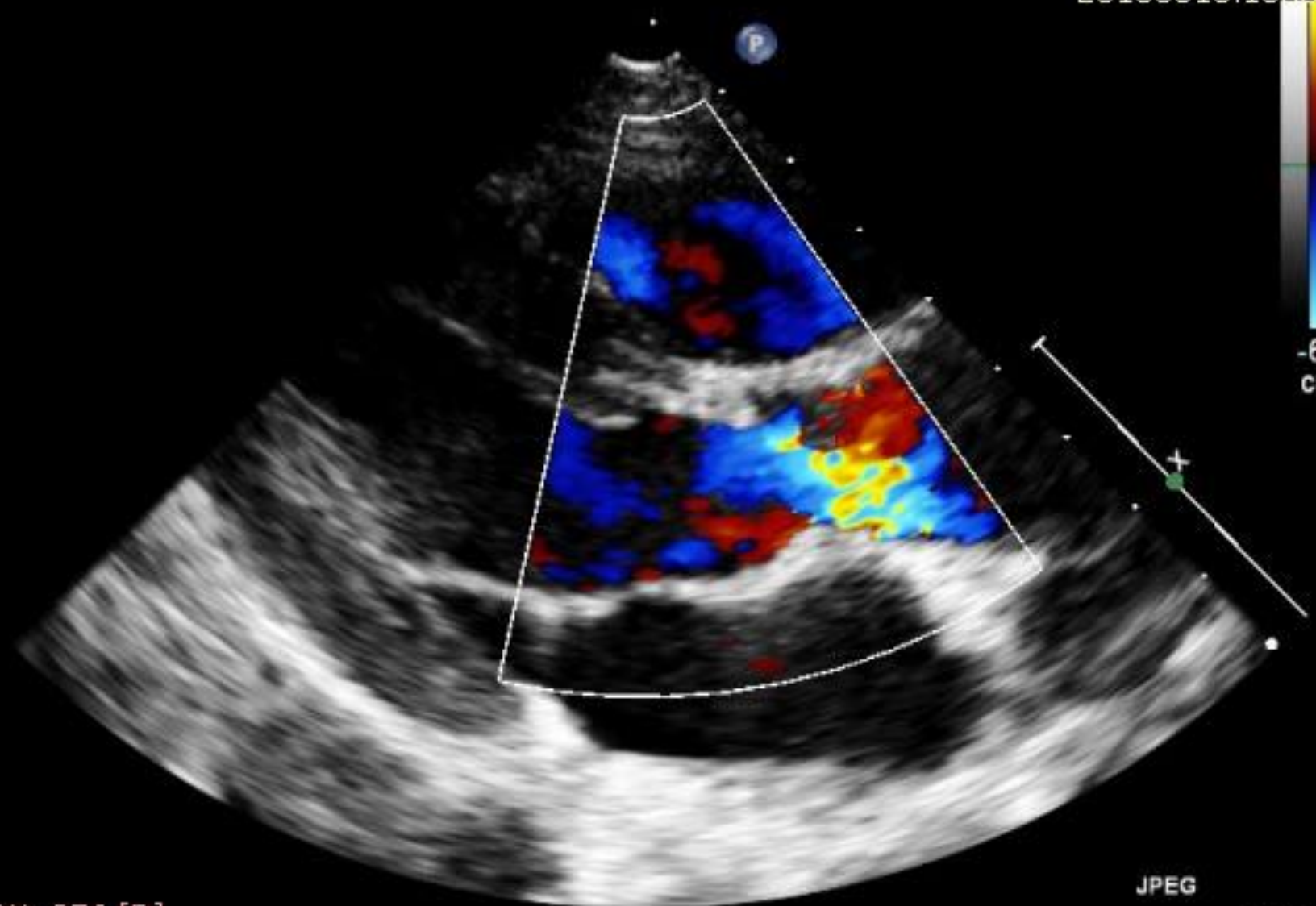
6
MHz
High

R
3.4

Spitalul Marie Curie
20150618.100847

+61.6

-61.6
cm/s



128 WW: 256 [D]

JPEG

*** hpm
6/18/2015 10:08:47 AM

15

Lossy compression (JPEG)

FR 61Hz
11cm

Spitalul Marie Curie
20150618.102146

2D
79%
C 50
P Low
HGen



WL: 128 WW: 256 [D]

JPEG

*** bpm
6/18/2015 10:21:46 AM

FR 61Hz
11cm

Spitalul Marie Curie
20150618.102146

2D
79%
C 50
P Low
HGen



JPEG

WL: 128 WW: 256 [D]

*** bpm
6/18/2015 10:21:46 AM

FR 61Hz
1cm

Spitalul Marie Curie
20150618.102146

D
79%
50
Low
Gen



PL: 128 WW: 256 [D]

JPEG

*** bpm
6/18/2015 10:21:46 AM

16

FR 22Hz
15cm

2D
80%
C 50
P Low
HGen

CF
66%
2.5MHz
WF High
Med



WL: 128 WW: 256 [D]

JPEG

6/4/2015 9:03:33 AM
*** hpm

Lossy compression (JPEG)

0004

CS III EDIARD S

4/5/2009 M

FR 50Hz

15cm

Spitalul Marie Curie

20150604.090333

DSA INTERV

2D

81%

C 50

P Low

HGen



WL: 128 WW: 256 [D]

JPEG

6/4/2015 9:03:33 AM *** bpm

PR 15Hz
9.0cm

Spitalul Marie Curie
20151019.122458

2D
86%
C 50
P Off
Gen
CF
77%
4.4MHz
WF Max
Low



118
cm/s

JPEG

WL: 128 WW: 256 [D]
PAT T: 37.0C
TEE T: 38.6C

*** bpm
10/19/2015 12:24:49 PM

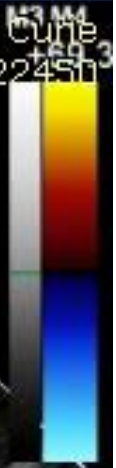
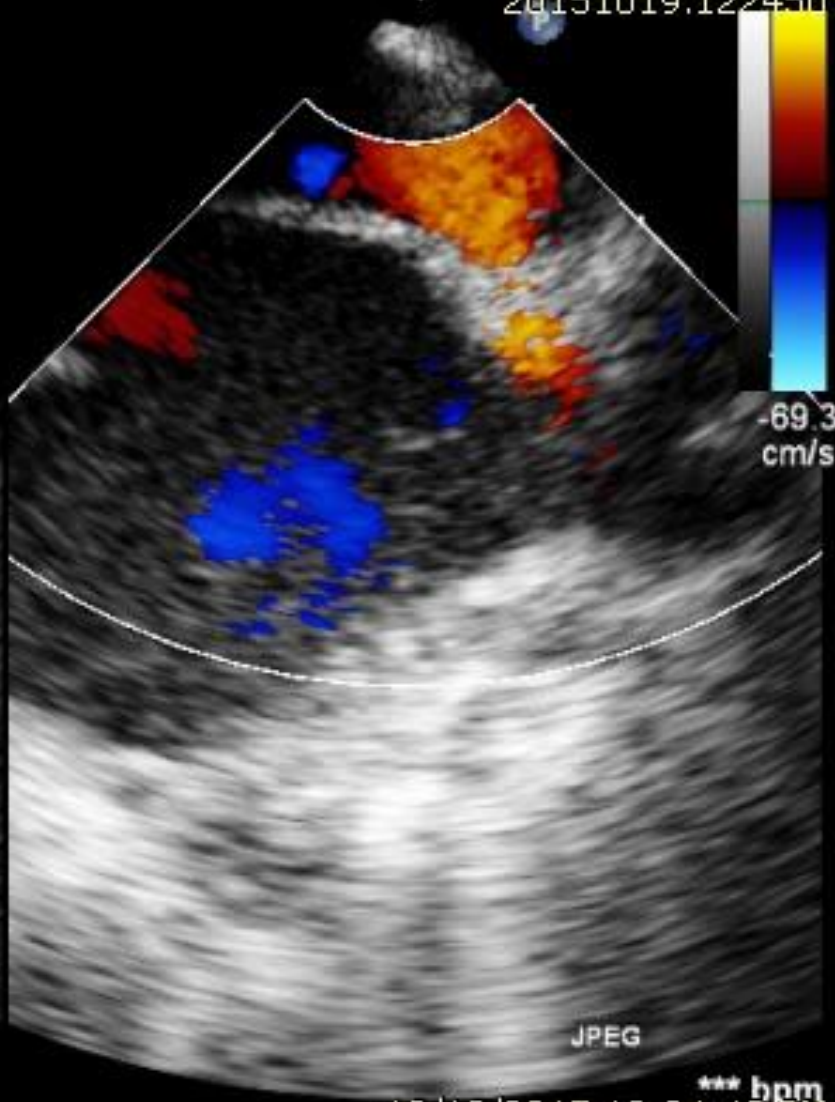
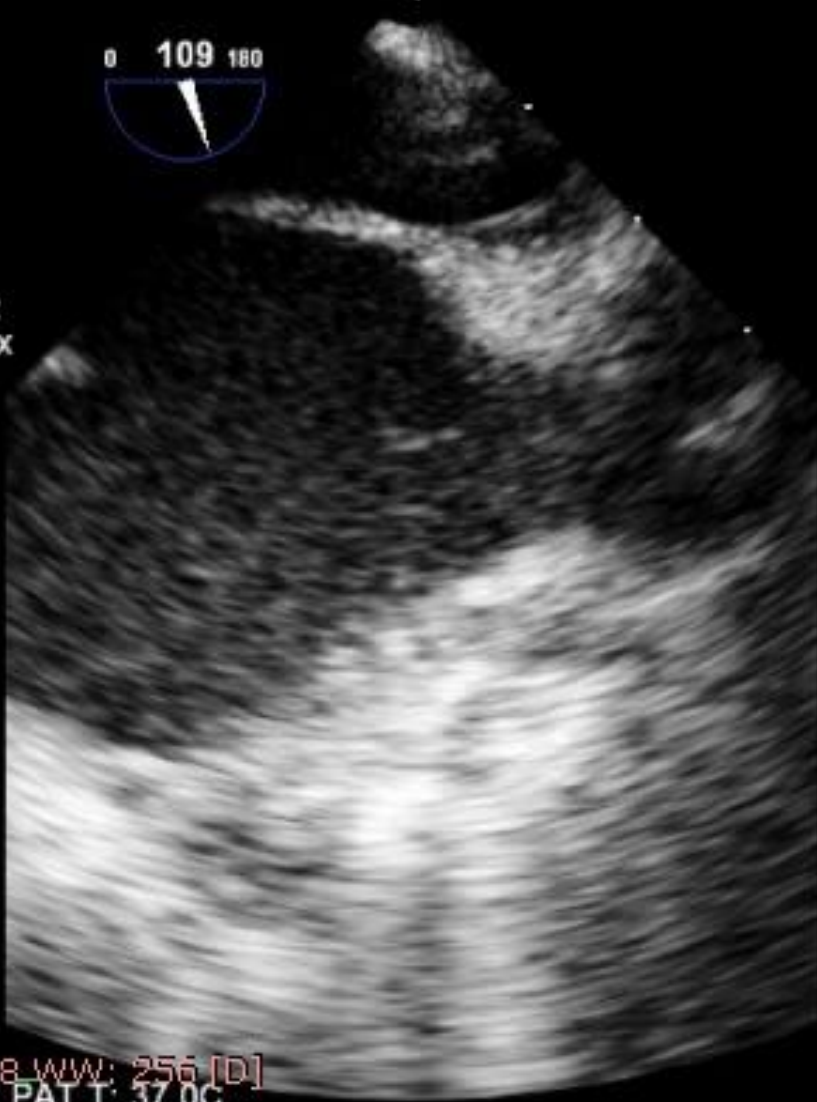
Lossy compression (JPG)

FR 13Hz
7.0cm

Spitalul Marie Curie
20151019.12245h

2D
83%
C 50
P Off
Gen
CF
77%
4.4MHz
WF Max
Low

0 109 180



-69.3
cm/s

JPEG

WL: 128 WW: 256 [D]
PAT T: 37.0C
TEE T: 39.0C

*** bpm
10/19/2015 12:24:49 PM

FR 16Hz
7.0cm

Spitalul Marie Curie
20151019.122450

2D
83%
C 50
P Off
Gen
CF
77%
4.4MHz
WF Max
Low



-69.3
cm/s

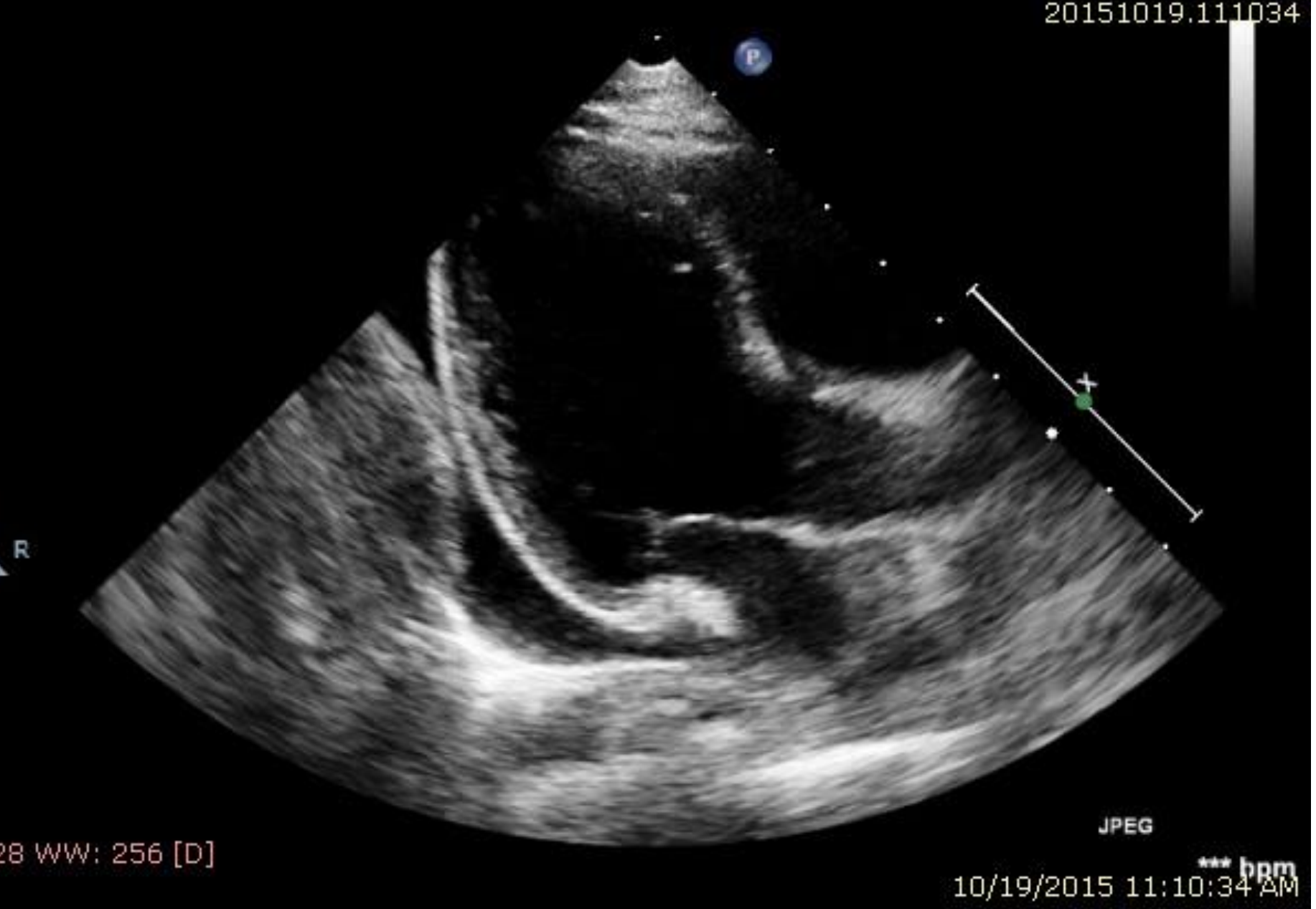


WL: 128 WW: 256 [D]
PAT T: 37.0C
TEE T: 38.8C

JPEG

*** bpm
10/19/2015 12:24:49 PM

17



28 WW: 256 [D]

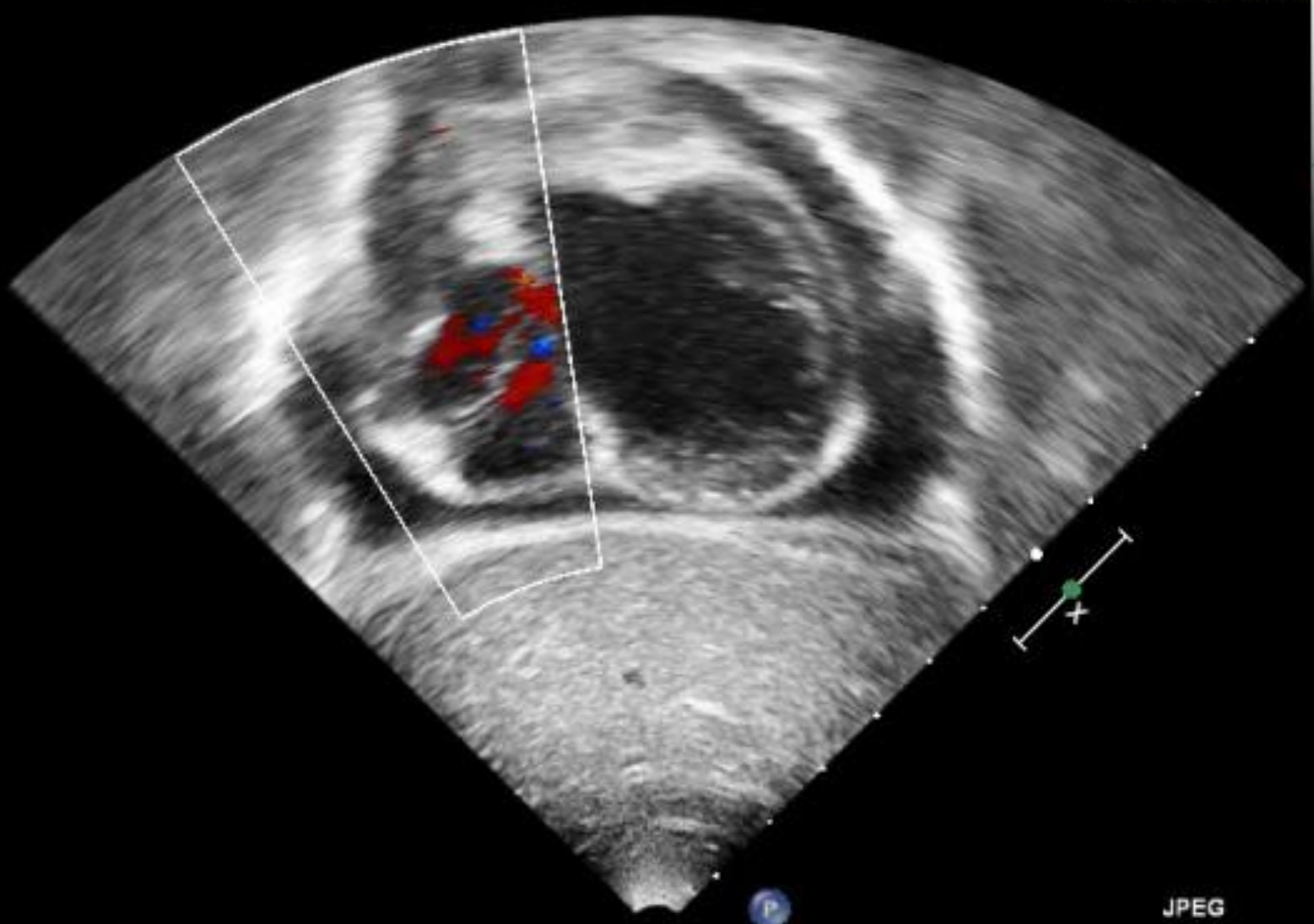
JPEG

*** bpm
10/19/2015 11:10:34 AM

cm

2%
50
Off
es
7%
0MHz
F High
ed

Spitalul Marie Curie
20151019.111034



L: 128_WW: 256 [D]

P

JPEG

*** bpm
10/19/2015 11:10:34 AM

Lossy compression (JPEG)

33101120151019

S8-3/Ped-CHD

FR 61Hz
10cm

Spitalul Marie Curie
20151019.111034

2D
63%
C 50
P Off
Res



WL: 128 WW: 256 [D]

JPEG

*** bpm
10/19/2015 11:10:34 AM

PERICARDIAL EFFUSION



PERICARDIAL EFFUSION

- Anechoic Stripe surrounding cardiac muscle
- Small <0.5cm thickness
- Large >2.0cm thickness
- Rate of accumulation > size
- EM US: Sen 96%, Spec 98%*



Mandavia D, Hoffner R, Mahaney K, Henderson S. Bedside Echocardiography by Emergency Physicians. *Annals of Emerg Med.* 2001;38(4):377-382

TAMPONADE

- Occurs when pericardial pressure exceeds RVEDP
- Clinical diagnosis:
Presence of Hemodynamic compromise with a known pericardial effusion.



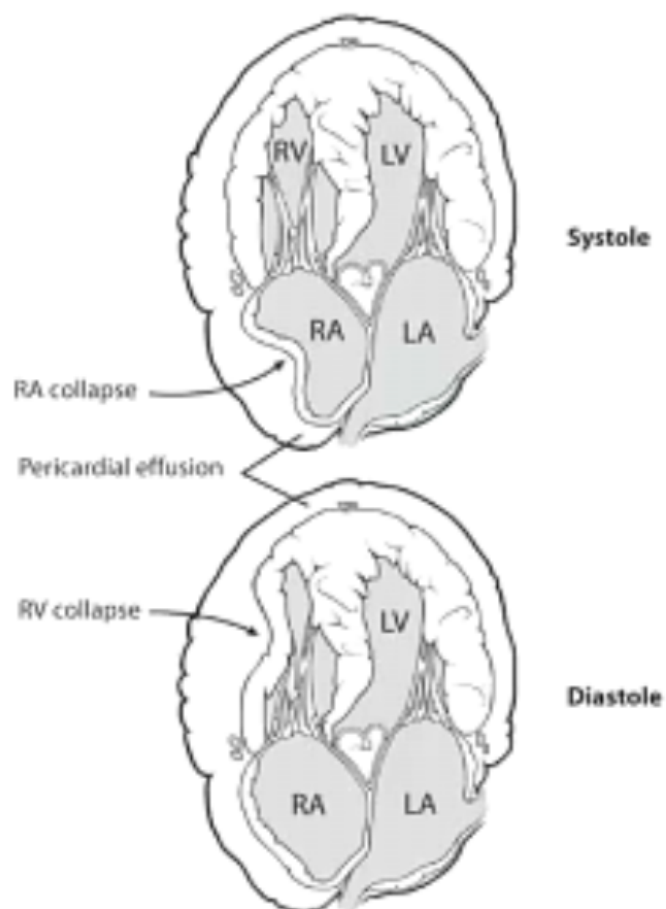
TAMPONADE BY ECHO

- RV collapse in diastole
- RA collapse in systole
- Pulsus Paradoxus on TV/MV inflow
- IVC dilation

RV COLLAPSE

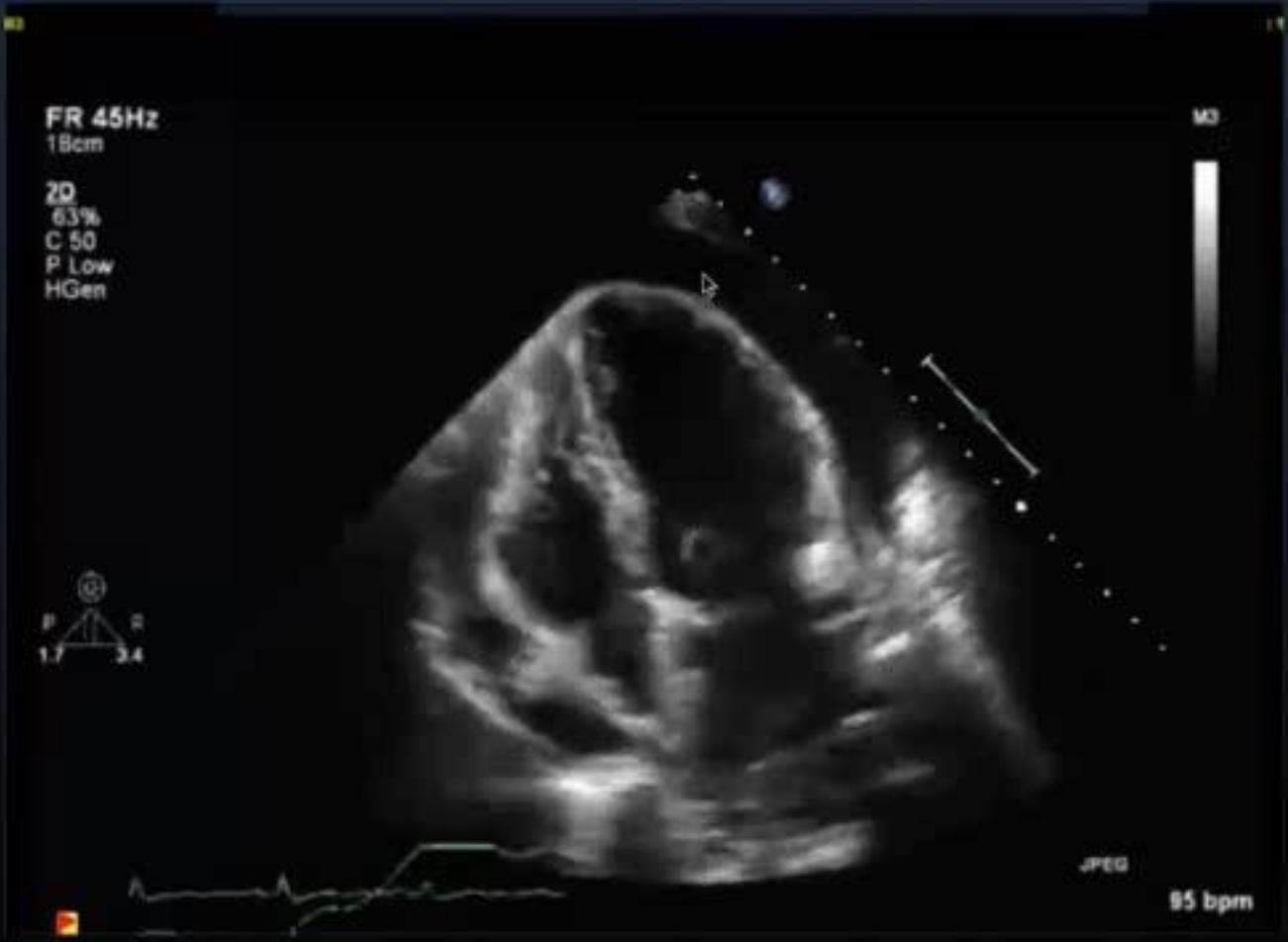


RV/RA COLLAPSE



Source: Ma OJ, Mateer JR, Blaivas M: *Emergency Ultrasound*, 2nd Edition:
<http://www.accessemergencymedicine.com>

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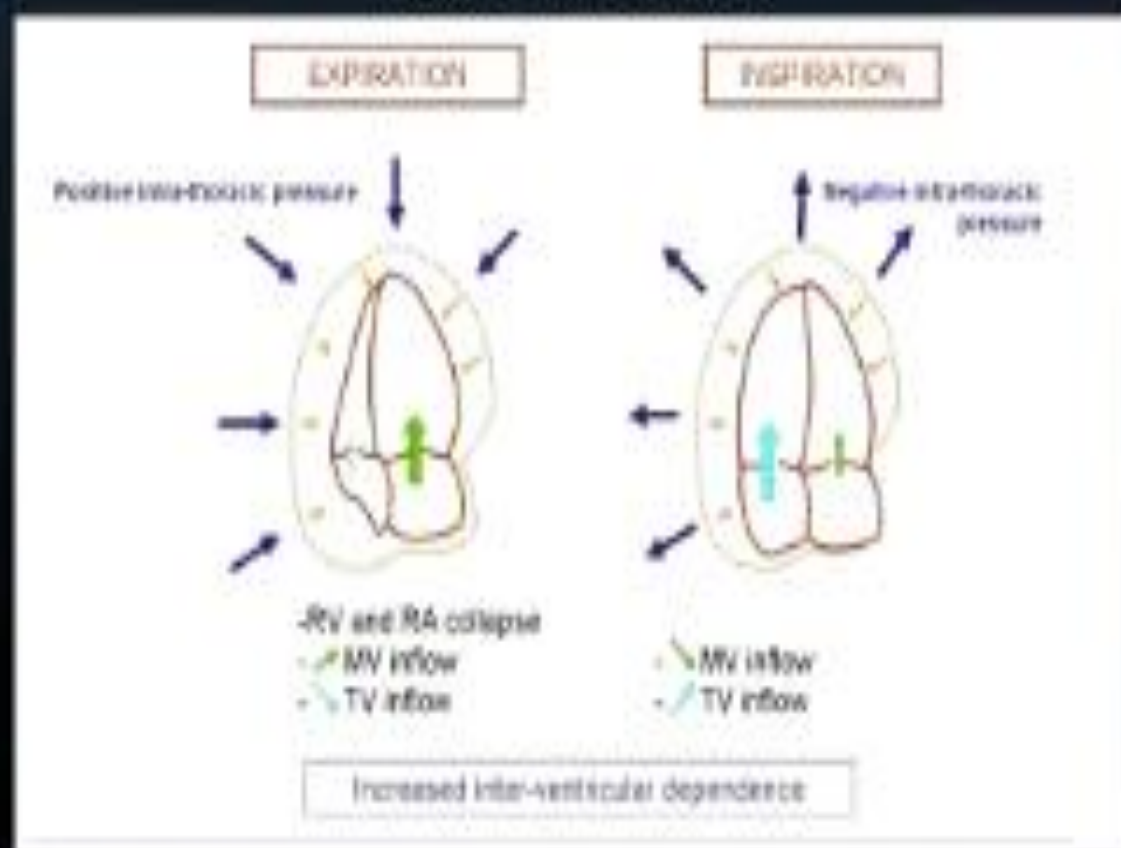




102
HF

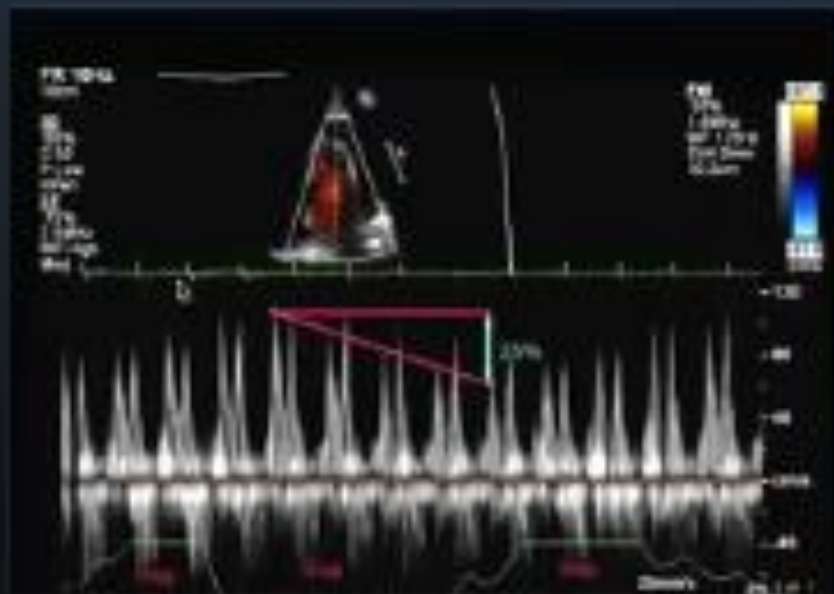
EXAGGERATED MV/TV INFLOW VARIATION

Ventricular Interdependence

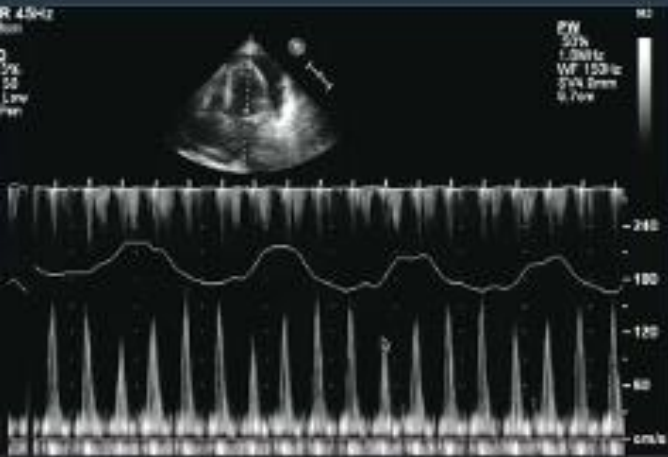


TV/MV INFLOW VARIATION

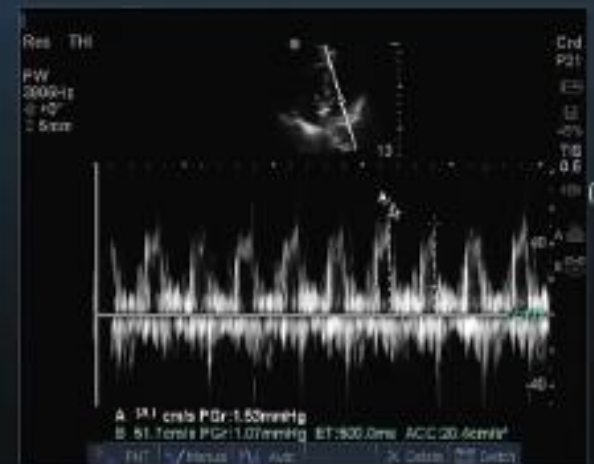
- Normal Variation:
- MV 15%
- TV 25%



TAMPONADE?



NO TAMPONADE

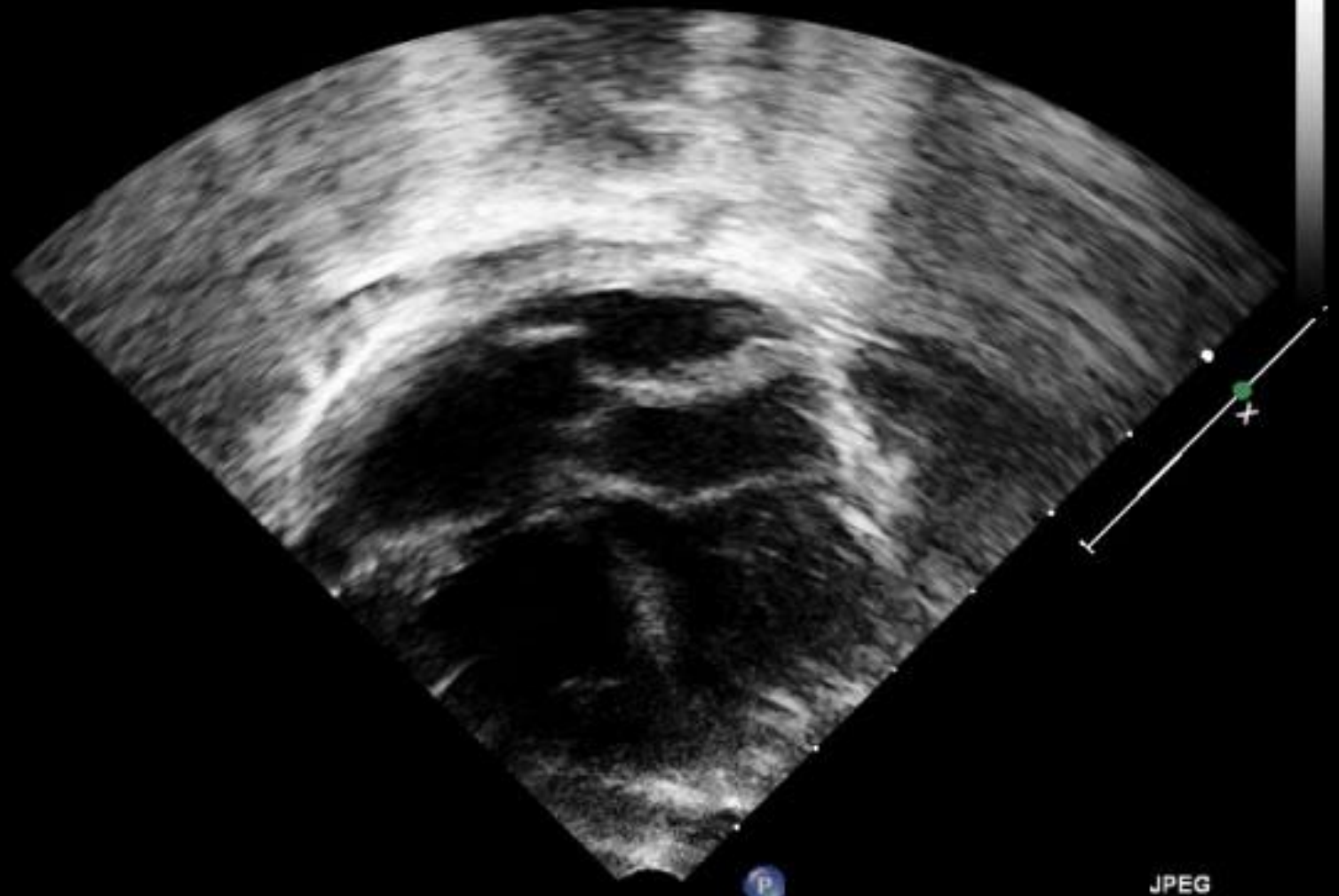


18

8.1cm

spitaldi Marie Curie
20151002.080502

2D
63%
C 50
P Off
Res



WL: 128 WW: 256 [D]

JPEG

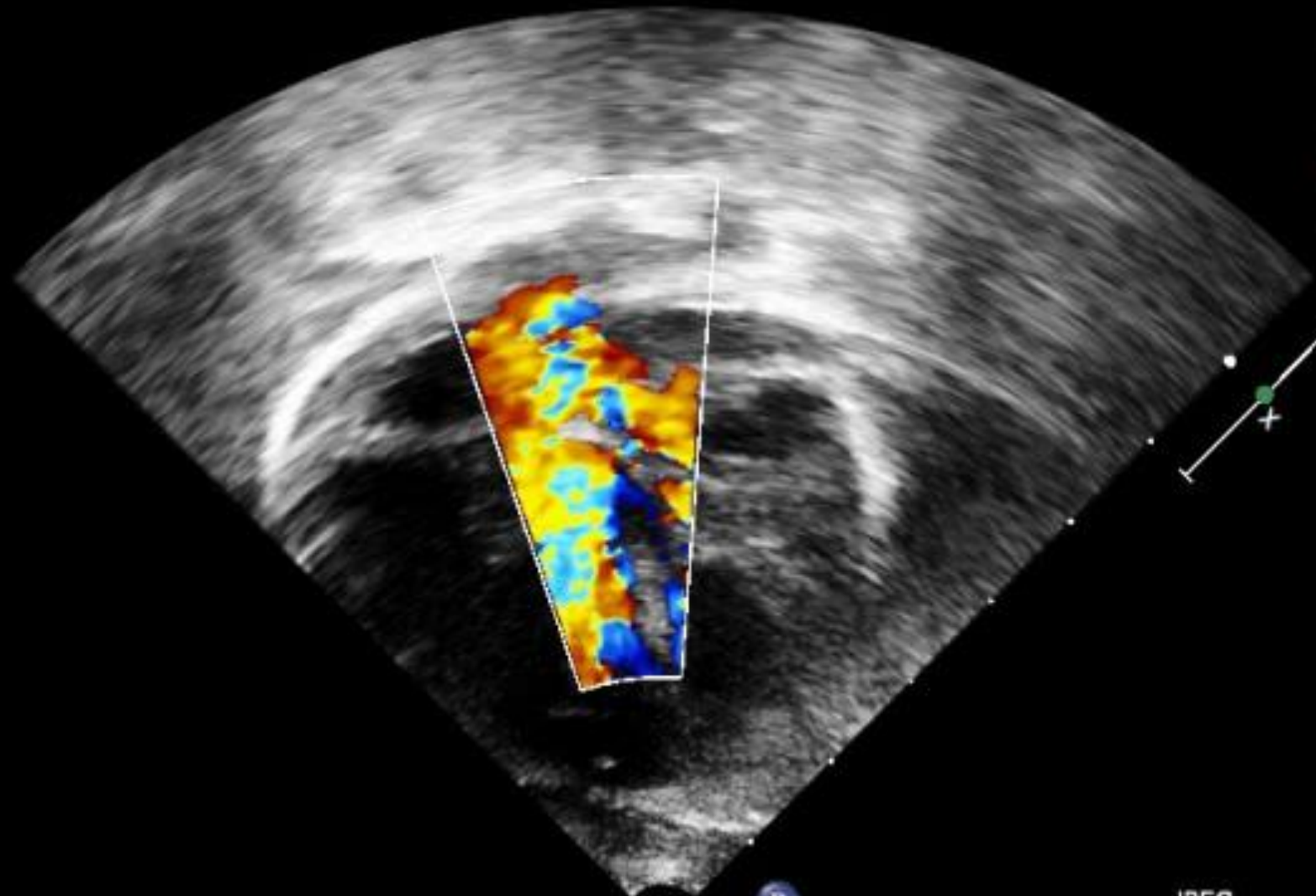
*** bpm
10/2/2015 8:05:02 AM

8.1cm

20151002.080502

2D
70%
C 50
P Off
Res

CF
77%
3.0MHz
WF High
Med



-61.6
cm/s

WL: 128-WW: 256 [D]

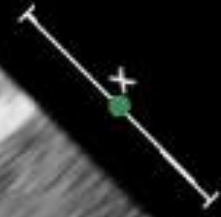
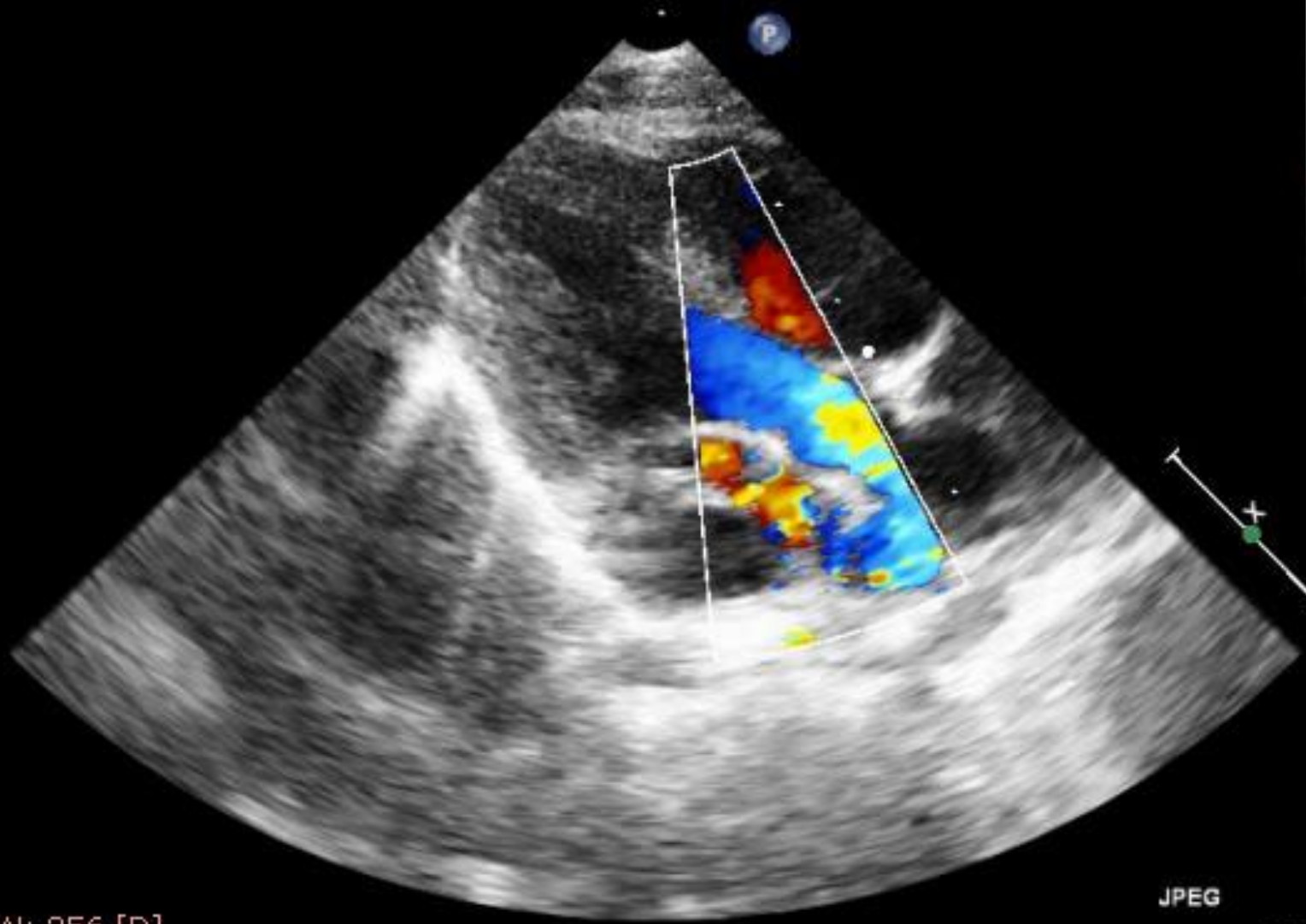
JPEG

*** hpm
10/2/2015 8:05:02 AM

FR 44Hz
8.1cm

2D
74%
C 50
P Off
Res

CF
77%
3.0MHz
WF High
Med



WL: 128 WW: 256 [D]

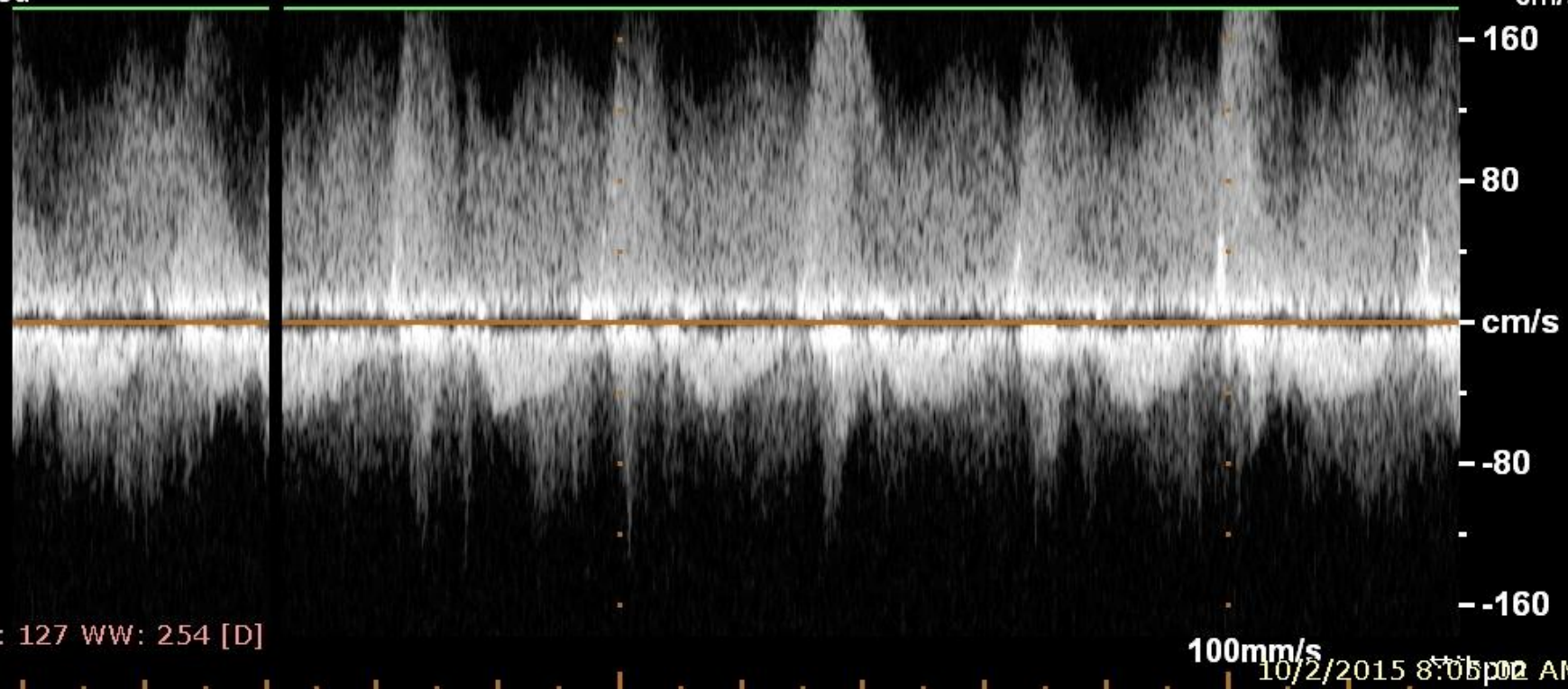
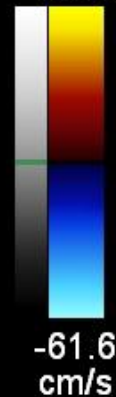
JPEG

*** bpm
10/2/2015 8:05:02 AM

FR 25Hz
8.1cm

Spitalul Marie Curie
151002.0805025
CW
40%
3.3MHz
WF 225Hz

2D
65%
C 50
P Off
Res
CF
77%
3.0MHz
WF High
Med



WL: 127 WW: 254 [D]

100mm/s
10/2/2015 8:05:02 AM

FR 61Hz
8.1cm

2D
67%
C 50
P Off
Res



P

WL: 127 WW: 254 [D]
✦ Dist 0.752 cm

10/2/2015 8:05:02 AM

The image features a dark, textured background, possibly a piece of wood or stone, with a grainy, slightly uneven surface. The text is written in a clean, white, sans-serif font, centered on the page. The text is arranged in five lines, each containing a word or a short phrase. The overall tone is motivational and encouraging.

DON'T
GIVE UP.
GREAT
THINGS
TAKE TIME.

