



# 雙和急診POCUS訓練

診  
斷

監  
測

介  
入

POINT OF CARE ULTRASOUND

~ 存在於臨床需求之所在 ~

# 陳國智 醫師



醫用超音波學會指導醫師  
WINFOCUS director / instructor  
急救加護醫學會重症超音波負責人

急診 / 重症 / 介入 / 急性疼痛

## 經歷

新光急診超音波訓練中心主任

西園醫院急診醫學科主任

急診醫學會超音波委員會主委

台灣疼痛醫學會大體模擬手術講師



**LE joint effusion**

**01/07**

**Airway**

**01/14**

**Needling**

**01/21**

**VExUS protocol**

**01/28**

**雙和急診POCUS訓練**





**Central access**

02/11

**Peripheral access**

02/18

**EFAST**

02/25

**雙和急診POCUS訓練**



**Basic ECHO**

03/04

**Nerve block-UE(1)**

03/11

**Nerve block-LE(1)**

03/25

**雙和急診POCUS訓練**



**Aorta & IVC**

04/01

**Liver & Biliary**

04/08

**Kidney & UB**

07/08

**Pancreas & Spleen**

07/22

**雙和急診POCUS訓練**





衛生福利部雙和醫院  
(委託臺北醫學大學興建經營)  
Taipei Medical University · Shuang Ho Hospital,  
Ministry of Health and Welfare



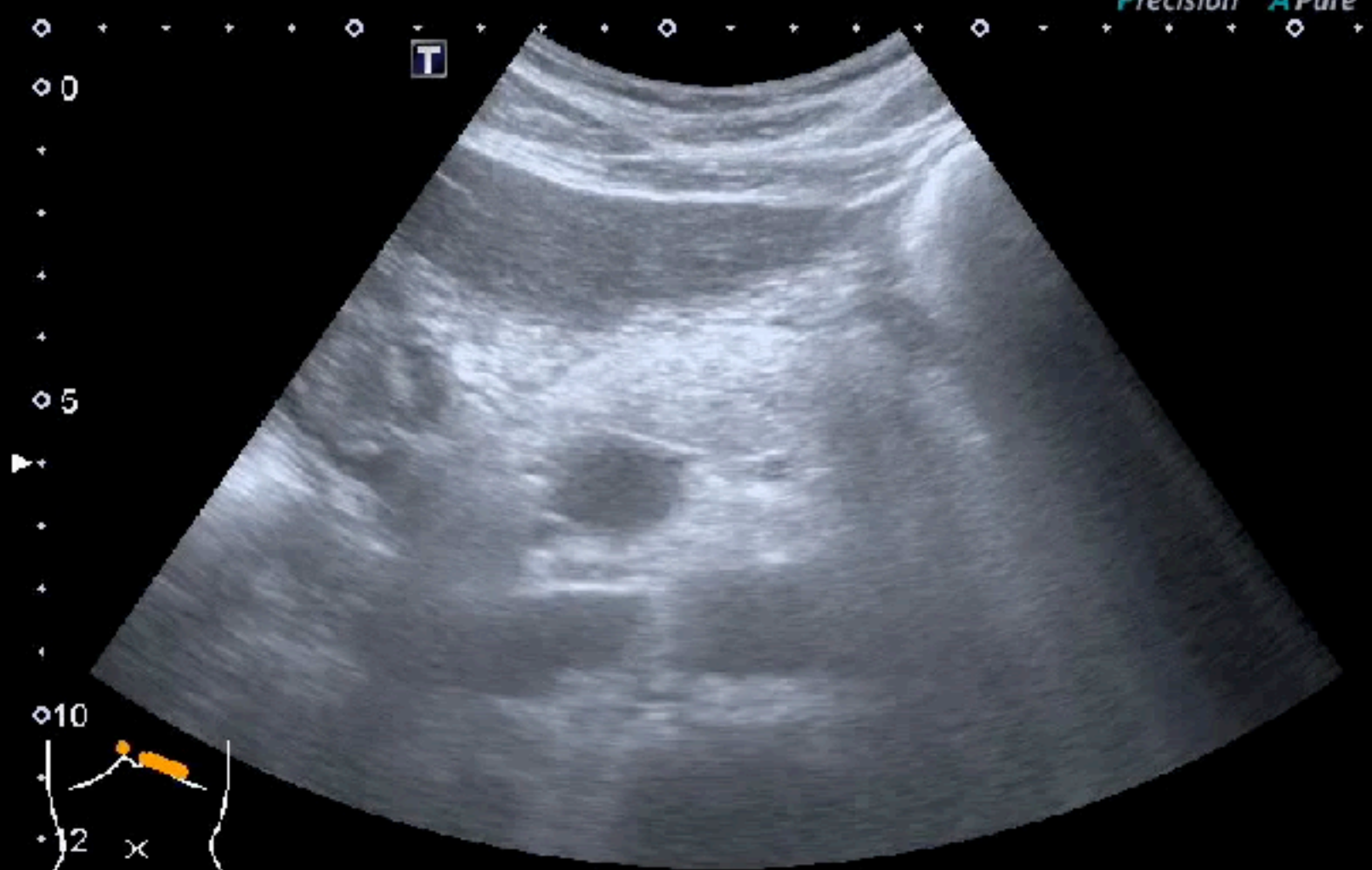
# POCUS Imaging Reading



陳國智醫師

雙和醫院 急診醫學科

Precision APure



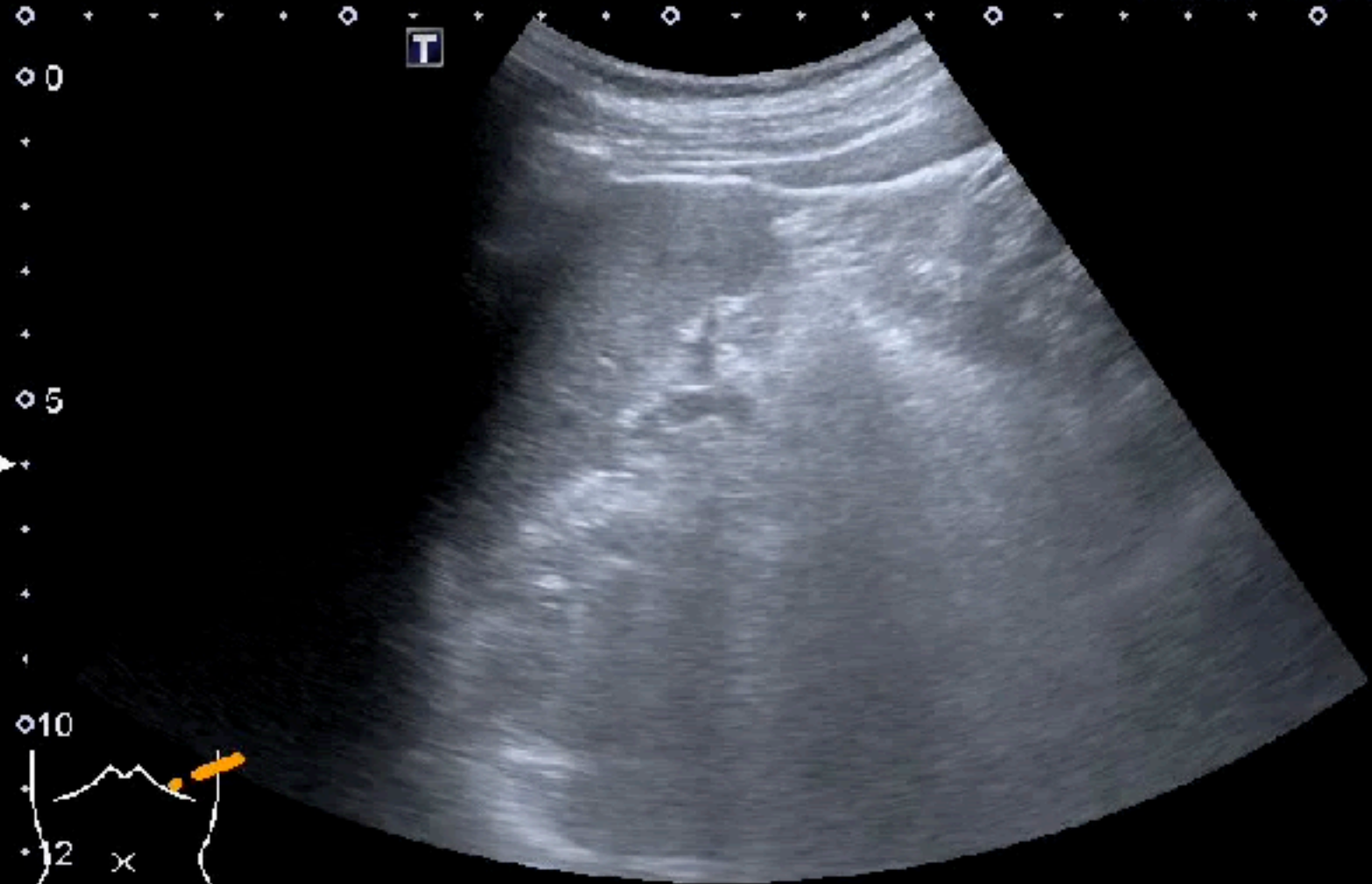
MI  
1.5  
6C1  
T5.0  
20 fps  
G:85  
DR:65  
A:2  
P:1



Precision APure



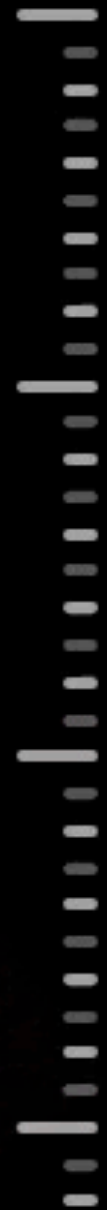
T



MI  
1.5  
6C1  
T5.0  
20 fps  
G:85  
DR:65  
A:2  
P:1

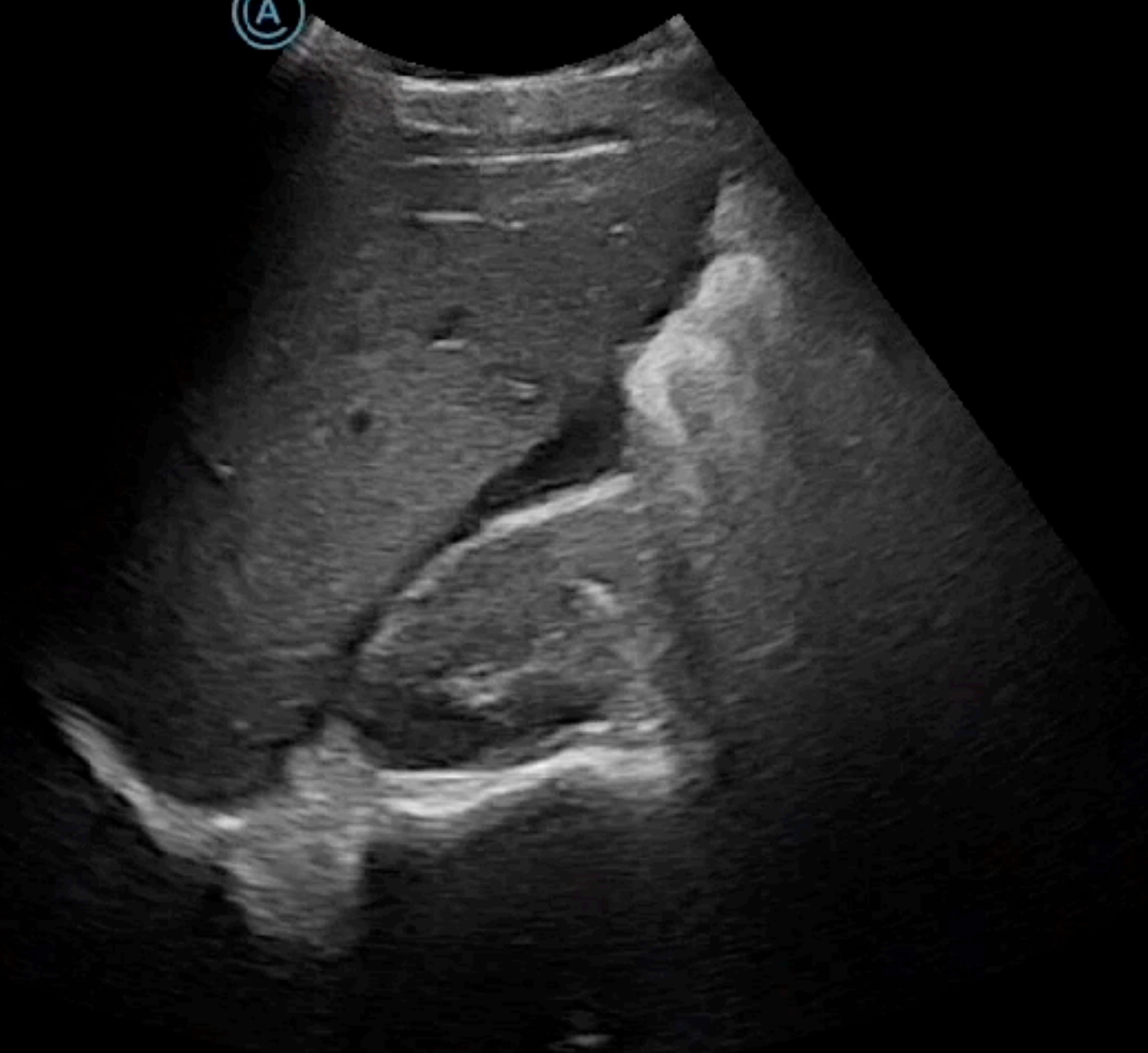


Ⓐ





Ⓐ





FOV: 30x30 cm  
LAG: 0.2 deg  
CRA: 0.3 deg  
L: 0.9 deg  
Tilt: 0 deg  
Mag = 1.00  
FL: ROT  
WW: 4096 WL: 2048  
XA 750x750

(Flt: 5)

FRNT  
Seq: 1  
FRAME = 6/17

Abd Gen  
C5-1  
34 Hz  
15.0cm

2D  
HGen  
Gn 93  
C. 56  
3/3/3



15.0cm

Abd Gen  
C5-1  
34 Hz  
15.0cm

2D  
HGen  
Gn 93  
C. 56  
3/3/3



15.0cm

Abd Gen  
C5-1  
34 Hz  
15.0cm

2D  
HGen  
Gn 93  
C. 56  
3/3/3





Abd Gen  
C5-1  
34 Hz  
15.0cm

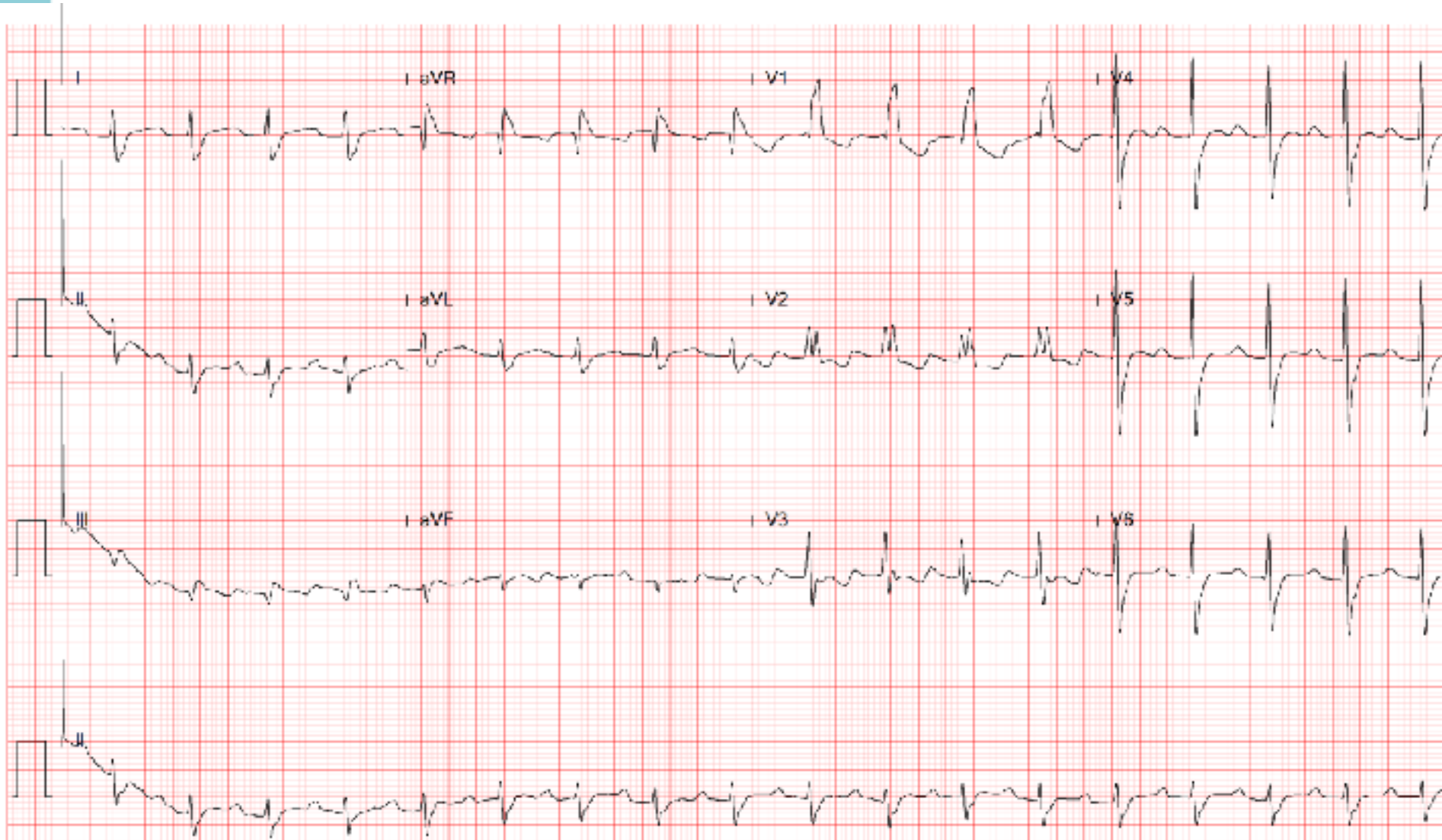
2D  
HGen  
Gn 93  
C. 56  
3/3/3





72M, 早上洗完腎，到家門口虛弱無力

EMT SBP 50; SpO2 80%/ ER PR 103; BP 71/43; RR16



72M, 早上洗完腎，到家門口虛弱無力

EMT SBP 50; SpO2 80%/ ER PR 103; BP 71/43; RR16



20220708



20220629

M7

R1

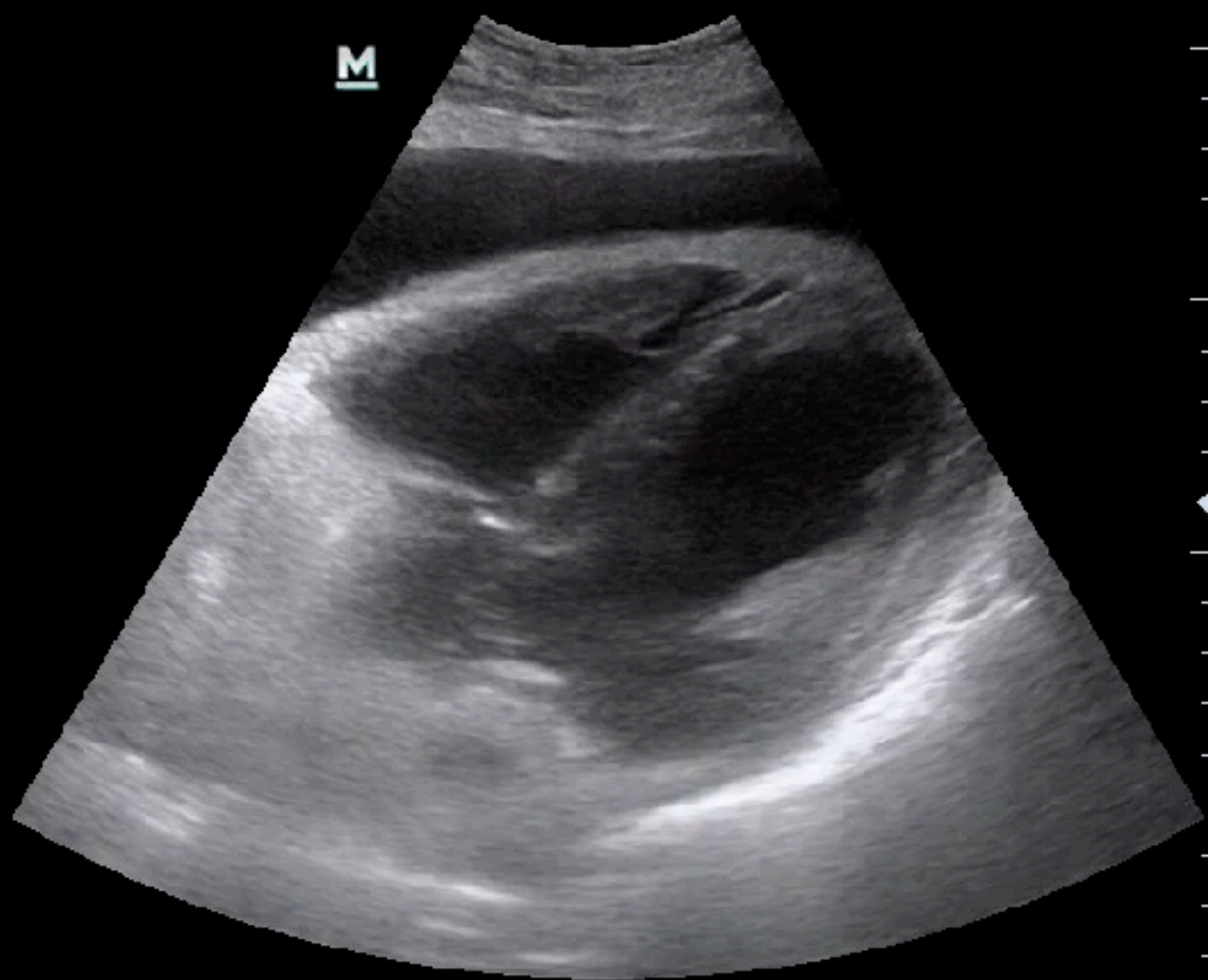
FH5.0 / D18.5

G54 / FR25

IP4 / DR143



M



0

5

10

15

1/138

M7

R1

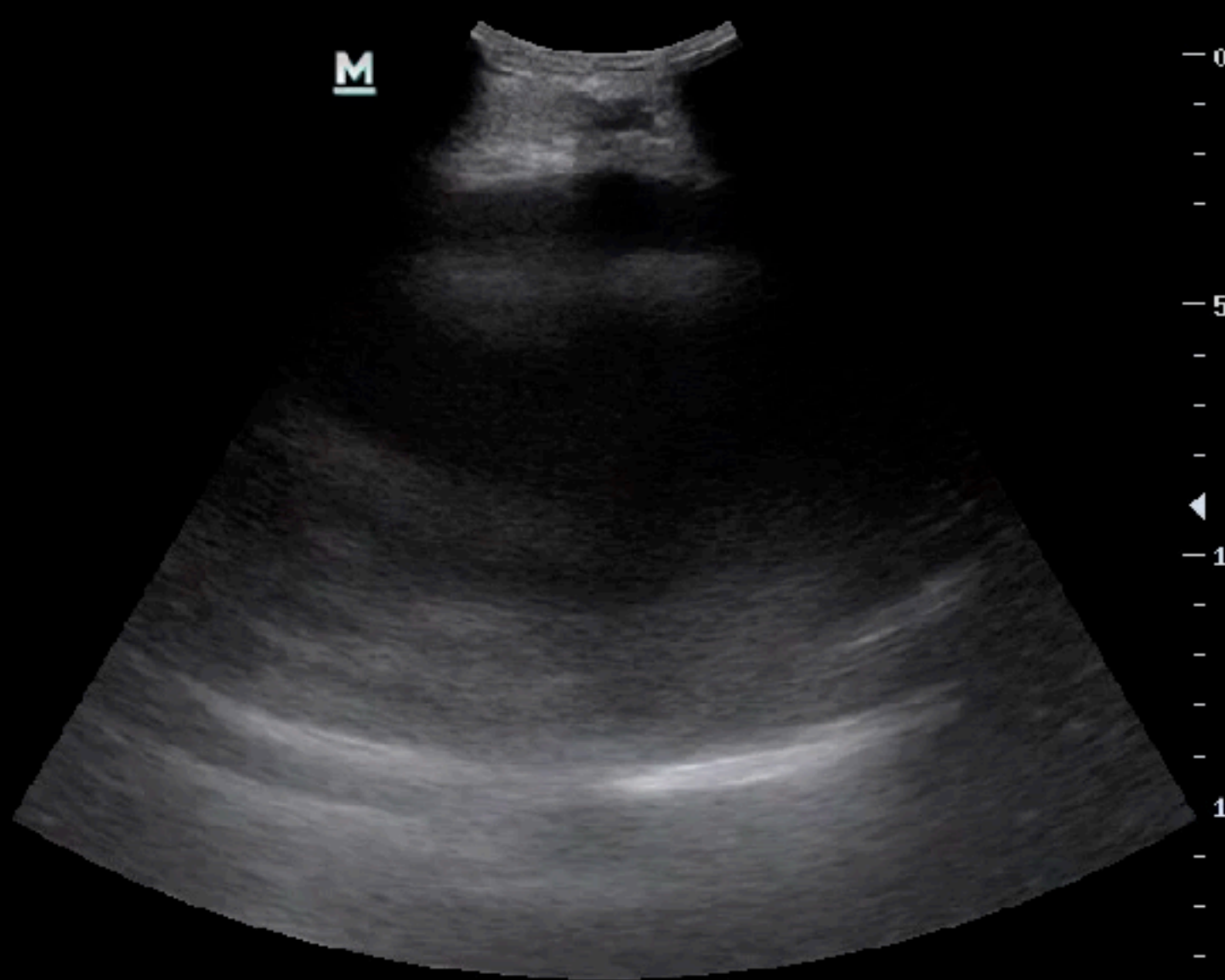
FH5.0 / D18.5

G54 / FR25

IP4 / DR143



M



0

5

10

15

1/116

M7

R1

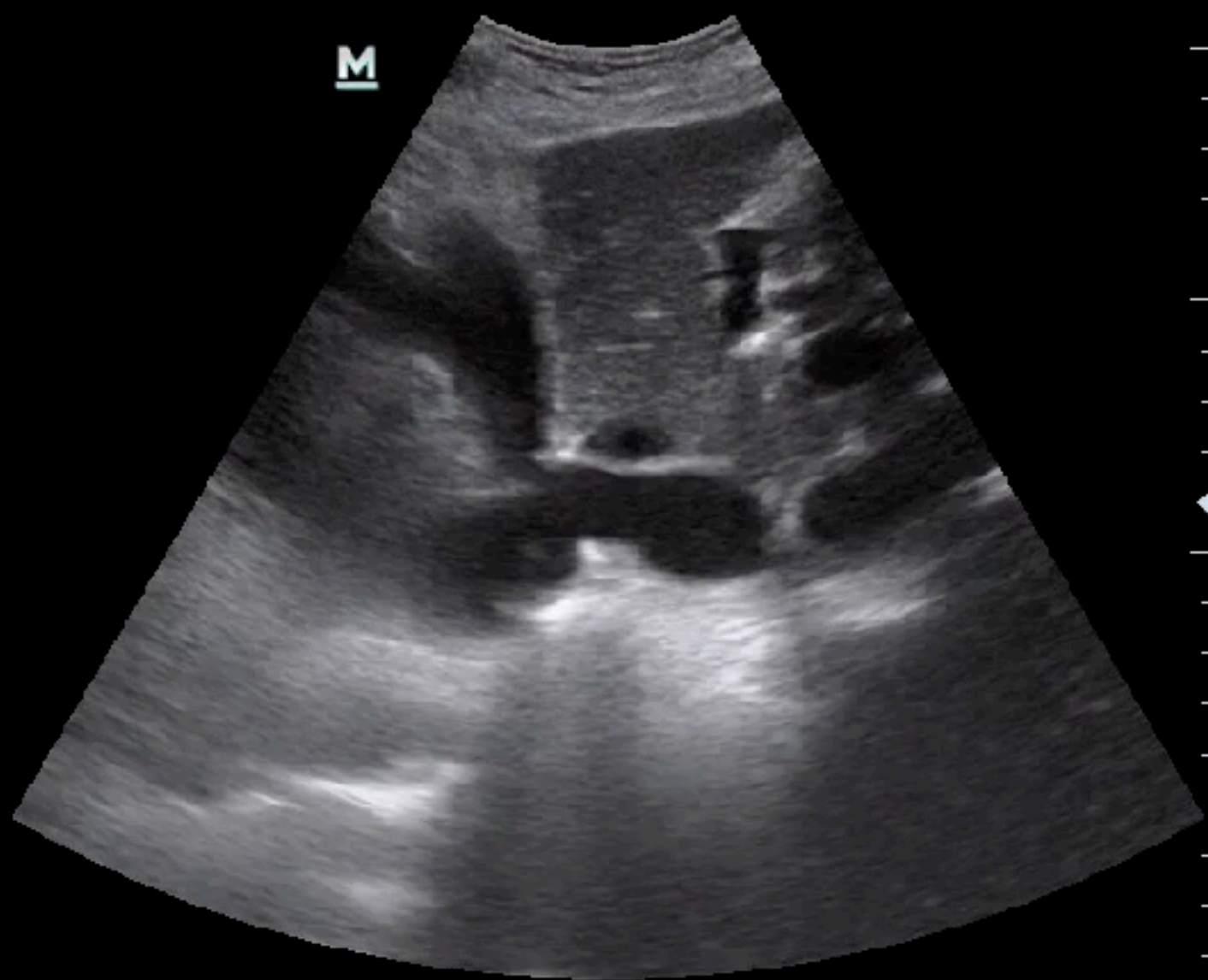
FH5.0 / D18.5

G54 / FR25

IP4 / DR143



M



0  
-  
-  
-  
-  
5  
-  
-  
-  
-  
-  
10  
-  
-  
-  
-  
15  
-  
-  
-

1/179



M7

R1

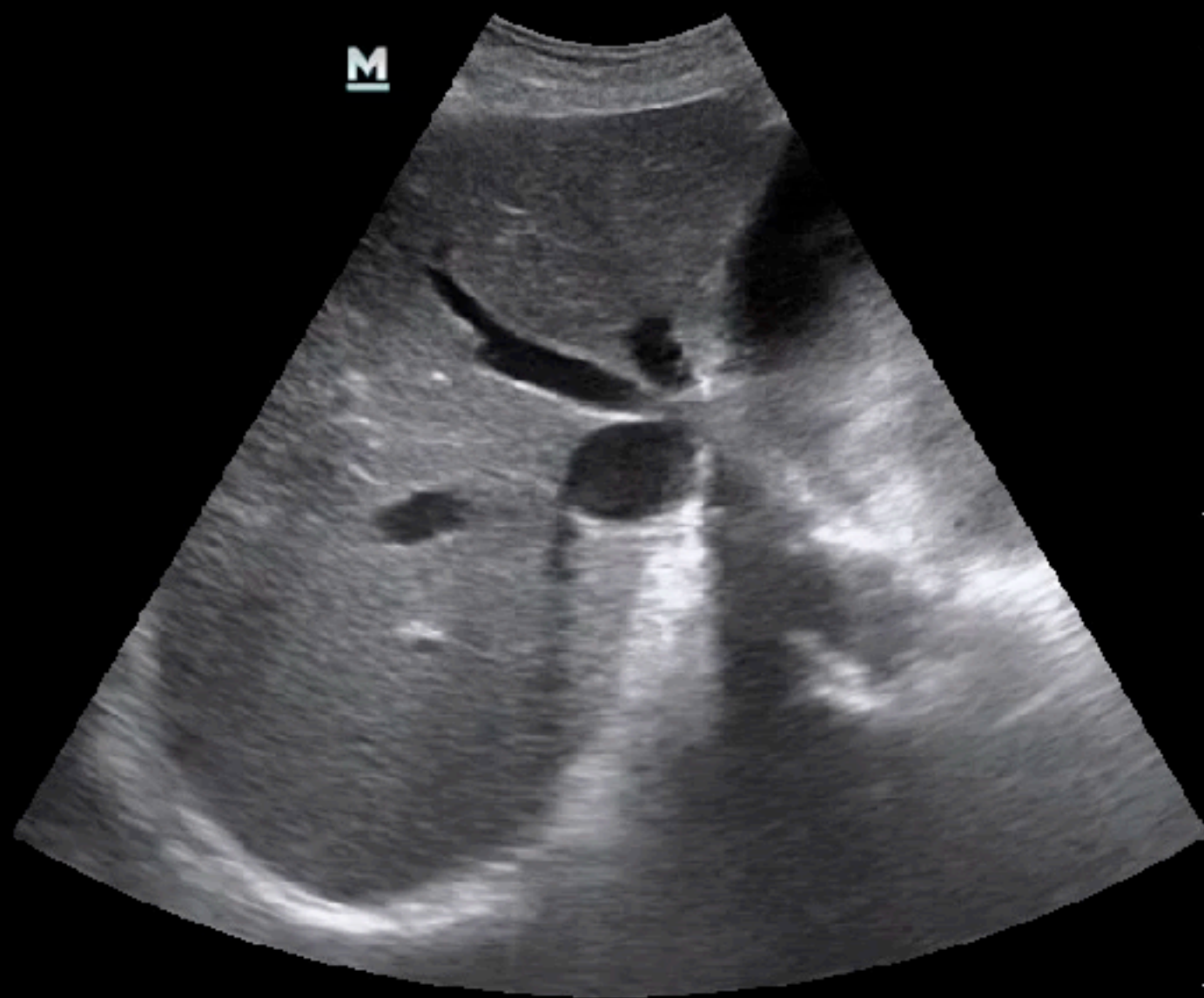
FH5.0 / D70.3

G54 / FR27

IP4 / DR143



M



0

10

20

1/345

M7

R1

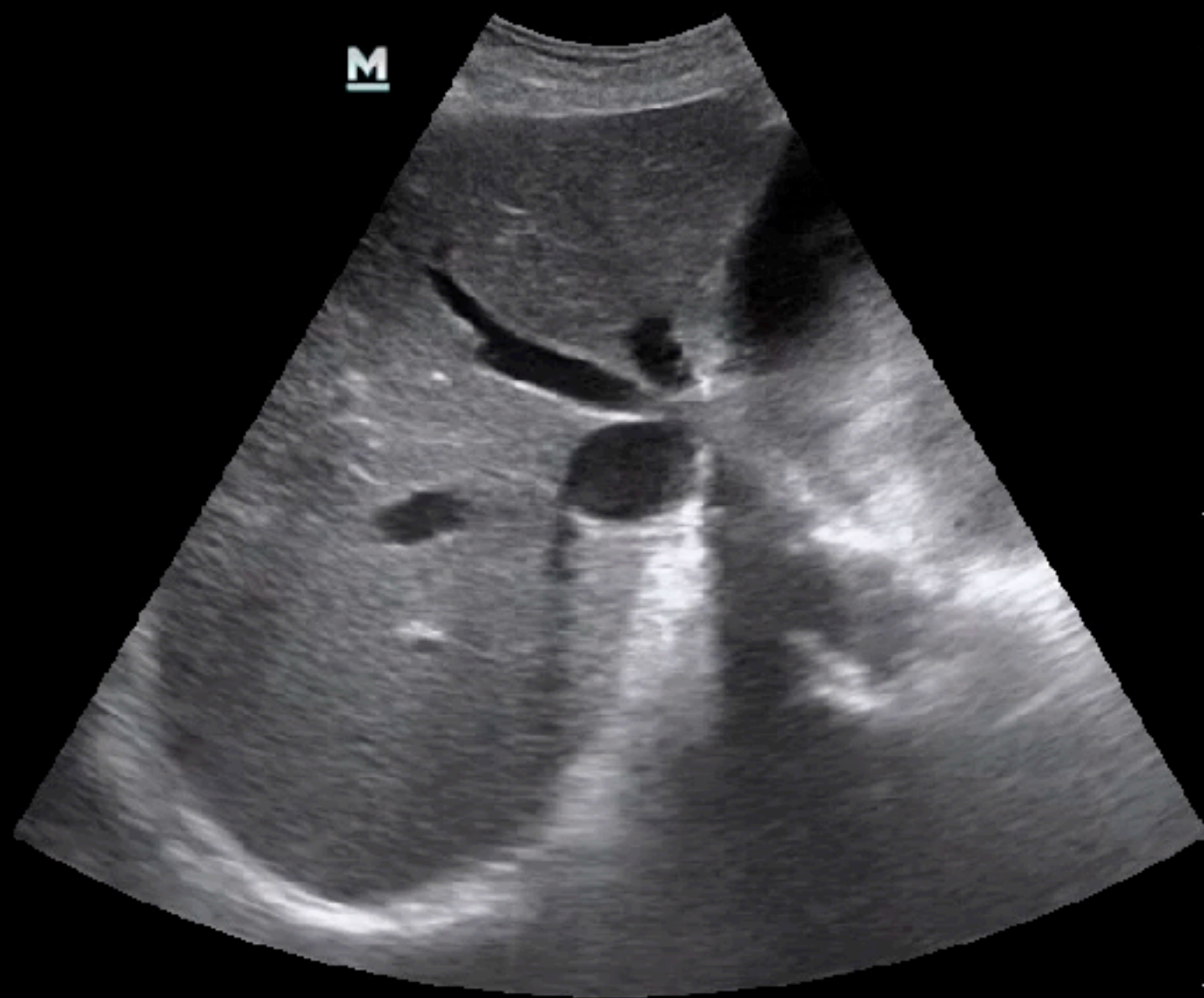
FH5.0 / D70.3

G54 / FR22

IP4 / DR143



M



0

10

20

1/345



M7

R1

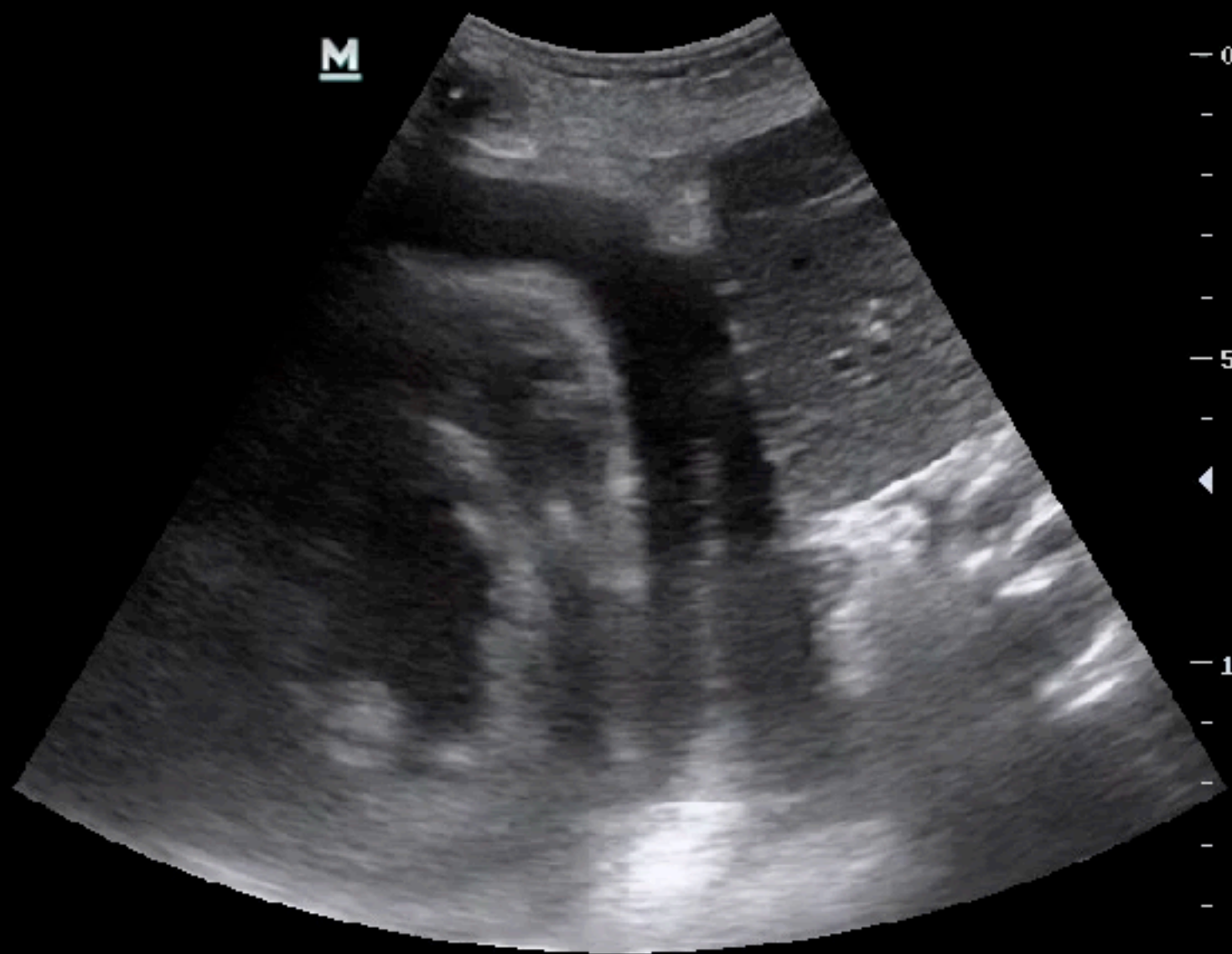
FH5.0 / D14.8

G54 / FR30

IP4 / DR143



M



1/318

M7

R1

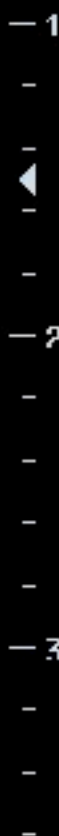
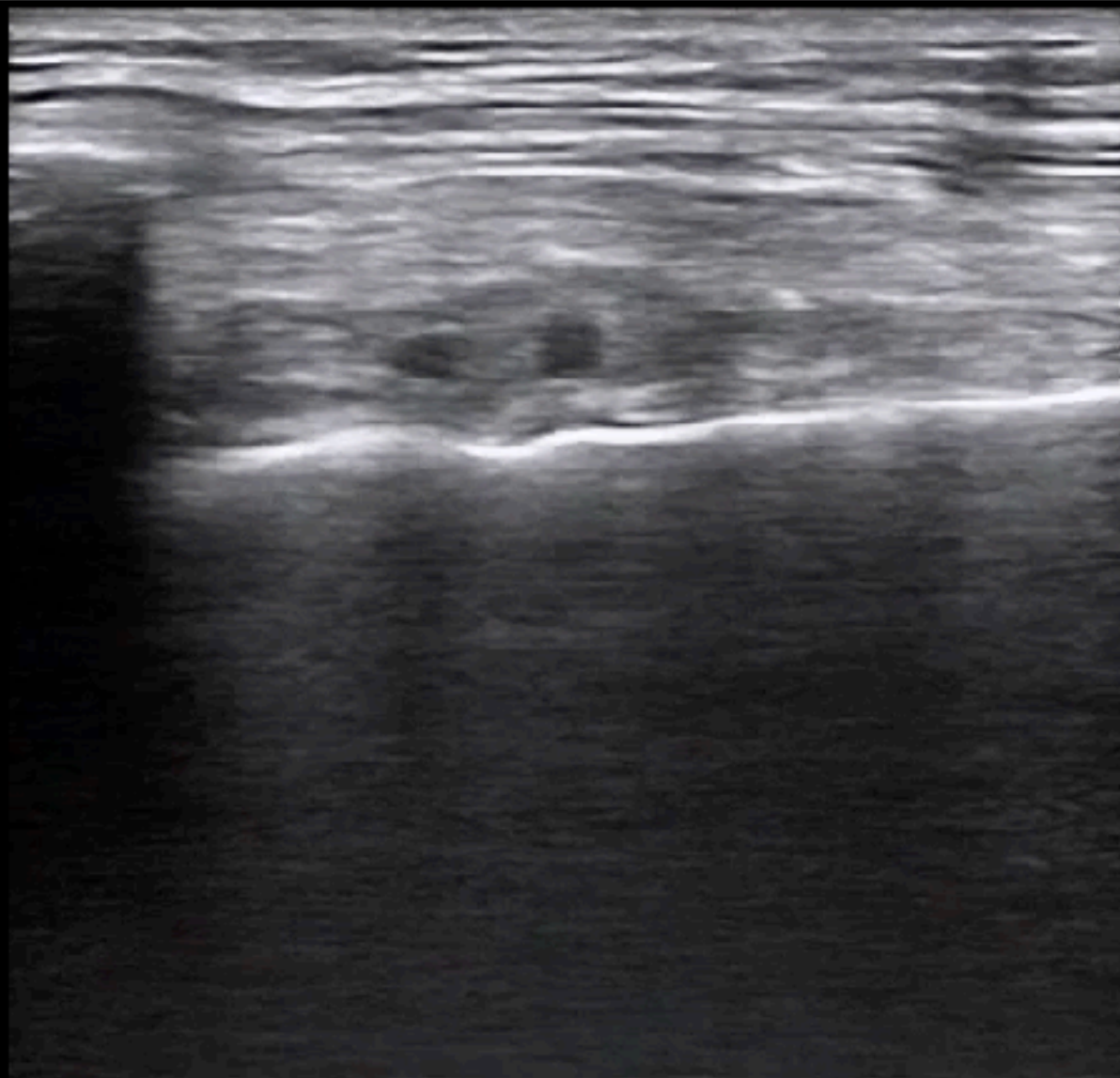
FH11.0 / D3.7

G67 / FR19

IP5 / DR87



M



1/106

M7

B1

FH11.0 / D3.7

G67 / FR13

IP5 / DR87

C

F5 / G53

IP5 / WF200

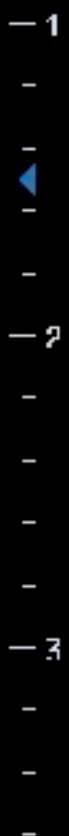
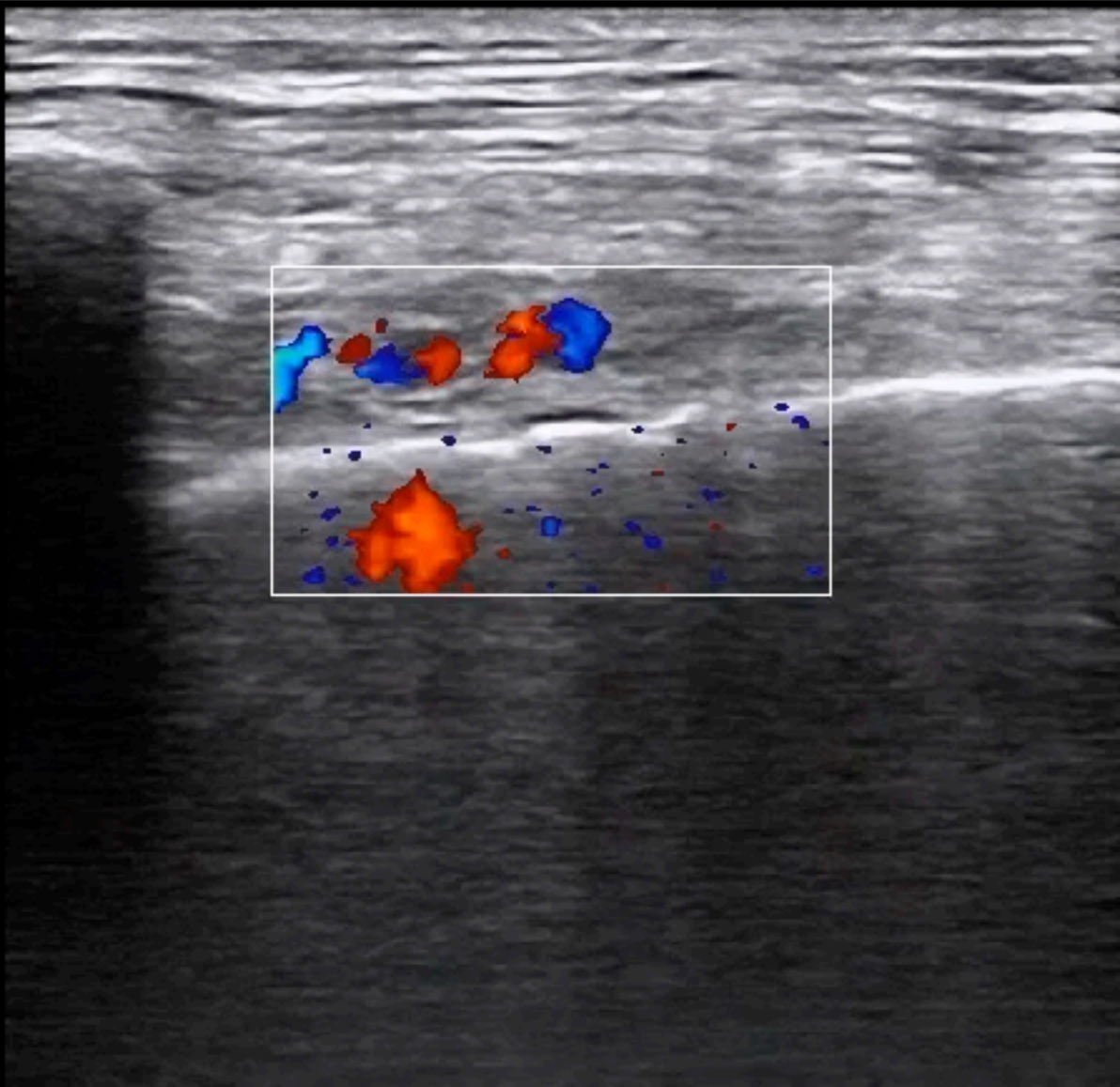
PRF0.9k

6.8



-6.8

M



1/37

M7

R1

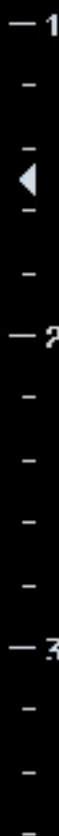
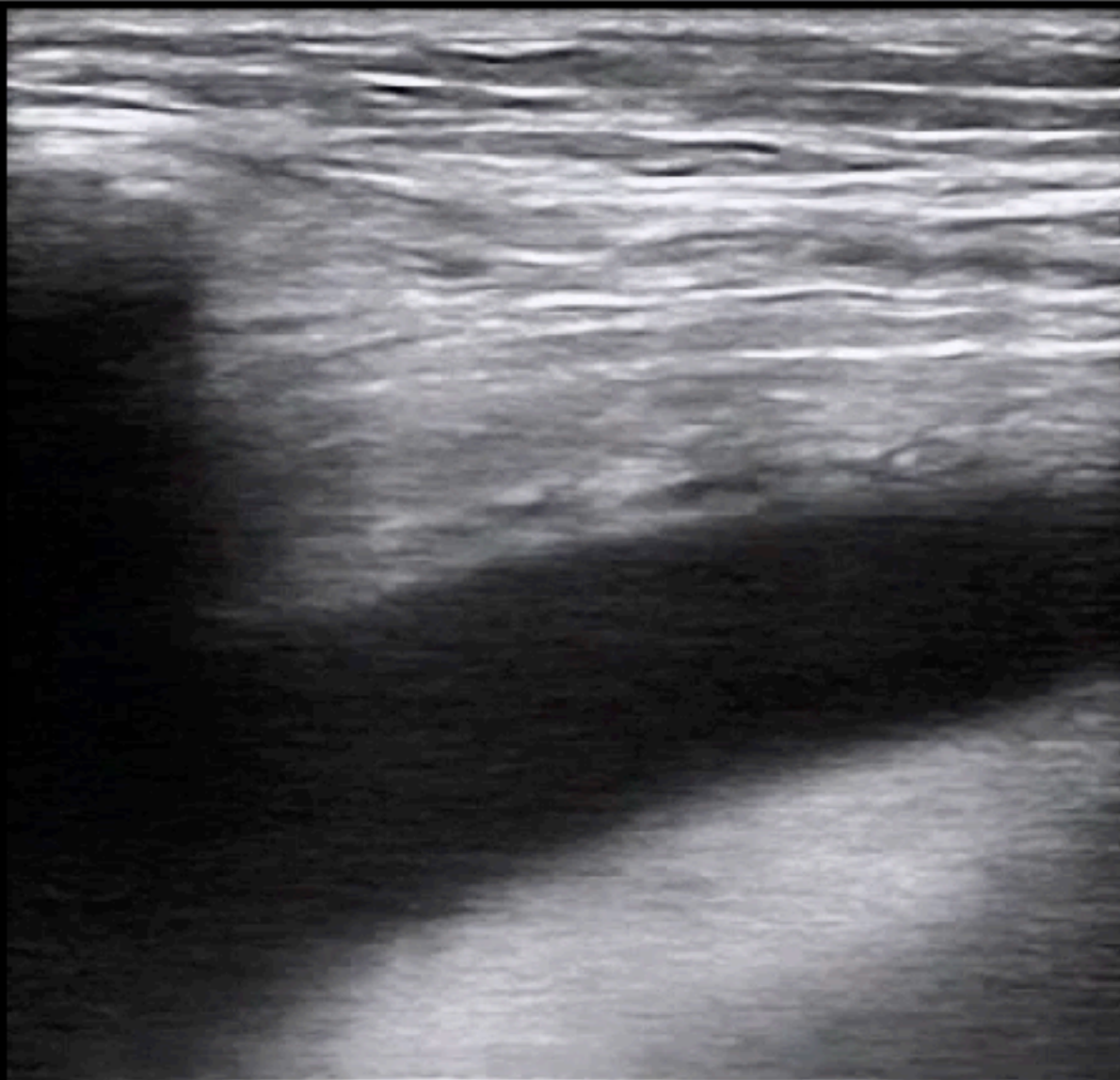
FH11.0 / D3.7

G67 / FR19

IP5 / DR87



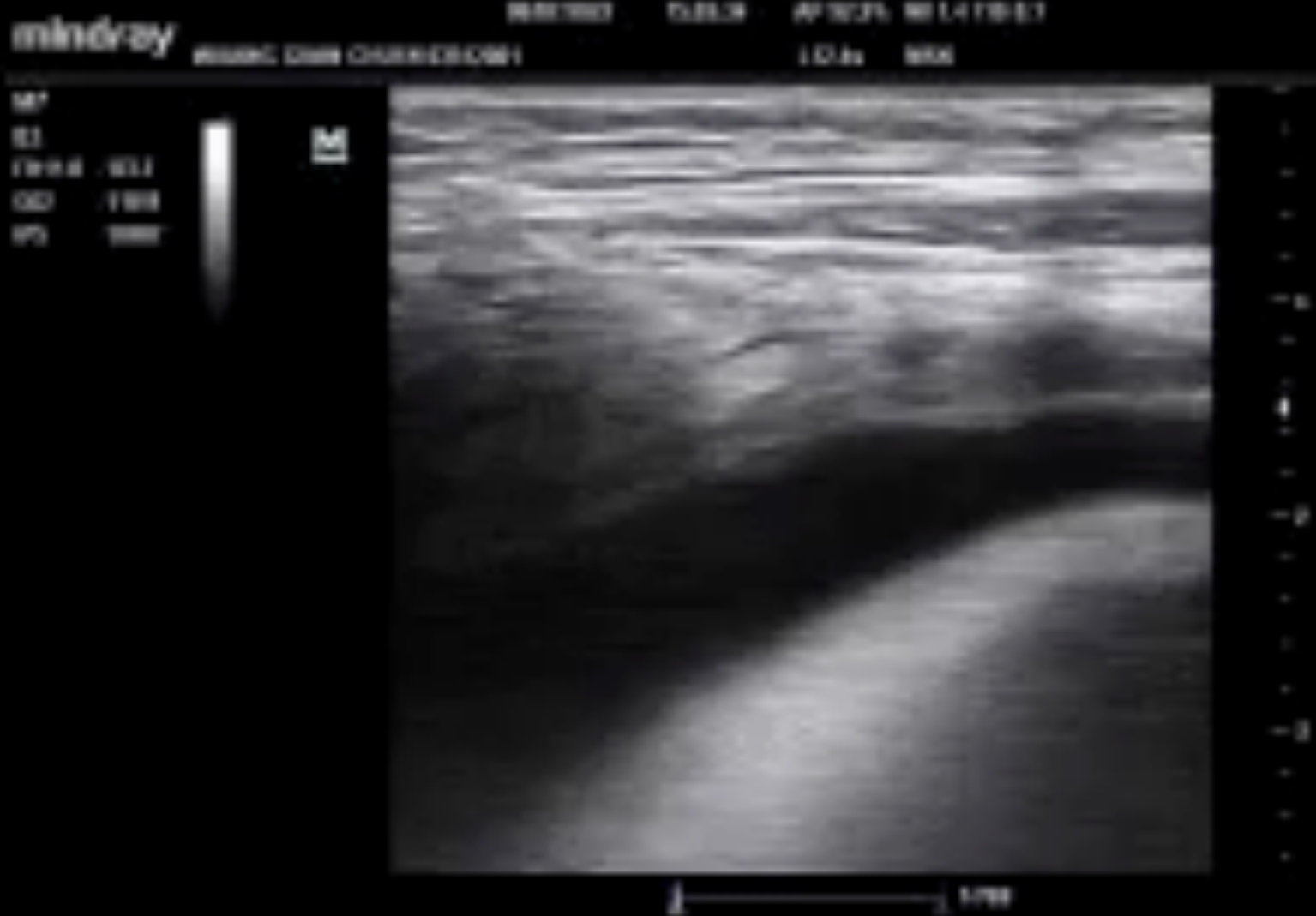
M

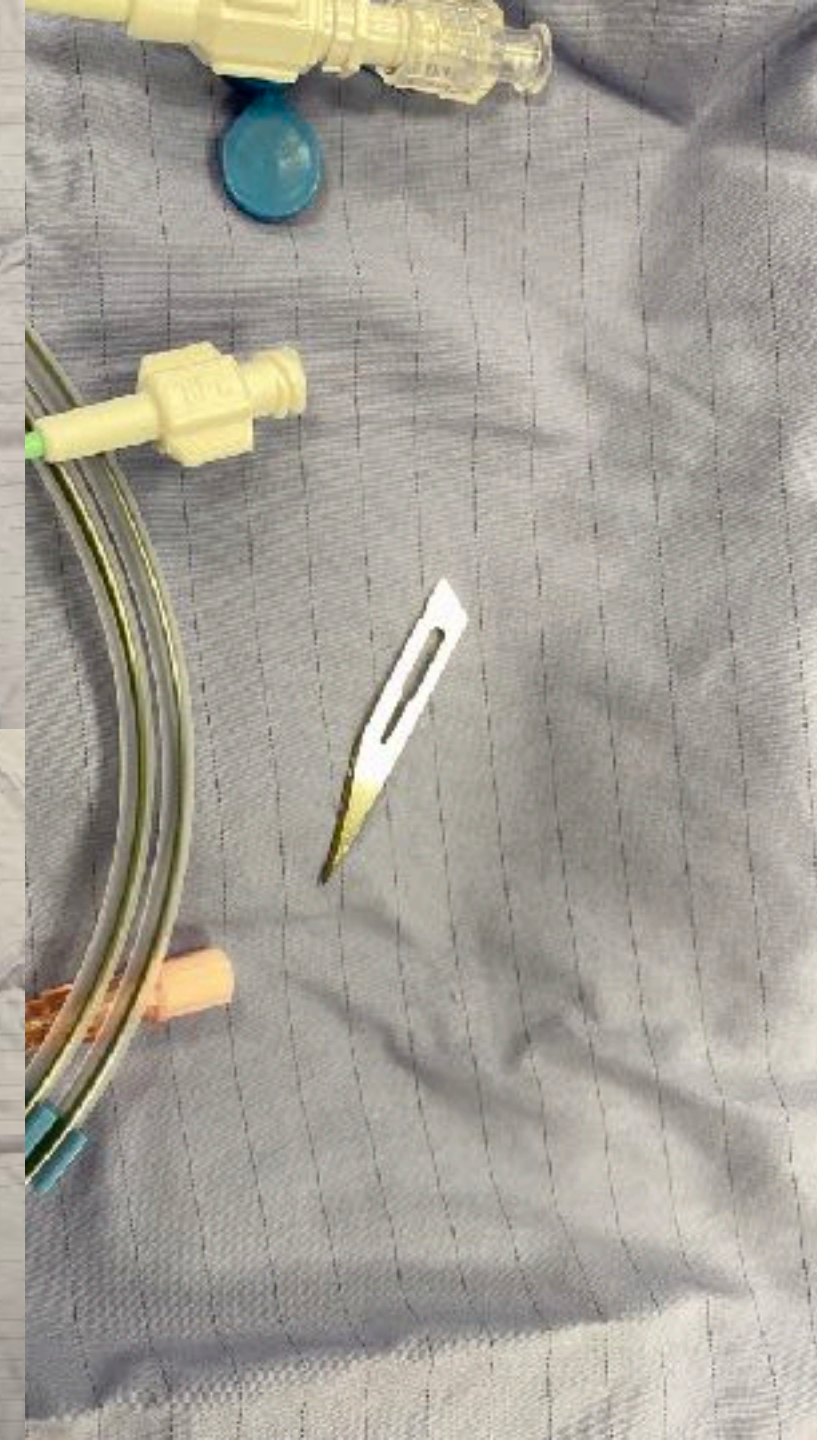


1732



# Parasternal pericardiocentesis









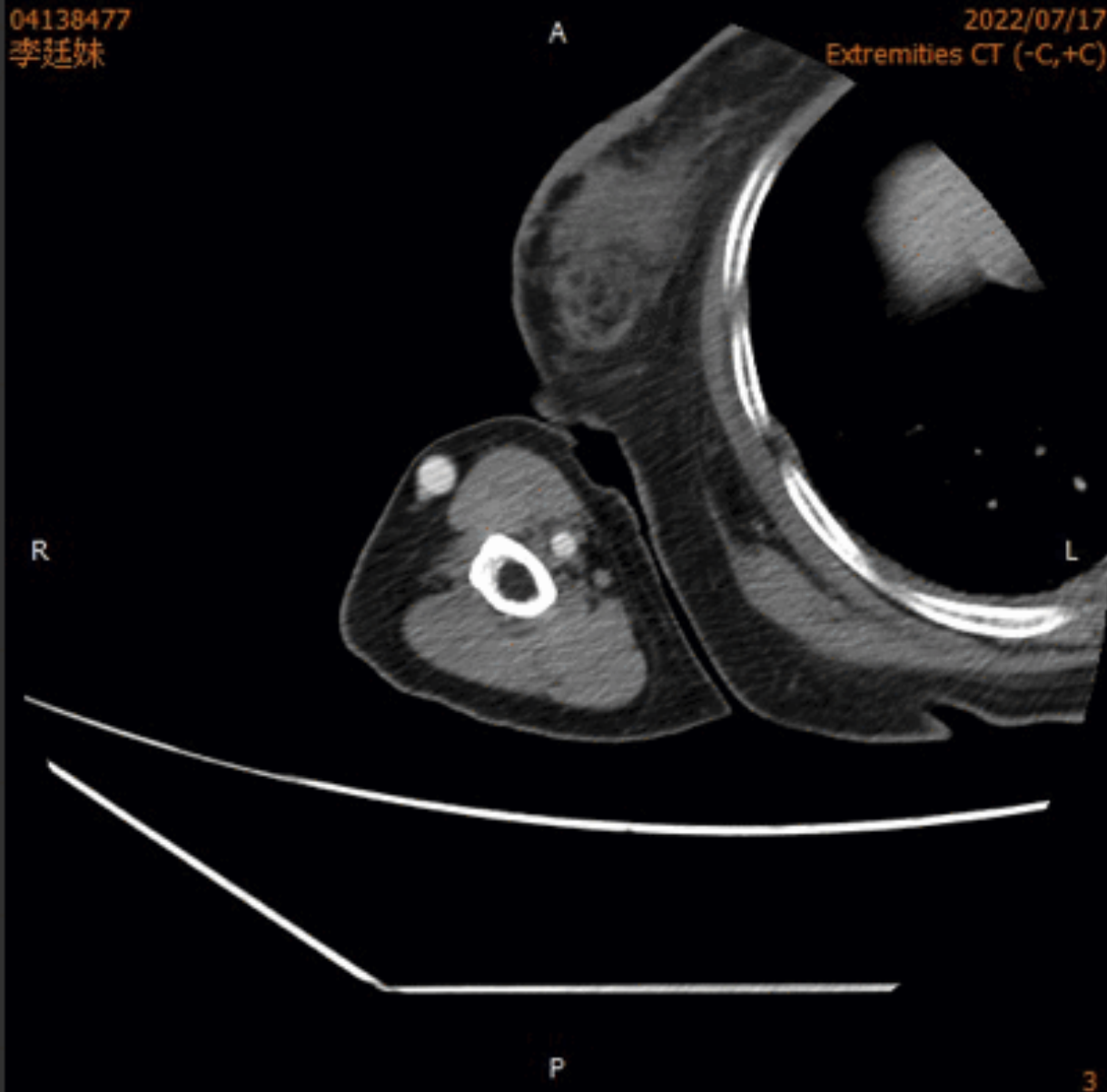


72M, 早上洗完腎，到家門口虛弱無力

EMT SBP 50; SpO2 80%/ ER PR 103; BP 71/43; RR16



69F, fever , redness around AV shunt  
BT 38; PR 78; BP 91/37



M7

R1

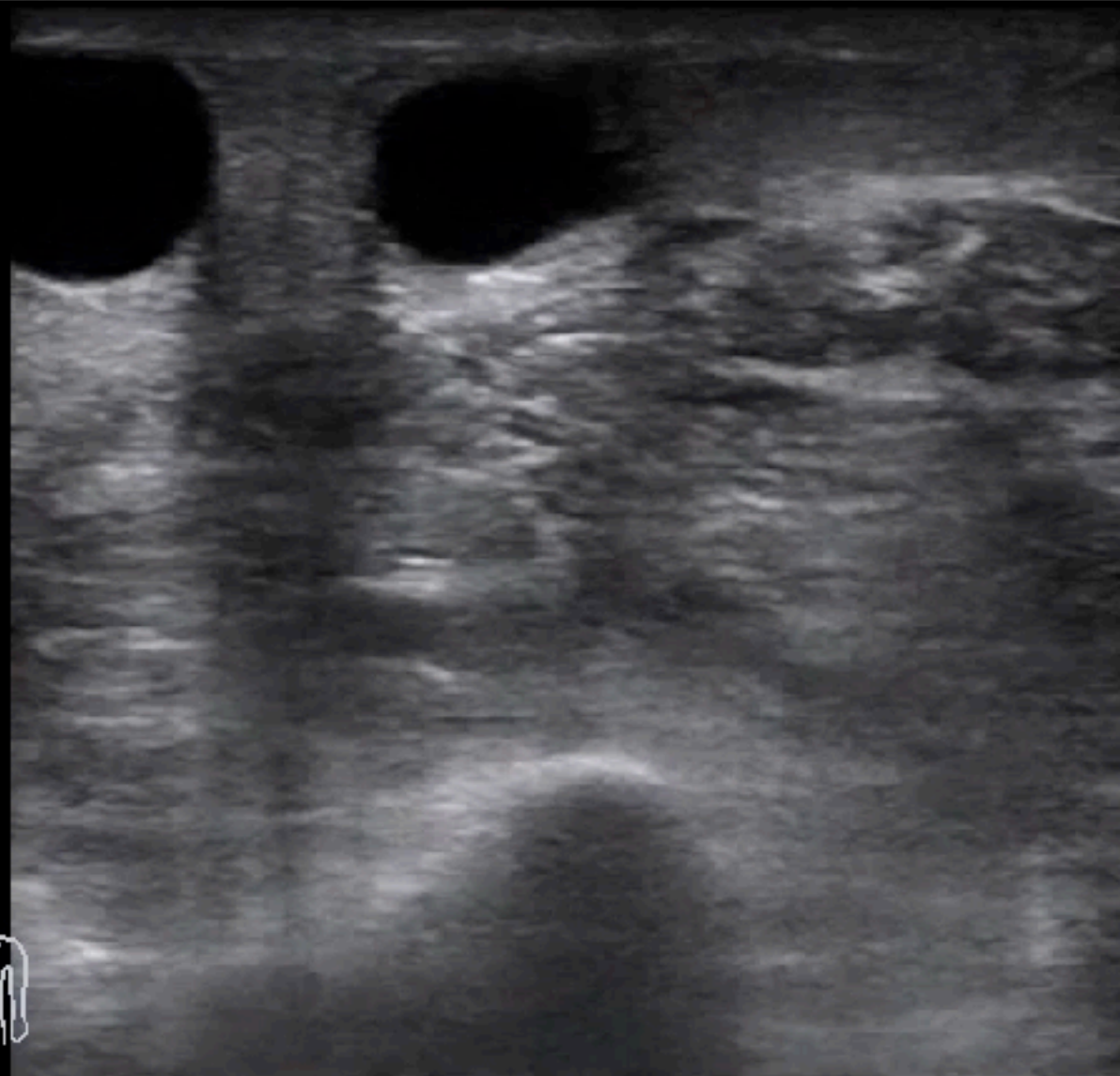
FH11.0 /D3.7

G50 /FR22

IP5 /DR135



M



1

2

3



1/107

M7

R1

FH11.0 / D3.7

G67 / FR22

IP5 / DR135



M





M7

R1

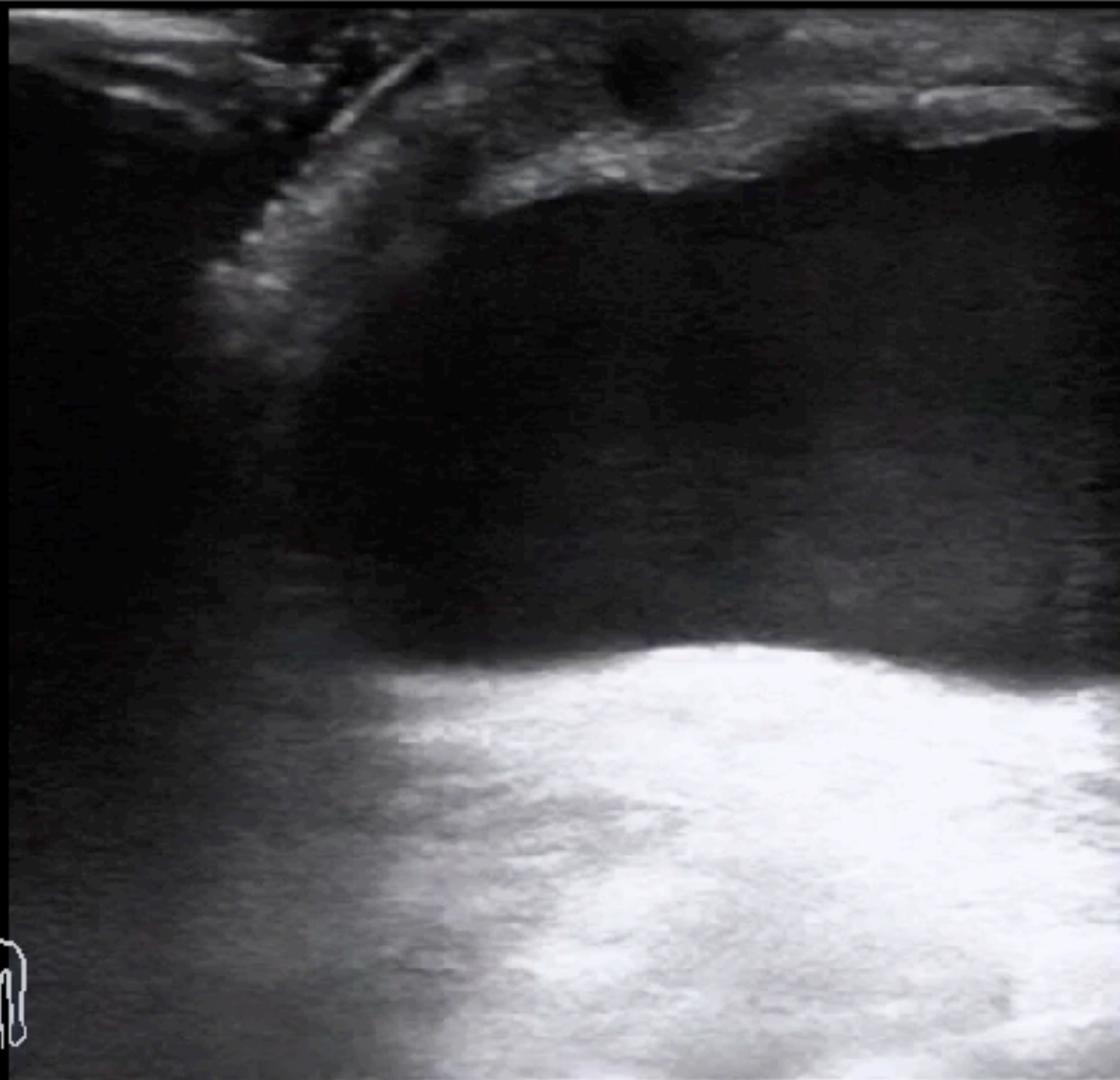
FH11.0 /D3.7

G67 /FR22

IP5 /DR135



M



1

2

3

1/107

M7

R1

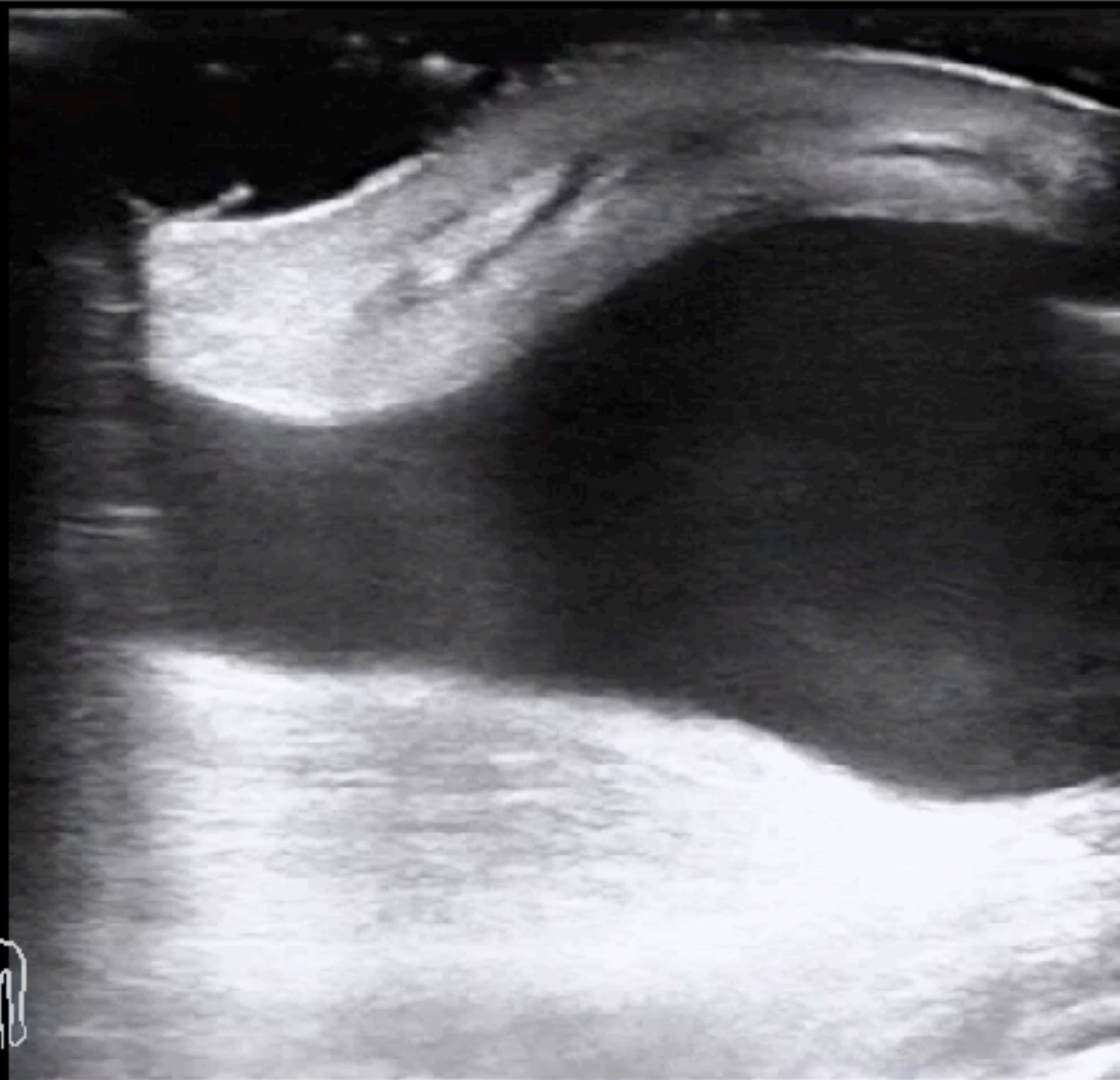
FH11.0 /D3.7

G67 /FR22

IP5 /DR135



M



1

2

3



1/107

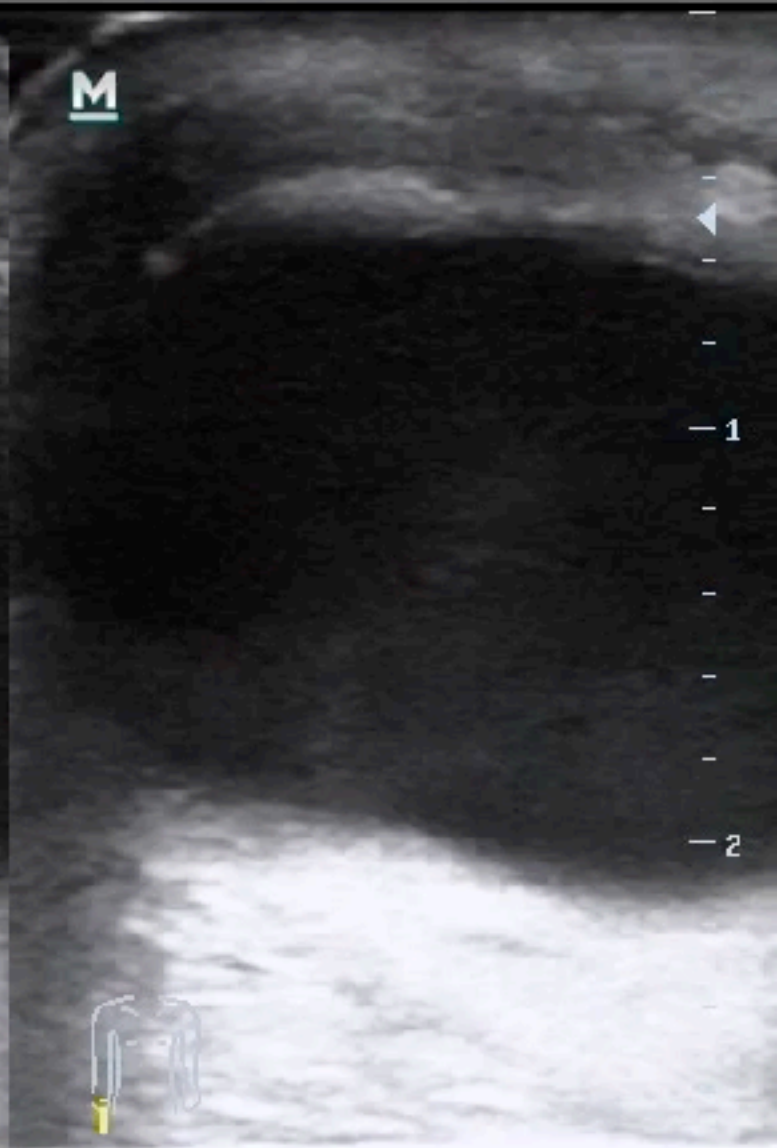
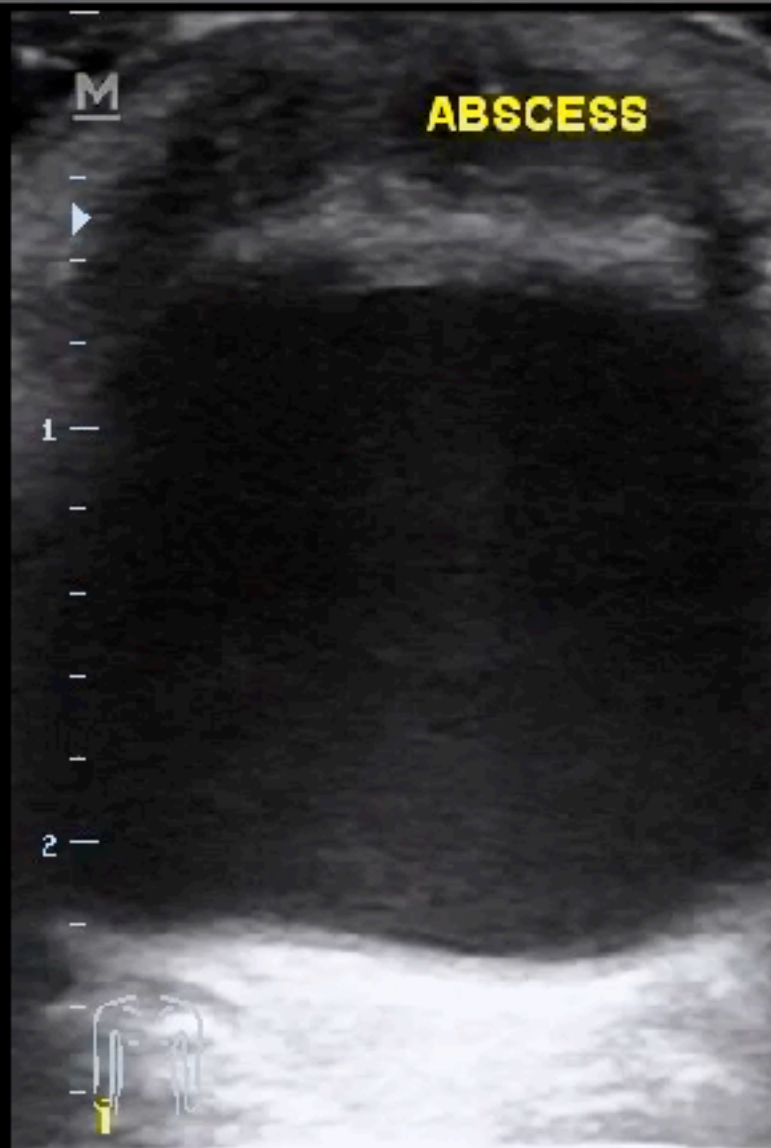
M7

R2

FH11.0 / D2.8

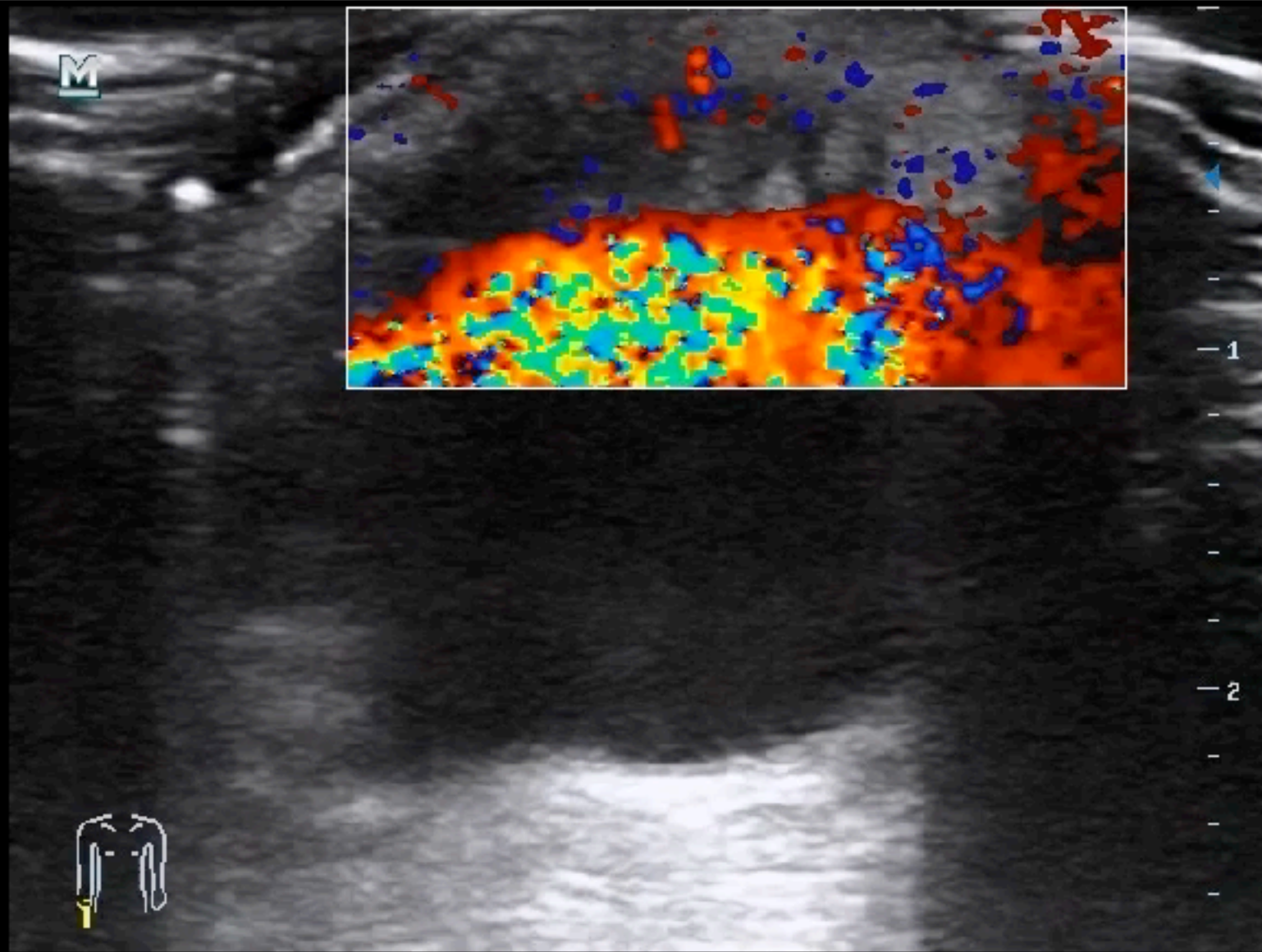
G67 / FR22

IP5 / DR135





M7  
R1  
FH11.0 / D2.8  
G67 / FR12  
IP5 / DR135  
C  
F5.7 / G53  
IP5 / WF228  
PRF1.0k



M



1/61



M7

R2

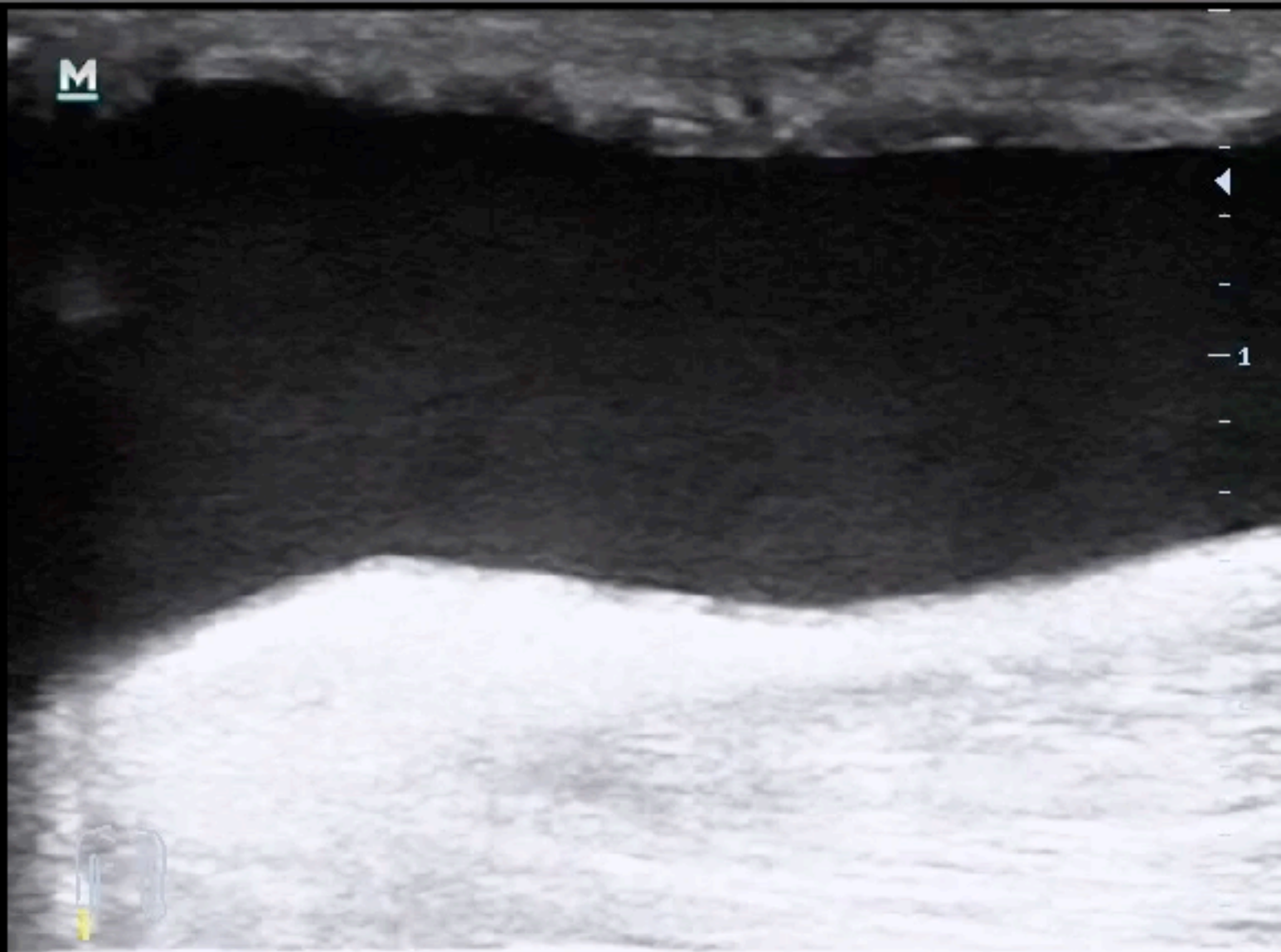
FH11.0 / D2.8

G67 / FR22

IP5 / DR135



M



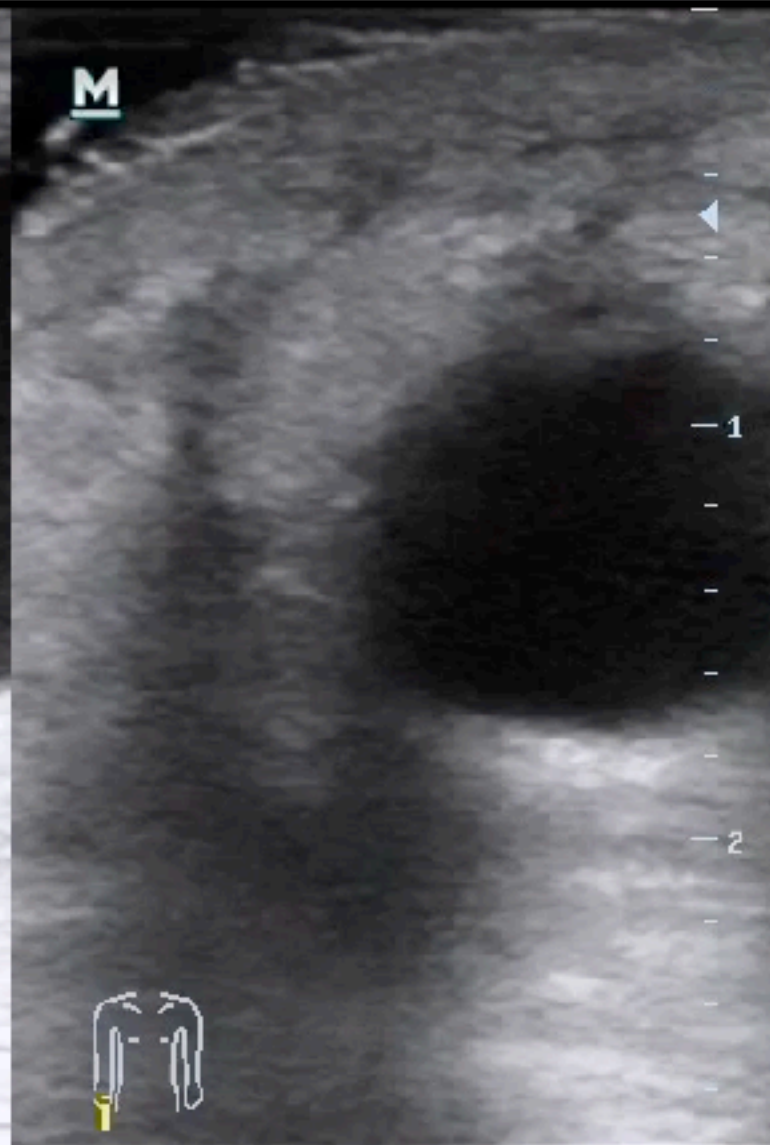
M7

B2

FH11.0 / D2.8

G67 / FR22

IP5 / DR135



41/41

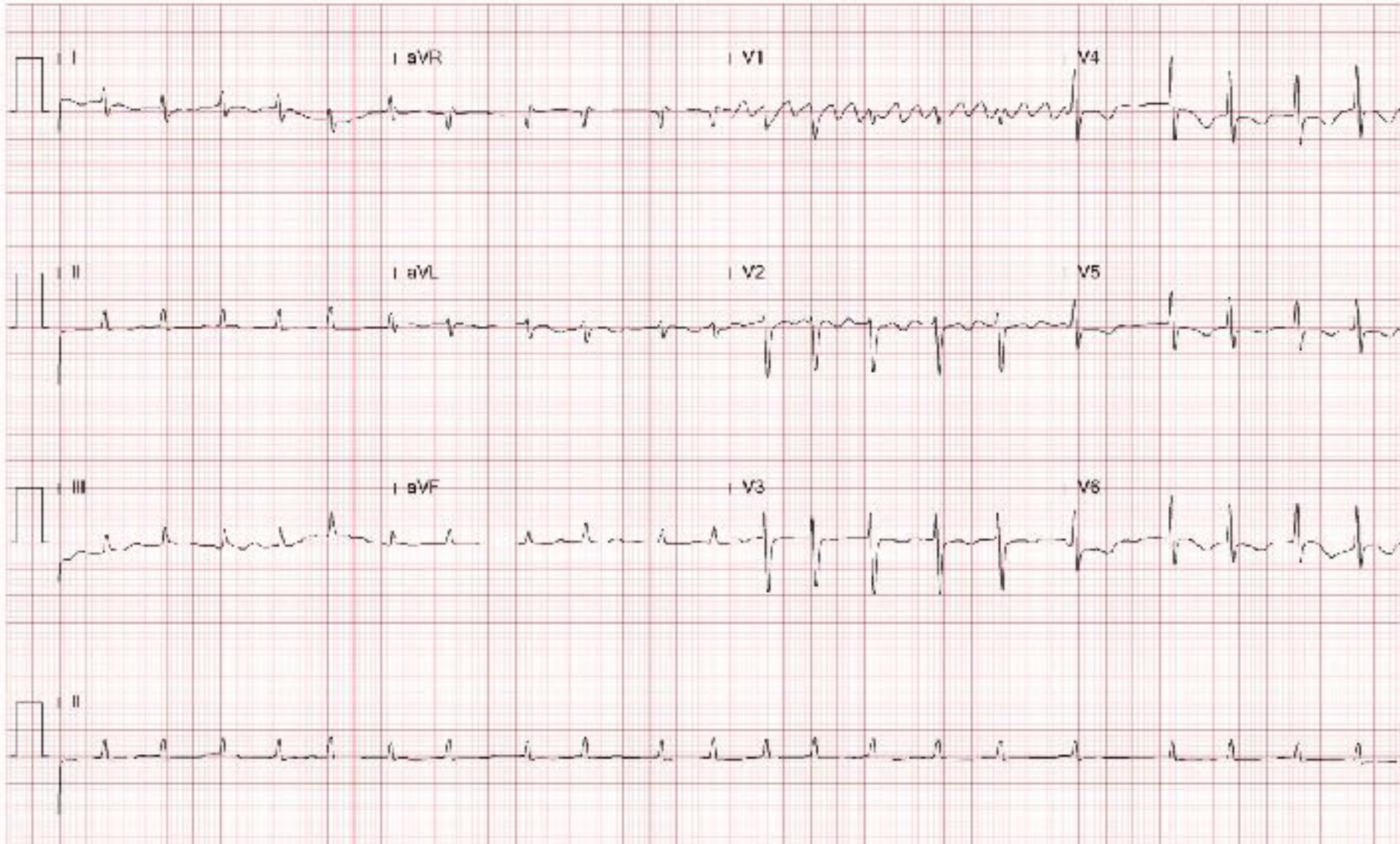
1/107

# 89F, 右手發黑，門診轉入





**WBC 6130;Plt 47K; INR 2.37;D-dimer >20; Cr 1.8**





M7

R2

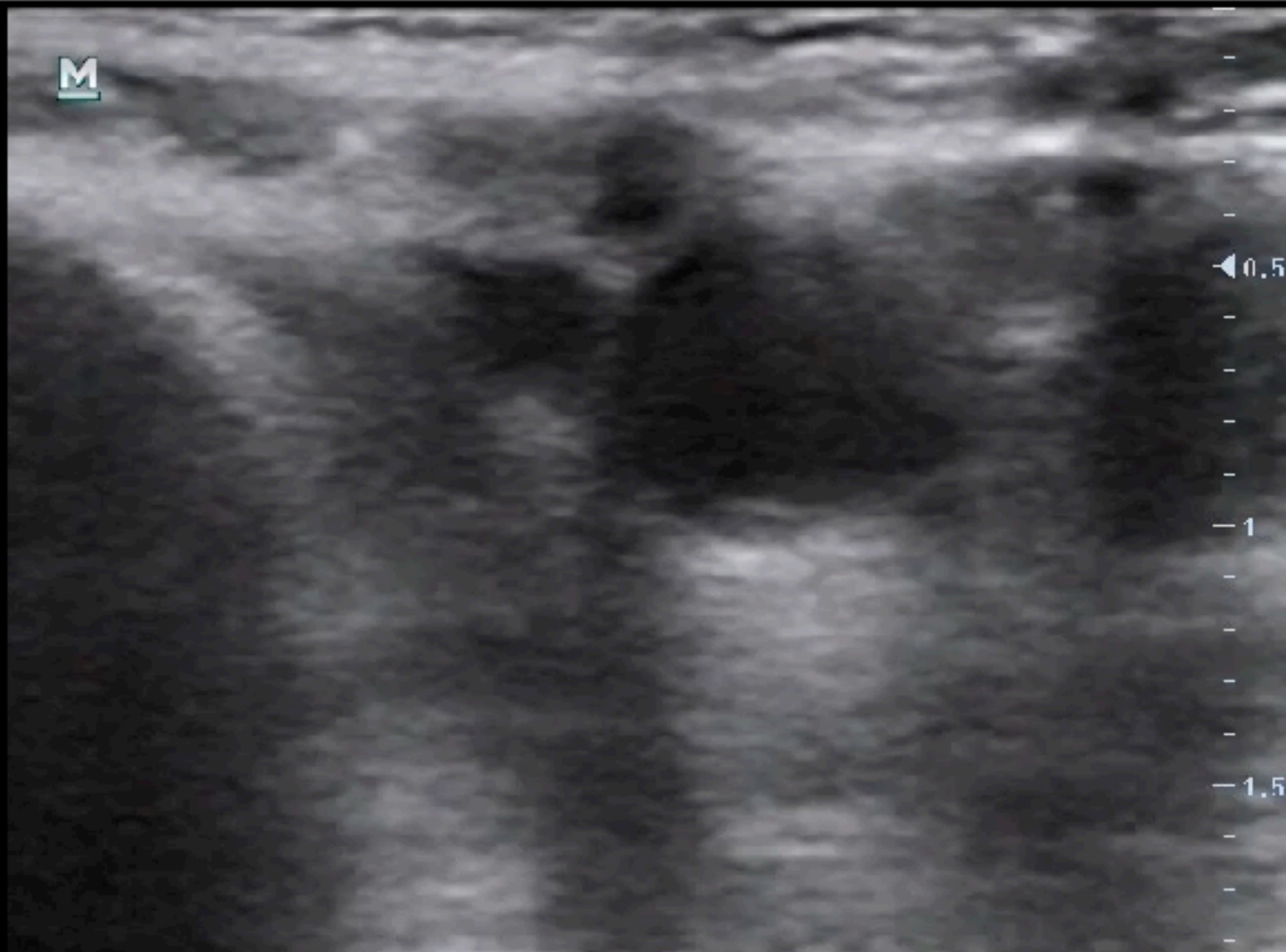
FH11.0 / D1.8

G66 / FR22

IP5 / DR127



M



0.5

1

1.5

1/107

M7

B2

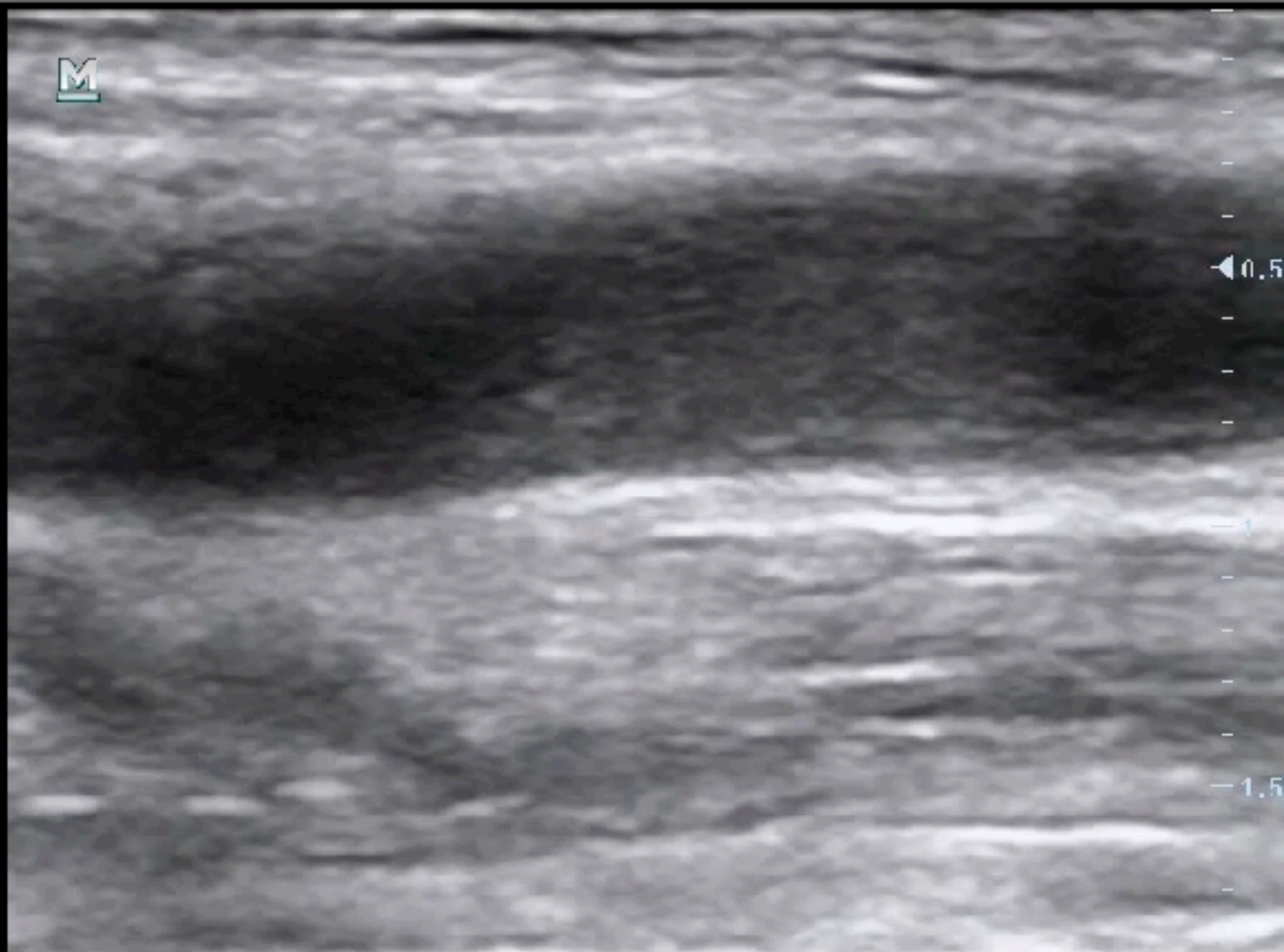
FH11.0 /D1.8

G66 /FR22

IP5 /DR127



M



0.5

1.5

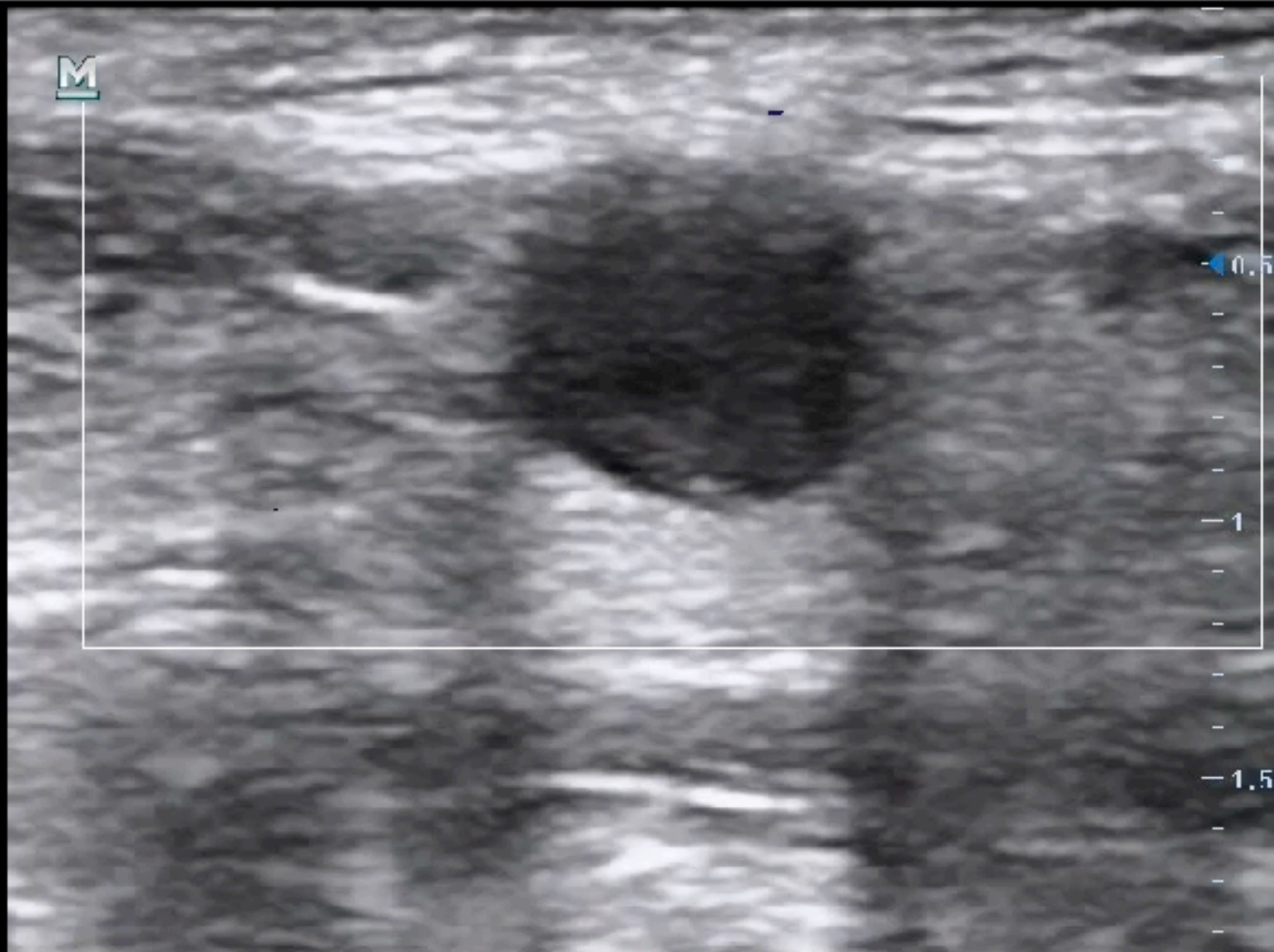
177

M7 6.8  
B2  
FH11.0 / D1.8  
G66 / FR12  
IP5 / DR127  
C  
F5.7 / G53  
IP5 / WF228 5.8  
PRF1.0k

6.8



5.8



0.5

1

1.5

1.61

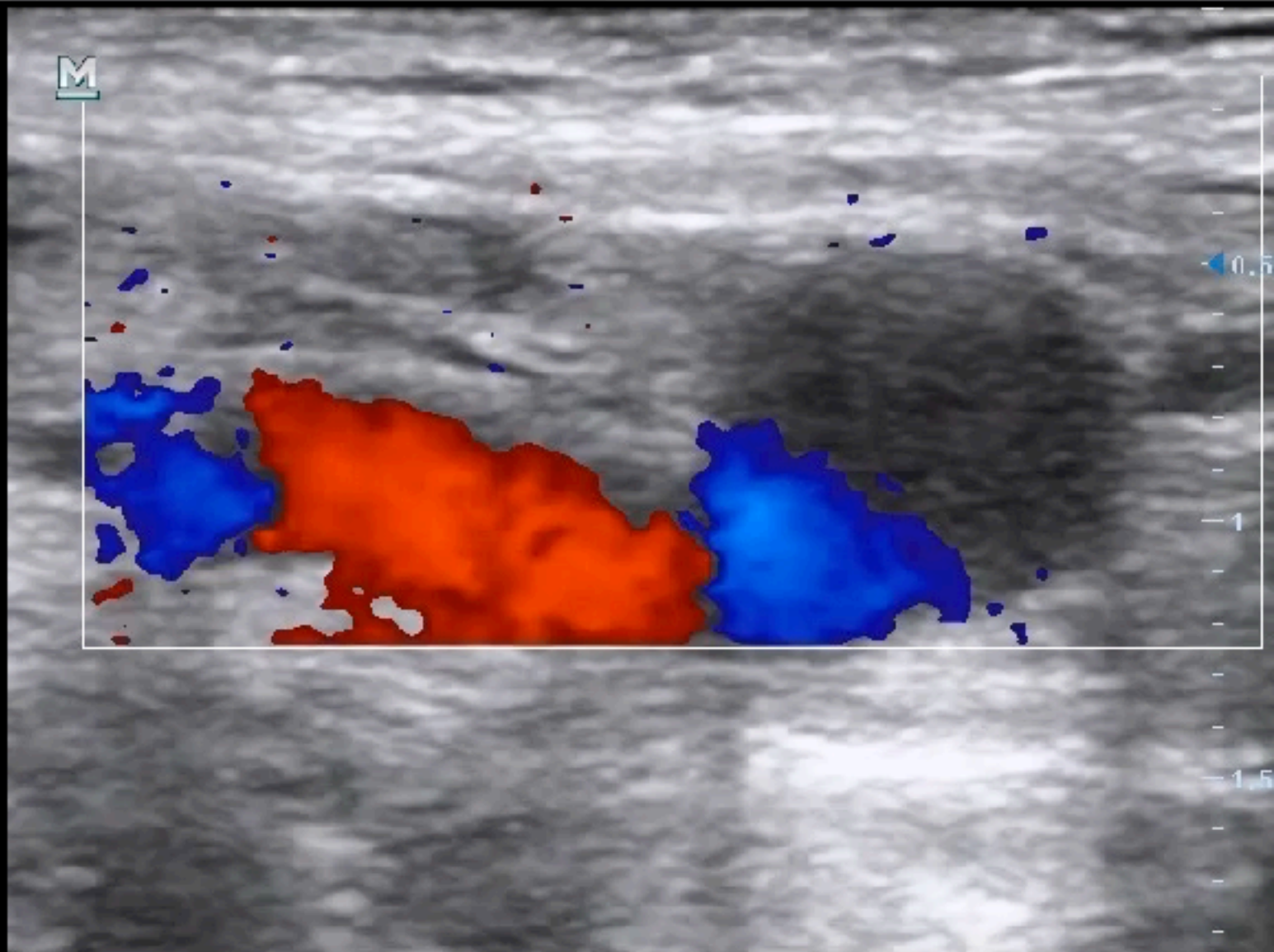


M7 6.8  
B2  
FH11.0 / D1.8  
G66 / FR12  
IP5 / DR127  
C  
F5.7 / G53  
IP5 / WF228 5.8  
PRF1.0k

6.8



-5.8



1.61



M7

R1

FH11.0 / D3.7

G66 / FR11

IP5 / DR127

C

F5.7 / G53

IP5 / WF228

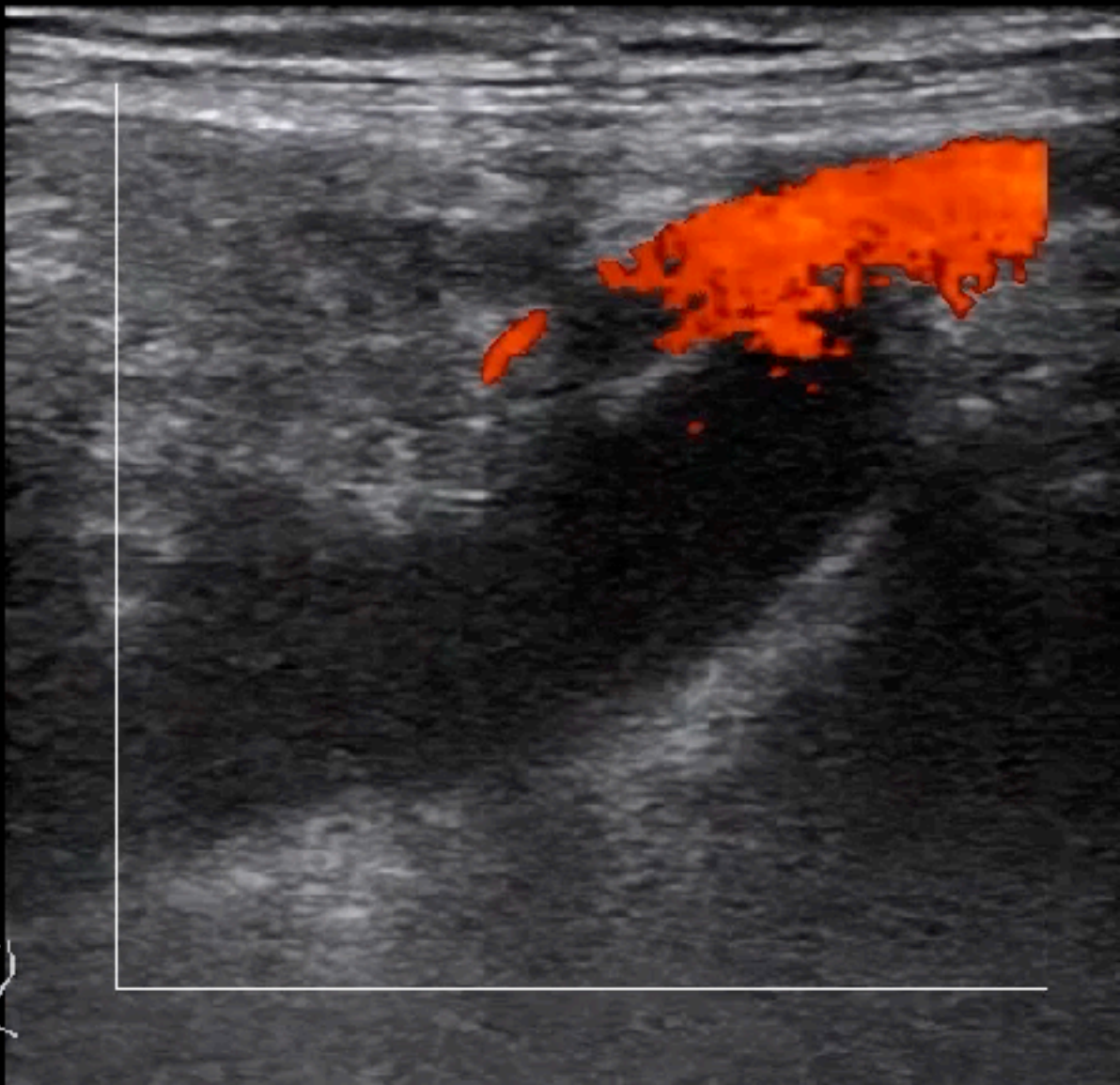
PRF1.0k

6.8



-6.8

M



178

M7

R1

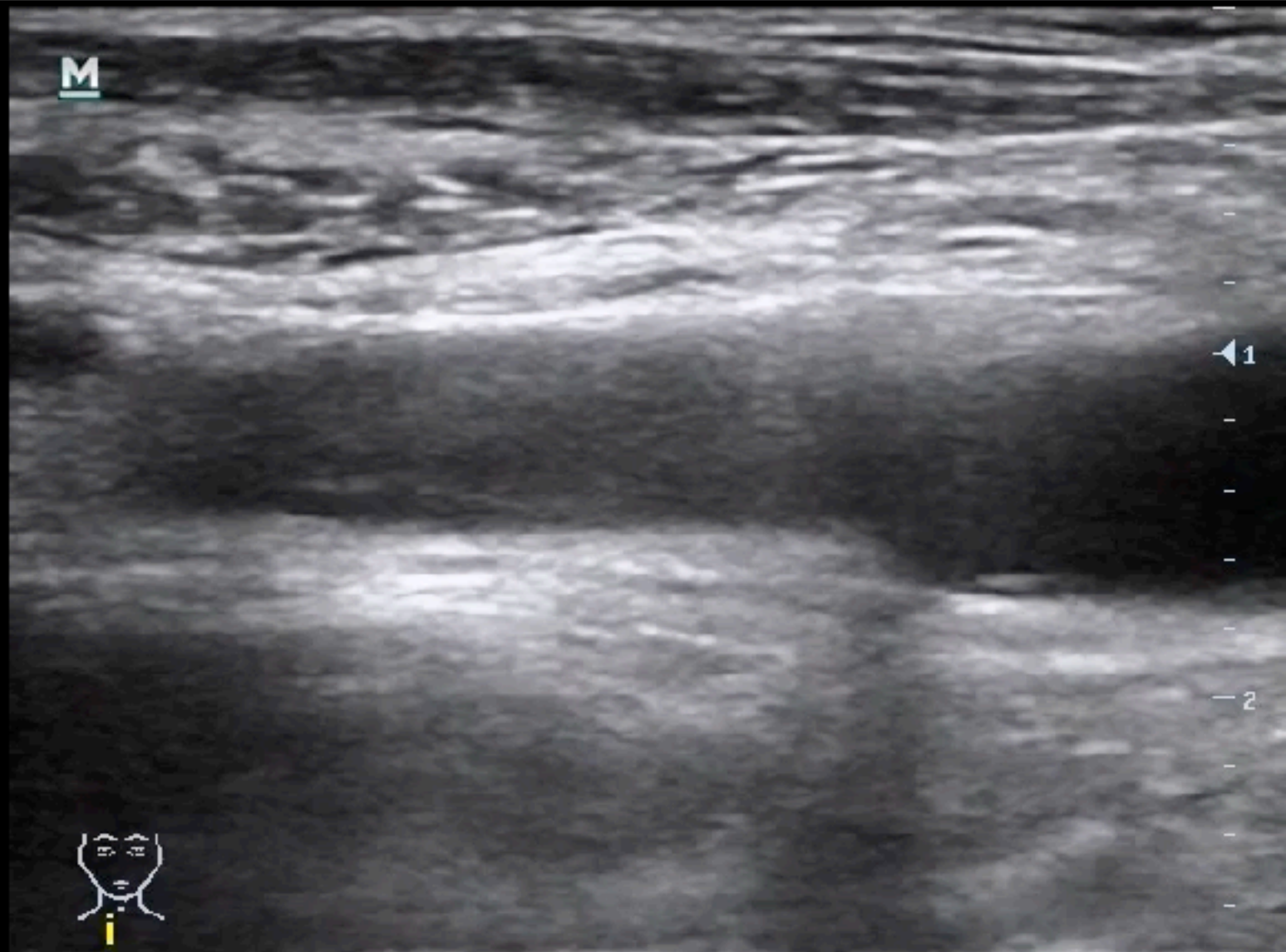
FH11.0 / D7.8

G60 / FR22

IP5 / DR127



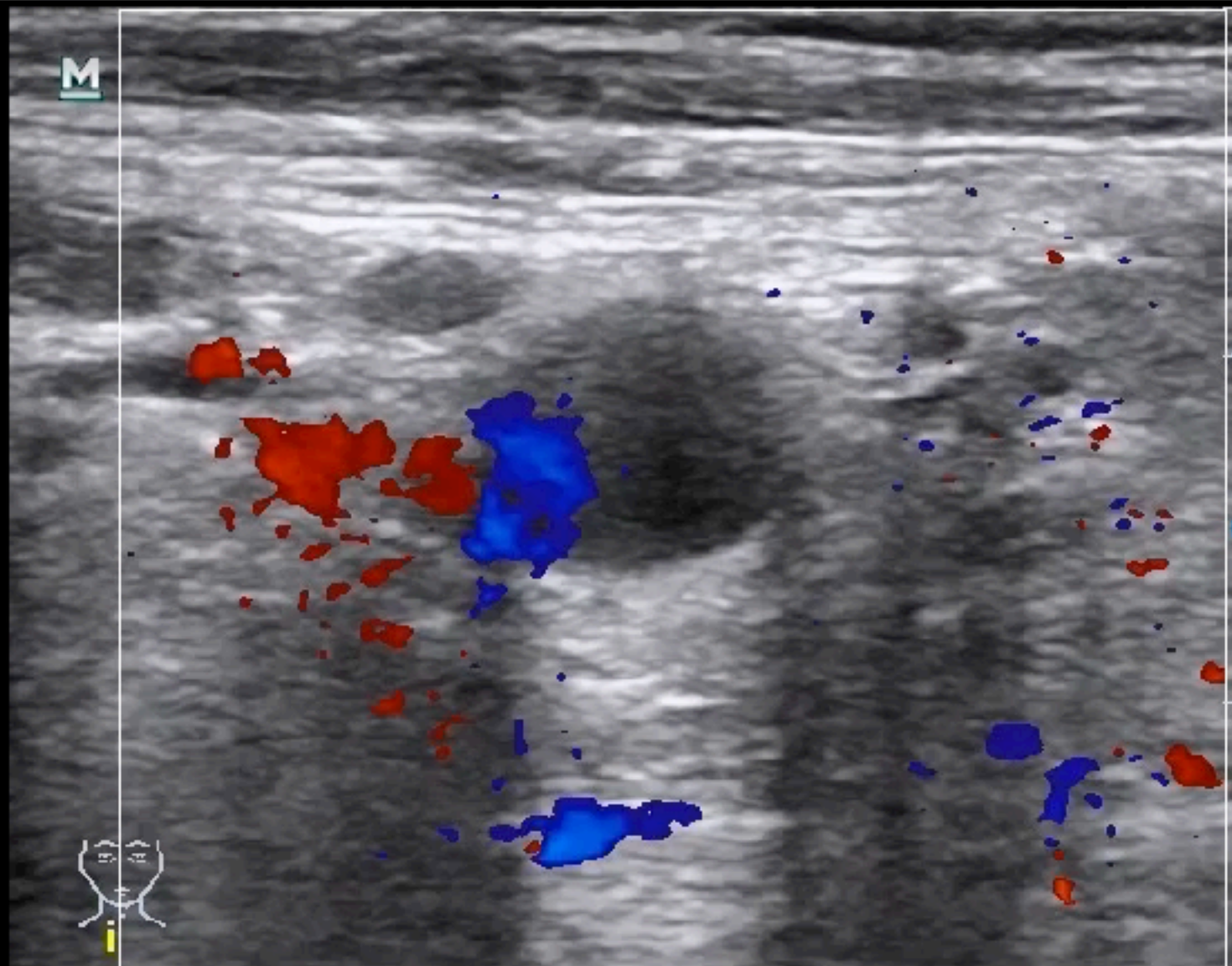
M



1/107



M7 6.8  
B2  
FH11.0 / D7.8  
G60 / FR11  
IP5 / DR127  
C  
F5.7 / G53  
IP5 / WF278 5.8  
PRF1.0k



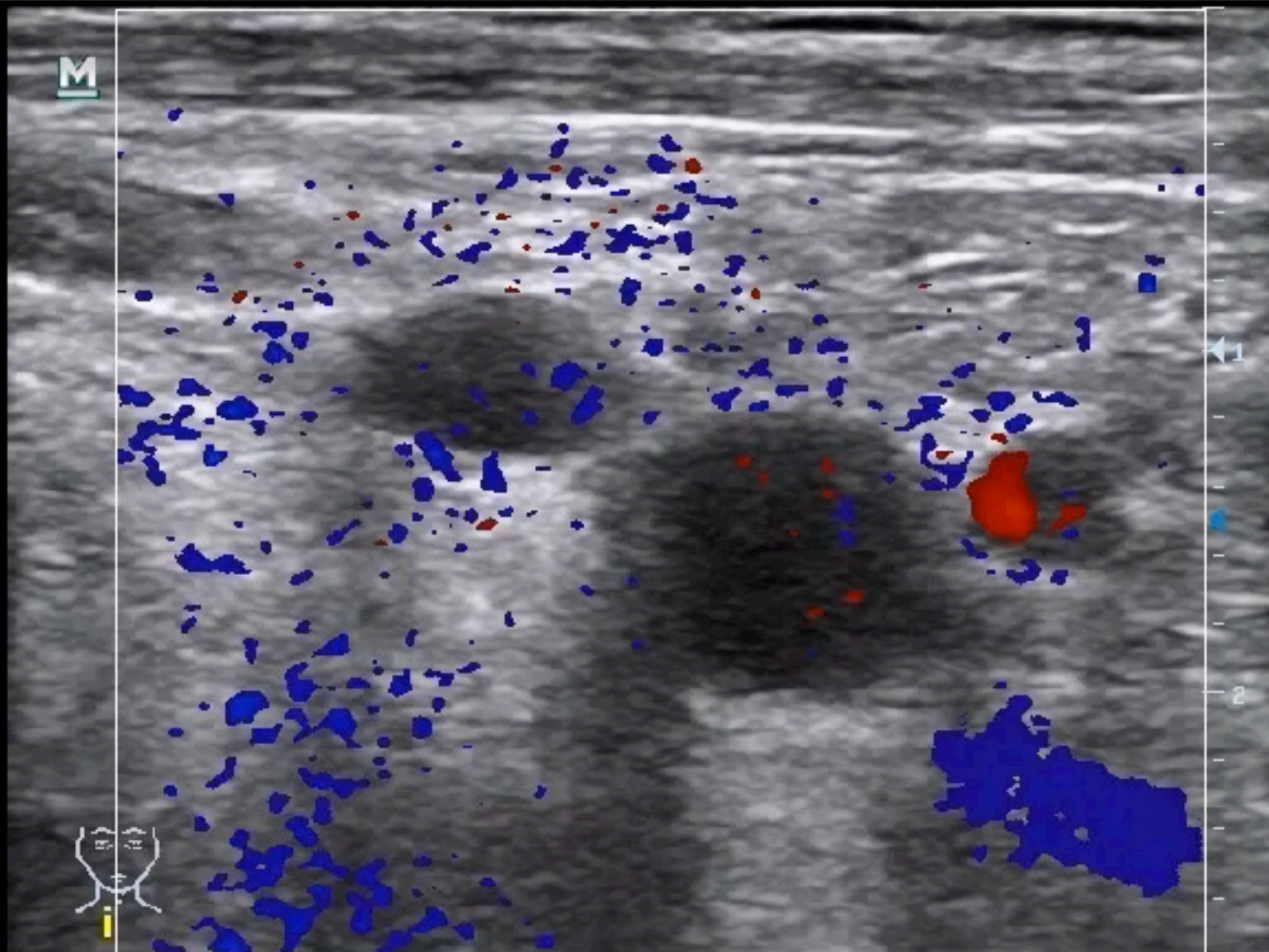
1/54

M7 6.8  
B2  
FH11.0 / D2.8  
G60 / FR11  
IP5 / DR127  
C  
F5.7 / G53  
IP5 / WF228 5.8  
PRF1.0k

6.8



-5.8



M

1

2



1/54



M7

R1

FH11.0 / D7.8

G60 / FR11

IP5 / DR127

C

F5.7 / G53

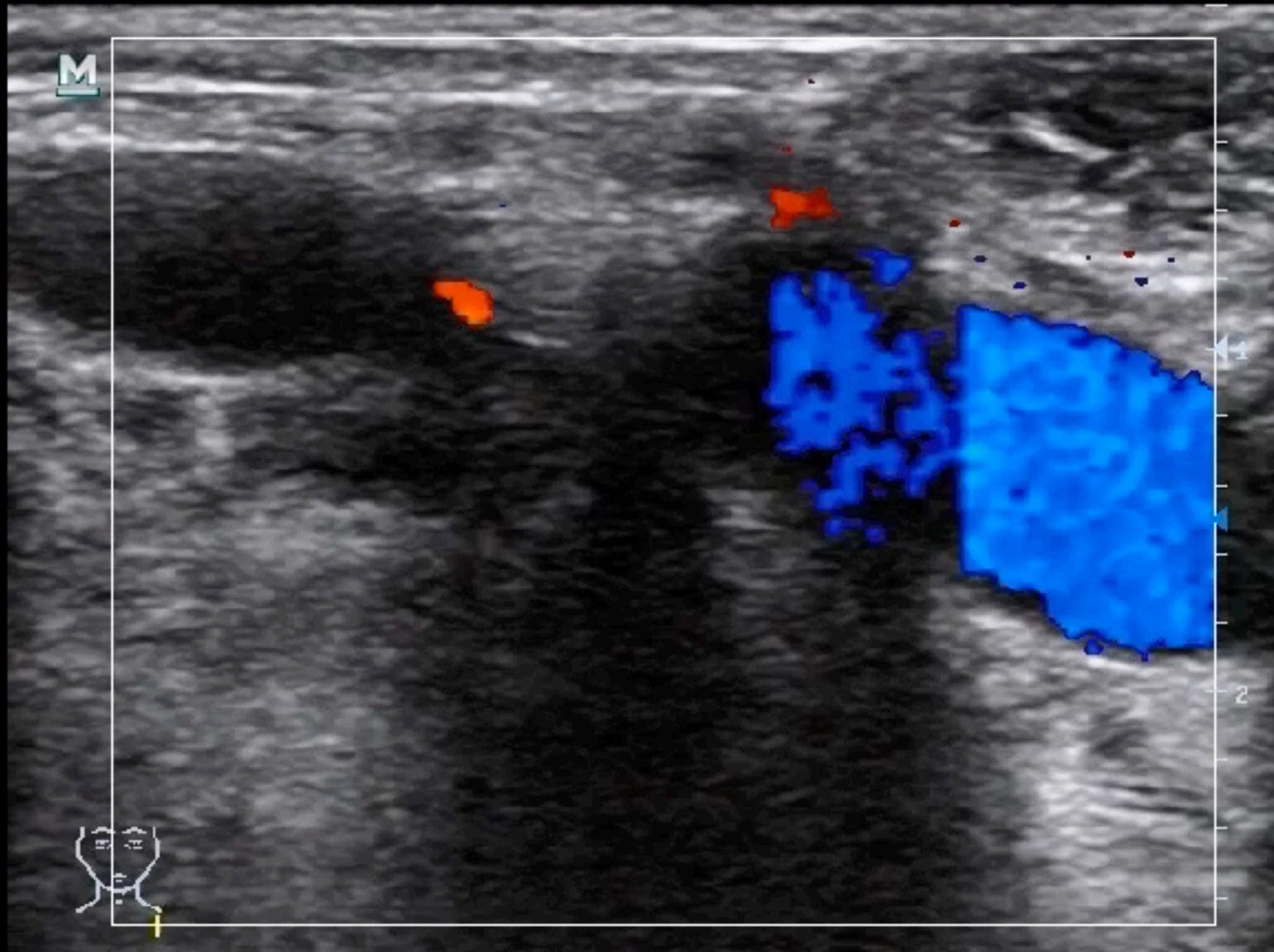
IP5 / WF228

PRF1.0k

6.8



-6.8



173

M7

R2

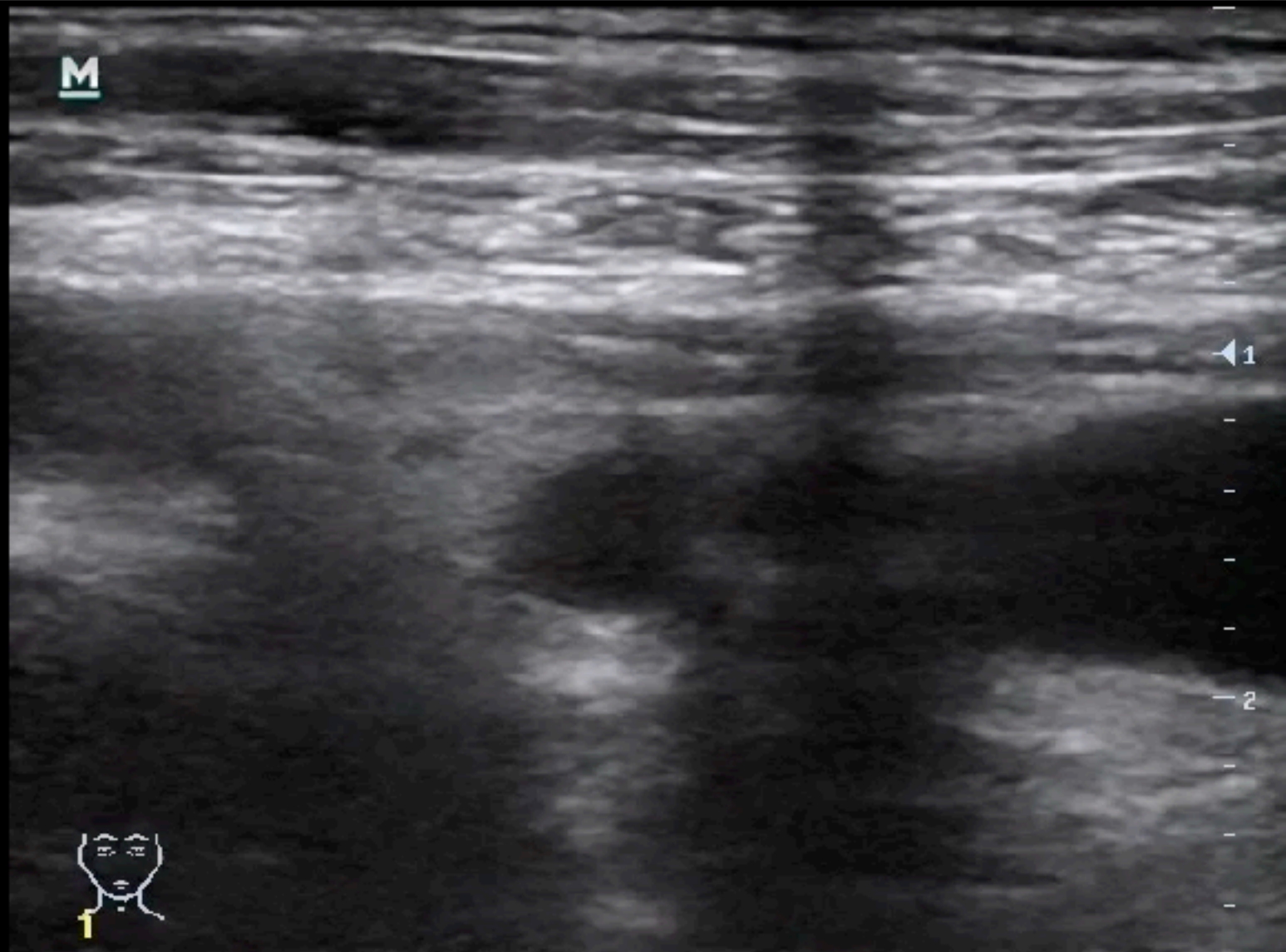
FH11.0 / D7.8

G60 / FR22

IP5 / DR127



M



# PAOD (legs) -vessel ?



**mindray**

lee 02028743

14/07/2022

10:35:50

AP 92.2% MI 1.4 TIS 0.2

L12 4s

MSK

M7

R1

FH11.0 / D2.8

G66 / FR11

IP5 / DR87

C

F5 / G53

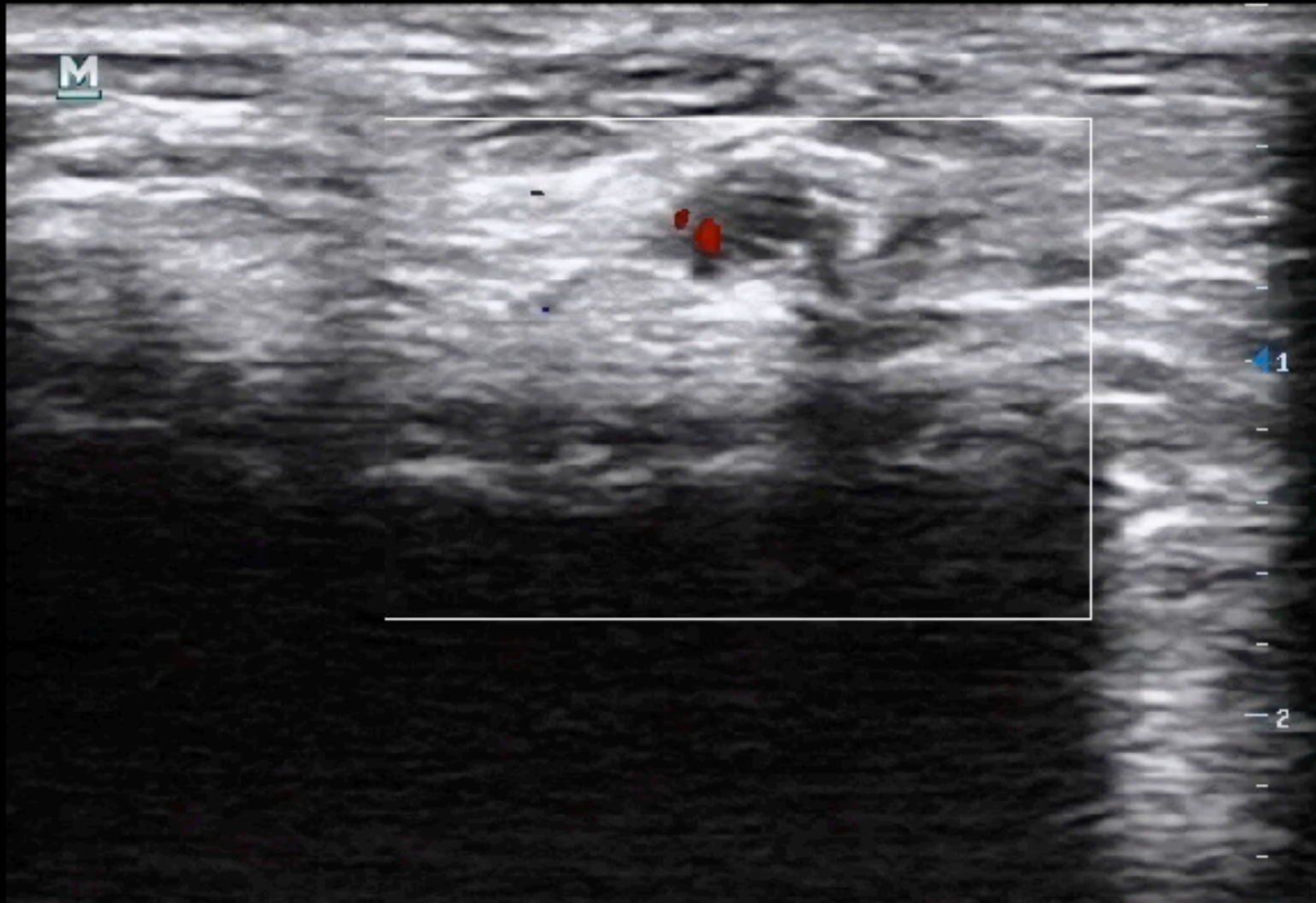
IP5 / WF200

PRF0.9k

6.8



-5.8





# PAOD (legs) - vessel ?



**mindray**

lee 02028743

14/07/2022

10:37:24

AP 91.6% MI 1.4 TIS 0.2

L12 4s

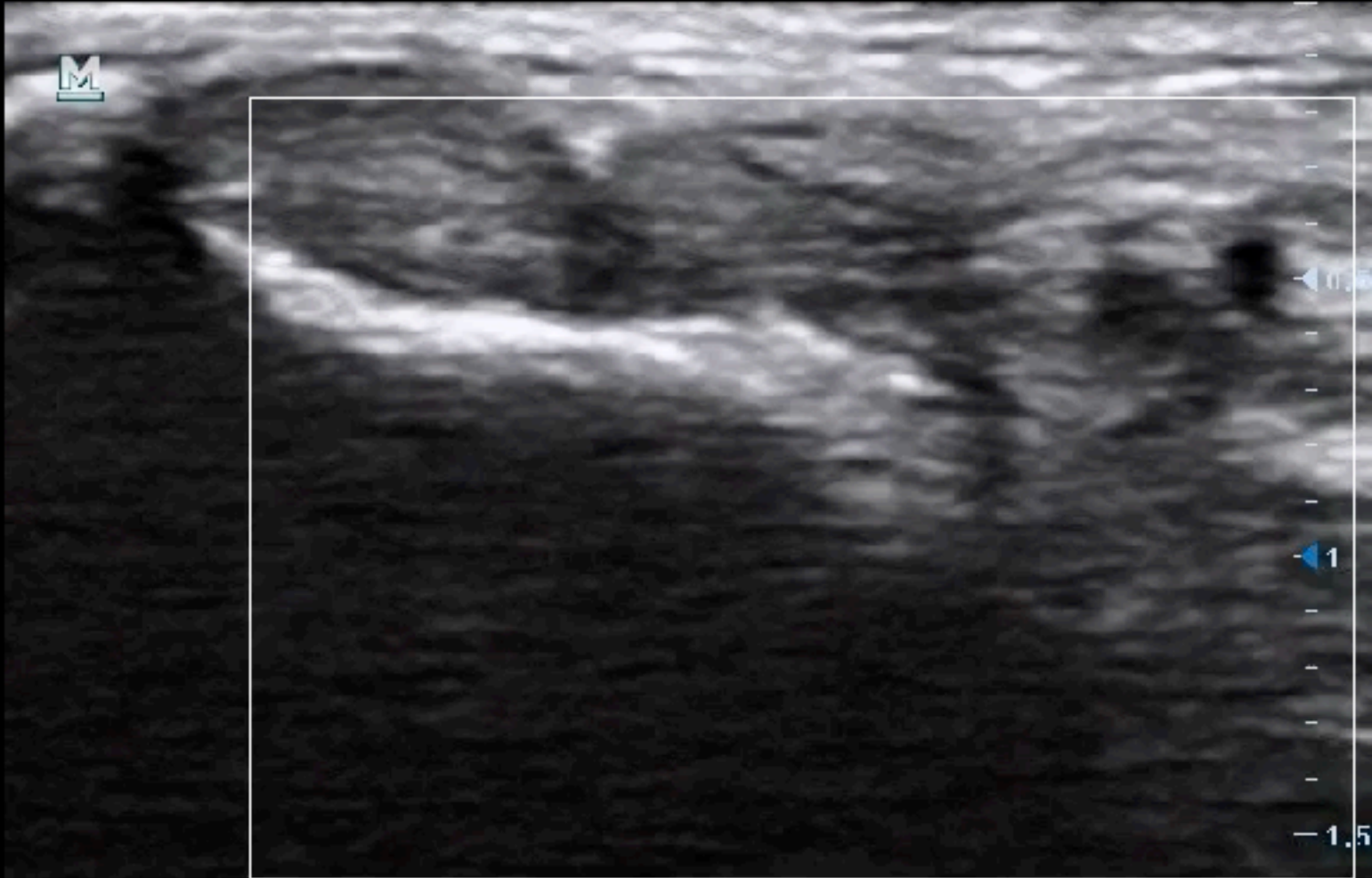
MSK

M7  
B1  
FH11.0 / D1.8  
G66 / FR11  
IP5 / DR87  
C  
F5 / G53  
IP5 / WF200  
PRF0.9k

6.8



-5.8





# PAOD (legs) - posterior tibial artery



**mindray**

lee 02028743

14/07/2022

10:38:03

AP 91.6% MI 1.4 TIS 0.2

L12 4s

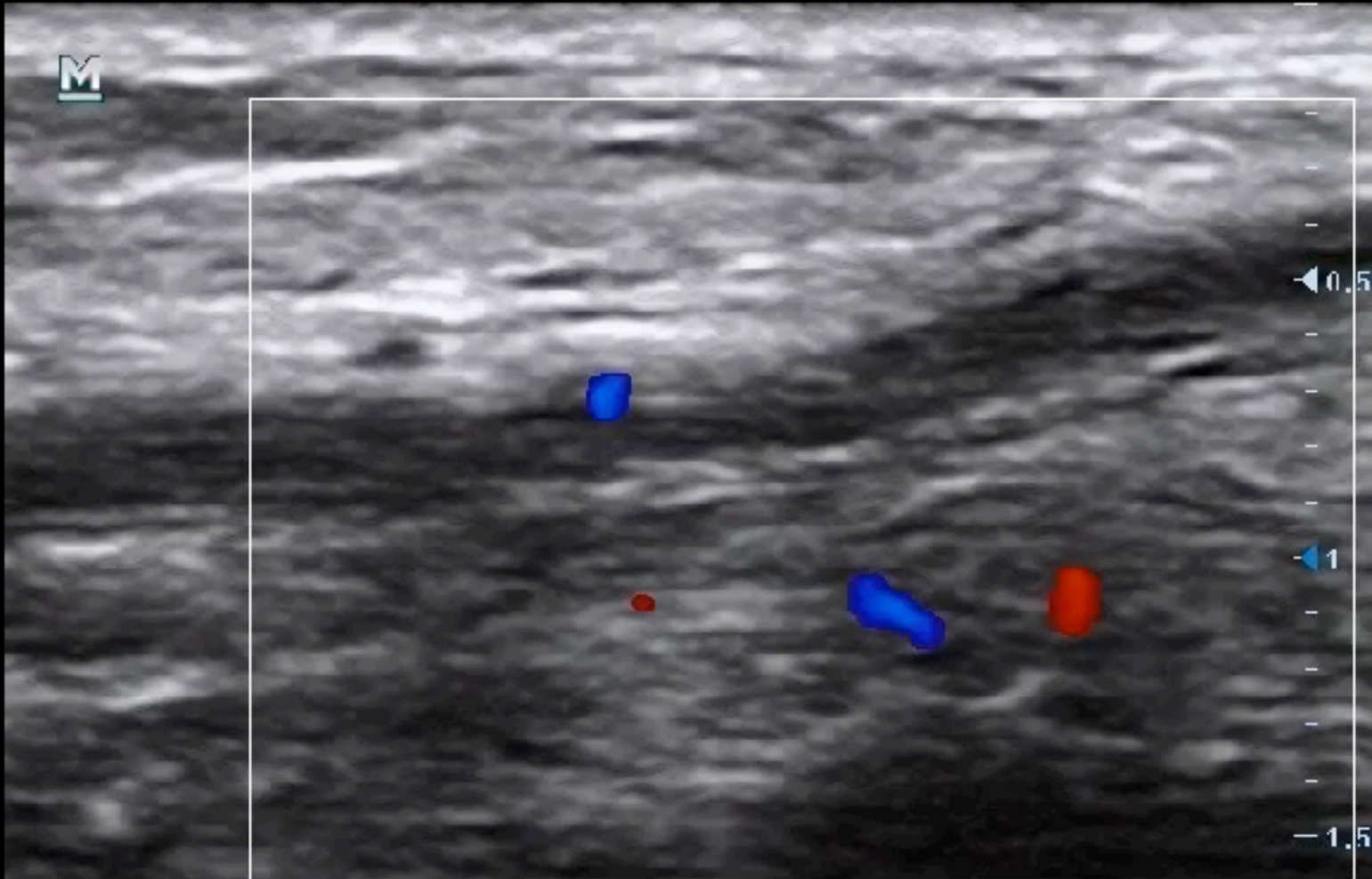
MSK

M7  
B1  
FH11.0 / D1.8  
G66 / FR11  
IP5 / DR87  
C  
F5 / G53  
IP5 / WF200  
PRF0.9k

6.8



-5.8



# PAOD (legs)-anterior tibial artery



**mindray**

lee 02028743

14/07/2022

10:39:11

AP 91.3% MI 1.4 TIS 0.2

L12 4s MSK

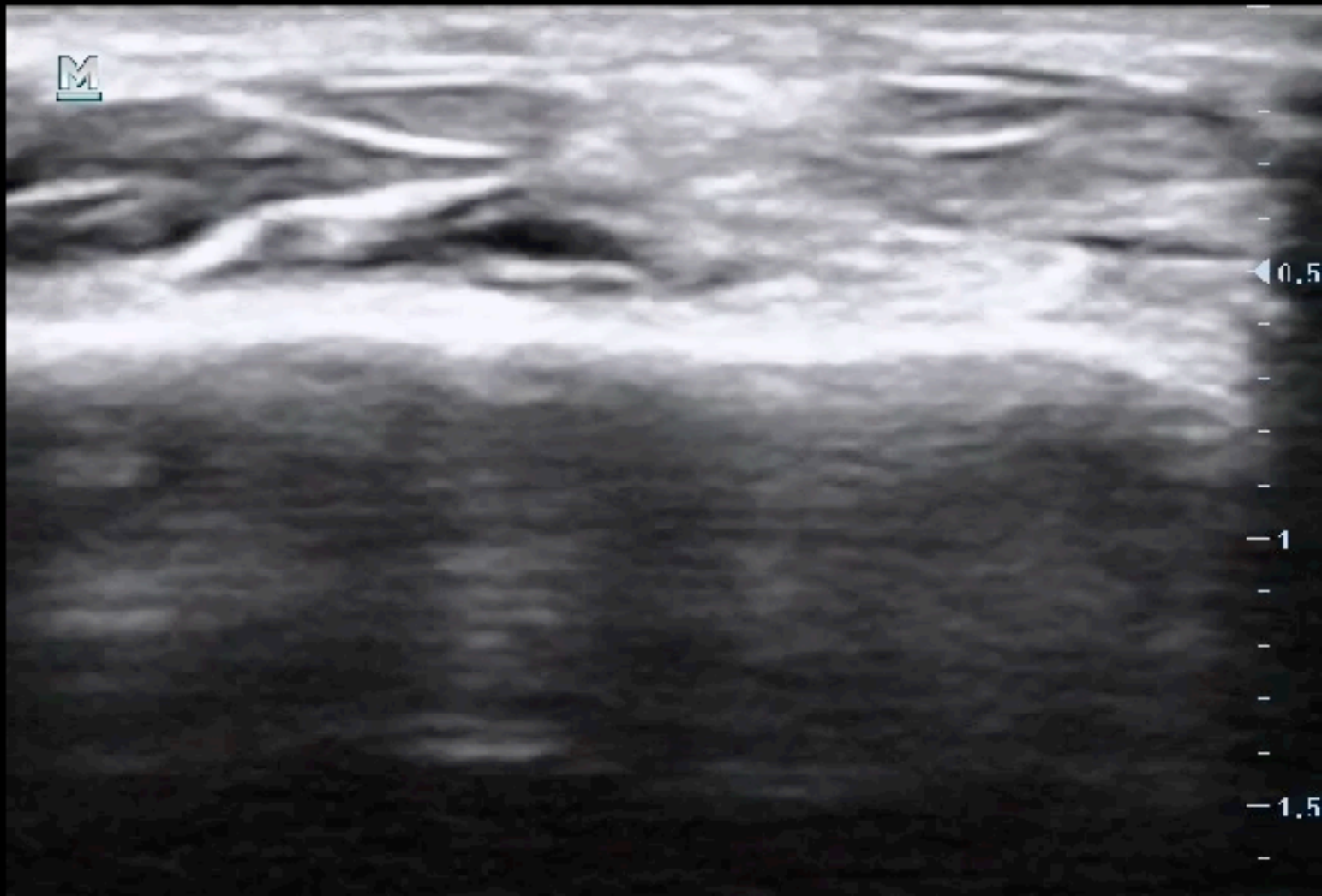
M7

R1

FH11.0 /D1.8

G66 /FR19

IP5 /DR87



# PAOD (legs) - ATA



**mindray**

lee 02028743

14/07/2022

10:40:19

AP 91.3% MI 1.4 TIS 0.2

L12 4s MSK

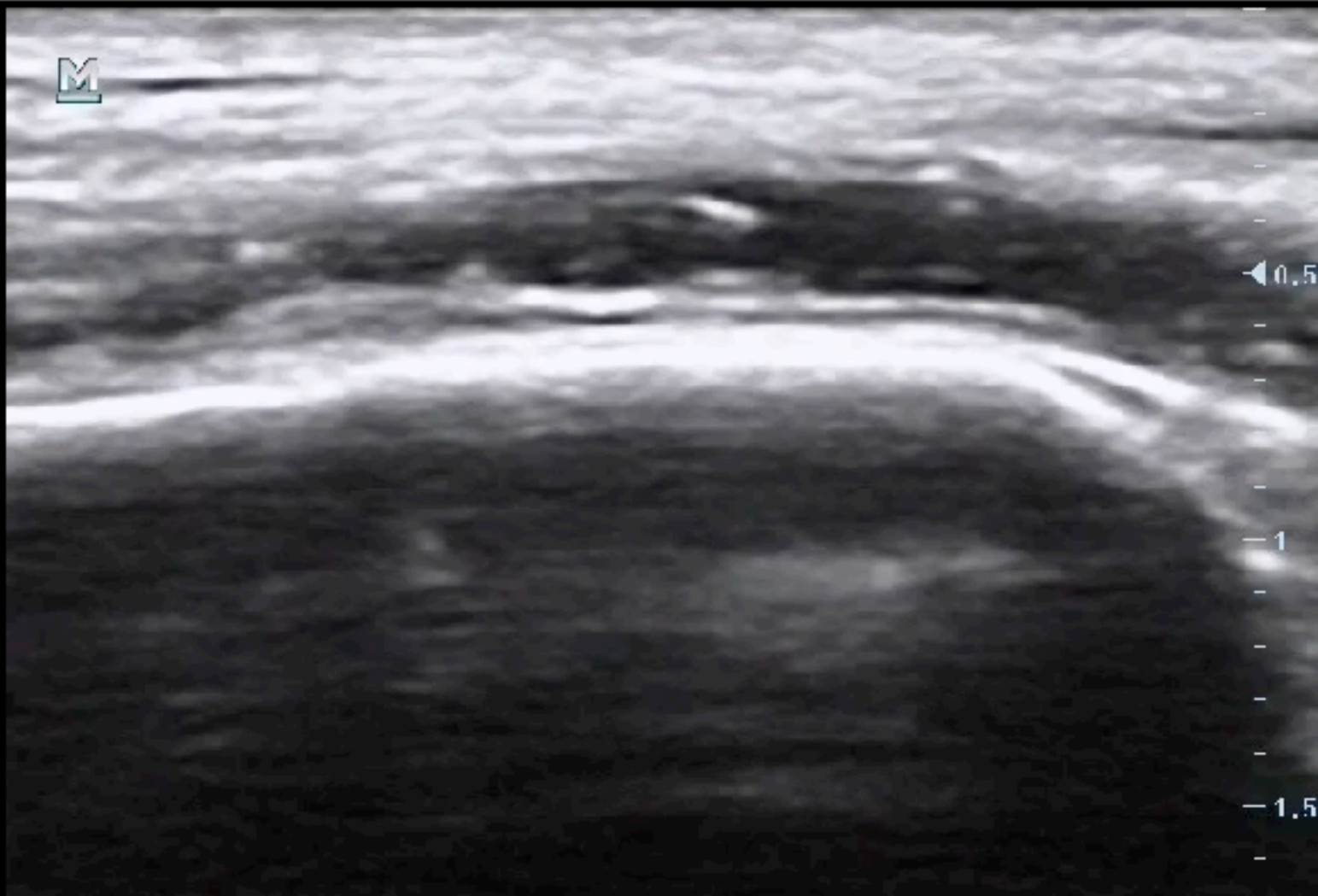
M7

R1

FH11.0 / D1.8

G66 / FR19

IP5 / DR87





# PAOD (legs)



**mindray**

lee 02028743

14/07/2022

10:40:47

AP 91.6% MI 1.4 TIS 0.2

L12 4s

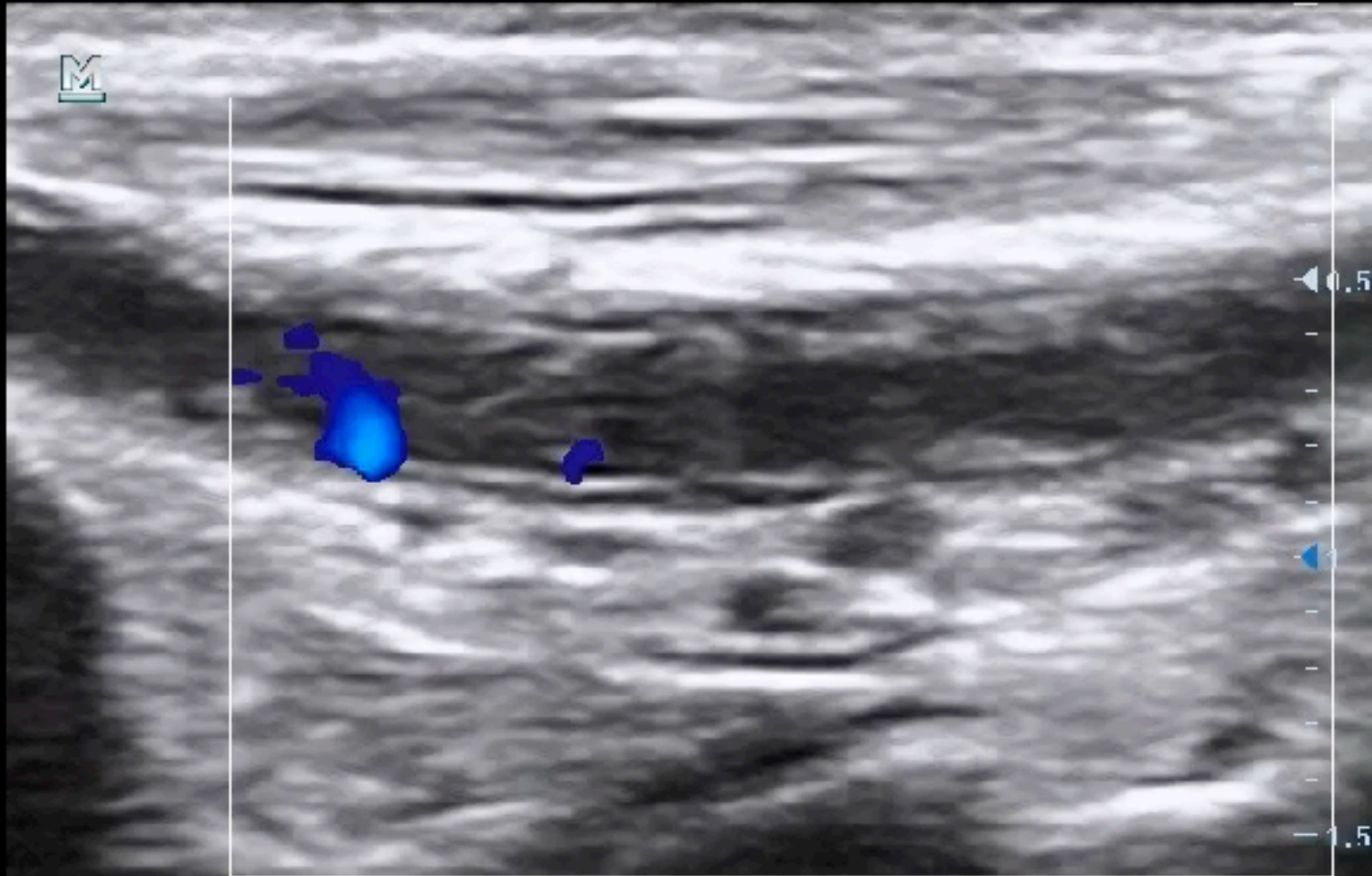
MSK

M7  
R1  
FH11.0 / D1.8  
G66 / FR11  
IP5 / DR87  
C  
F5 / G53  
IP5 / WF200  
PRF0.9k

6.8



-5.8





# PAOD (legs) -PTA (normal side)



**mindray**

lee 02028743

14/07/2022

10:41:53

AP 92.2% MI 1.4 TIS 0.2

L12 4s

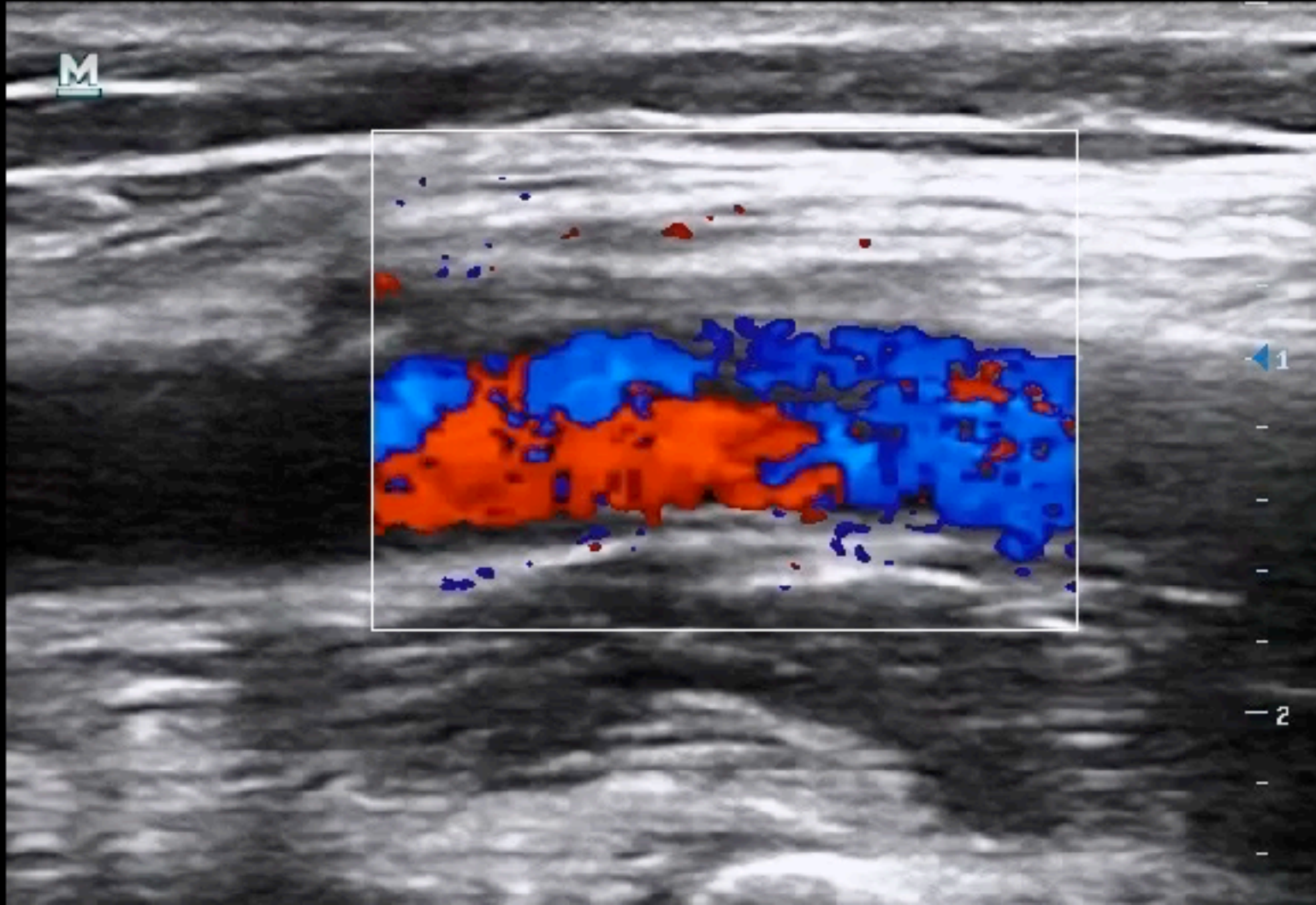
MSK

M7  
R1  
FH11.0 / D7.8  
G66 / FR11  
IP5 / DR87  
C  
F5 / G53  
IP5 / WF200  
PRF0.9k

6.8



-6.8



# PAOD (legs) - ATA (normal side)



**mindray**

lee 02028743

14/07/2022

10:42:50

AP 92.2% MI 1.4 TIS 0.2

L12 4s

MSK

M7

R1

FH11.0 / D2.8

G66 / FR11

IP5 / DR87

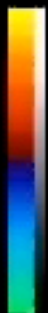
C

F5 / G53

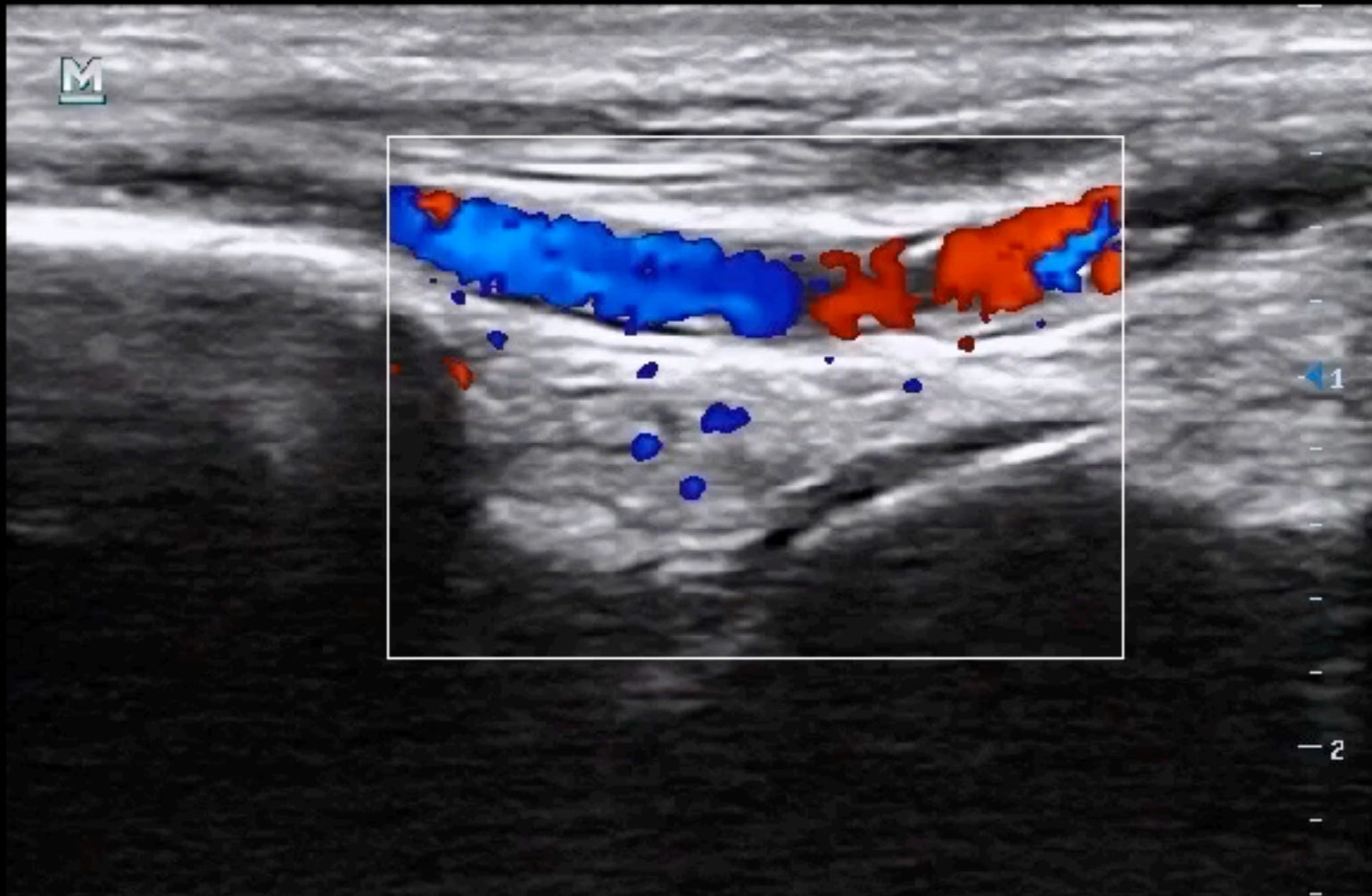
IP5 / WF200

PRF0.9k

6.8



-5.8





14/07/2022 10:40:47 AP 91.6% MI 1.4 TIS 0.2

lee 02028743

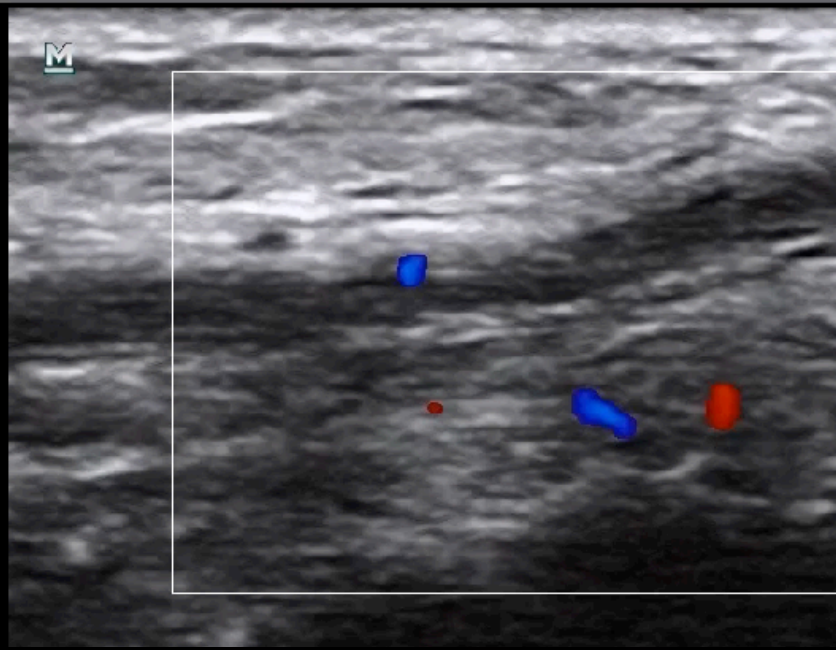
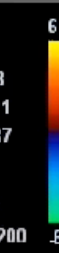
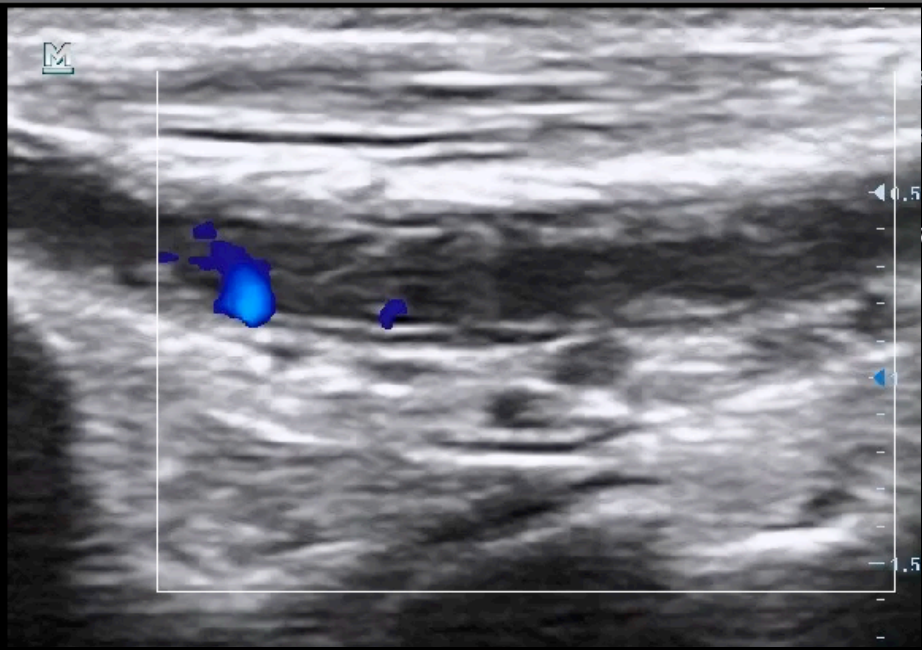
L12 4s MSK

y

lee 02028743

14/07/2022 10:39:03 AP 91.6% MI 1.4 TIS 0.2

L12 4s MSK



14/07/2022 10:42:50 AP 92.2% MI 1.4 TIS 0.2

lee 02028743

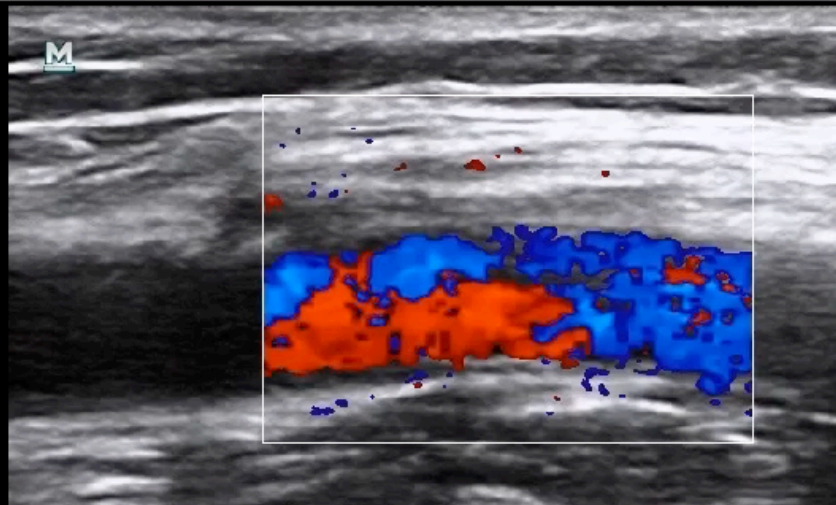
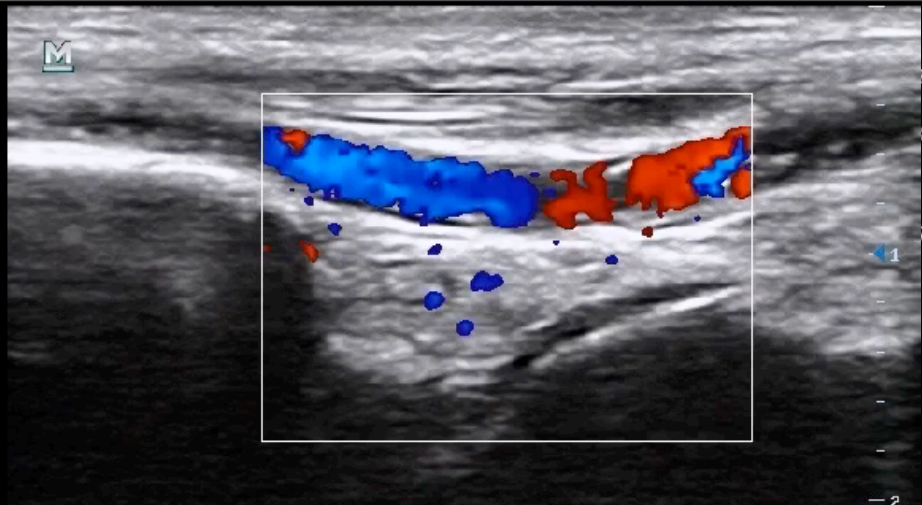
L12 4s MSK

y

lee 02028743

14/07/2022 10:41:53 AP 92.2% MI 1.4 TIS 0.2

L12 4s MSK



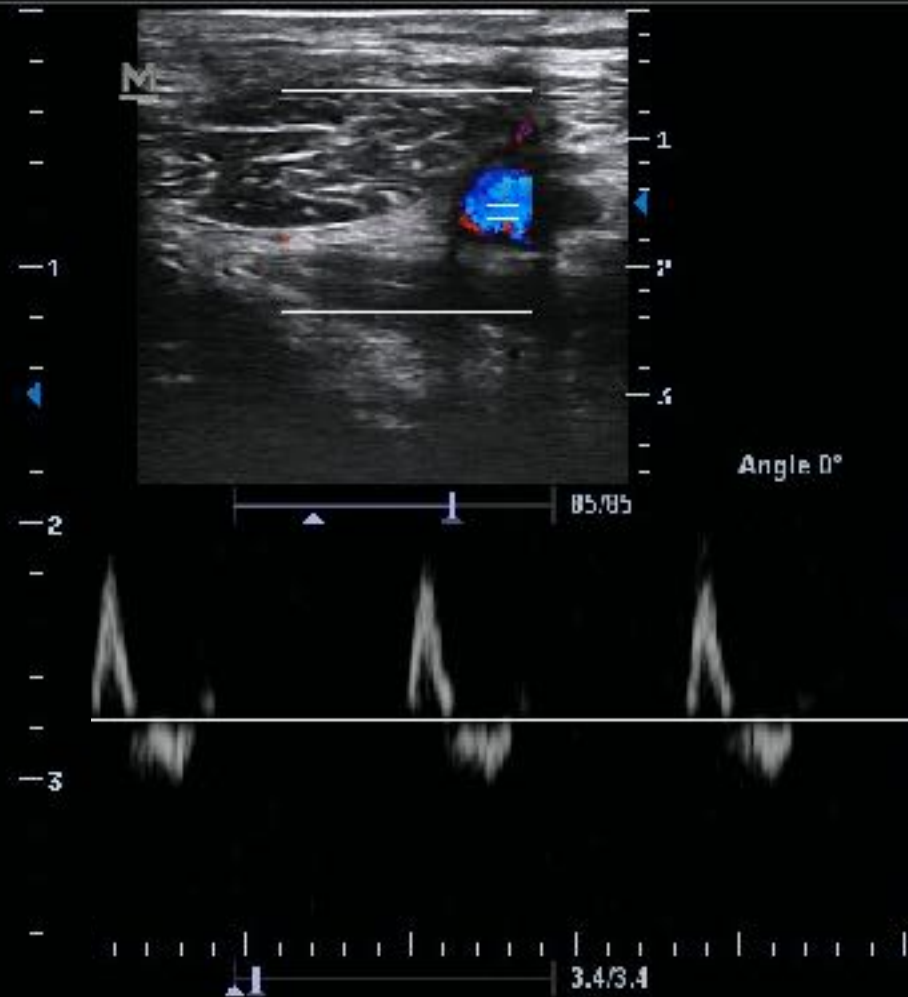
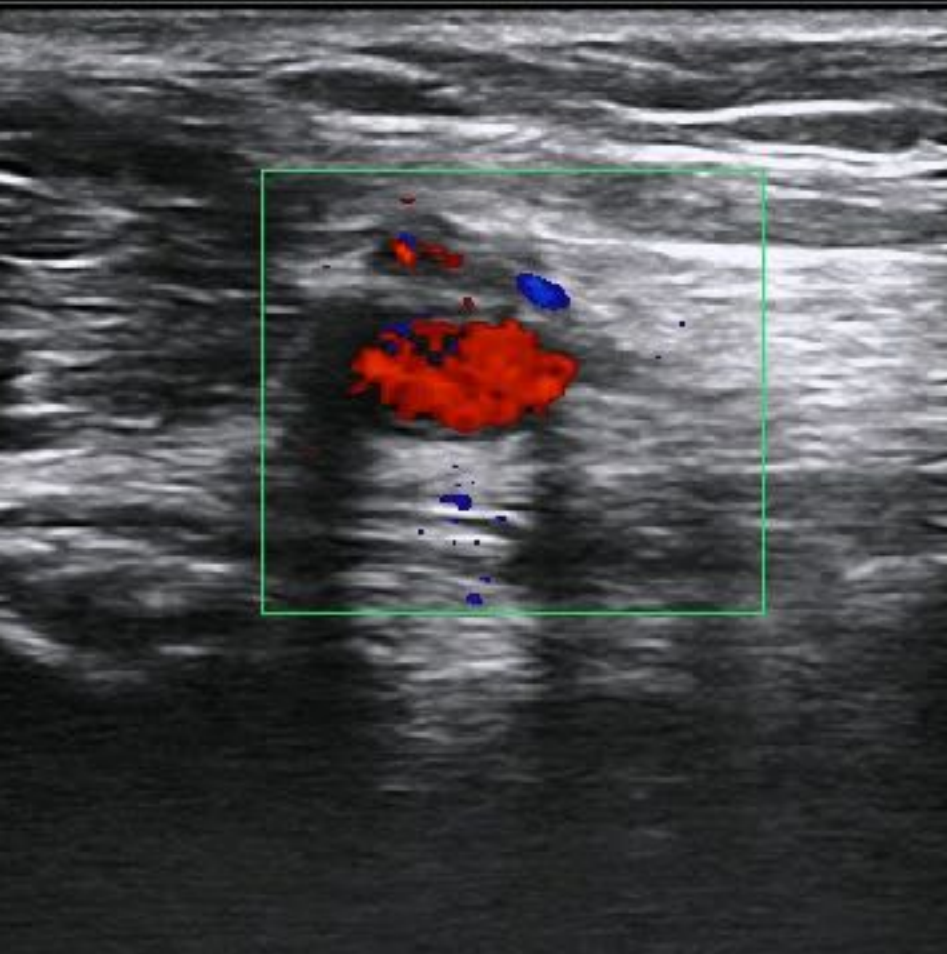


# PAOD (legs) - Confirm level



14/07/2022 10:34:51 AP 92.9% MI 1.4 TIS 0.2  
L12 46 MSK

14/07/2022 10:33:32 AP 92.0% MI 0.8 TIS 0.1  
L12 46 MSK



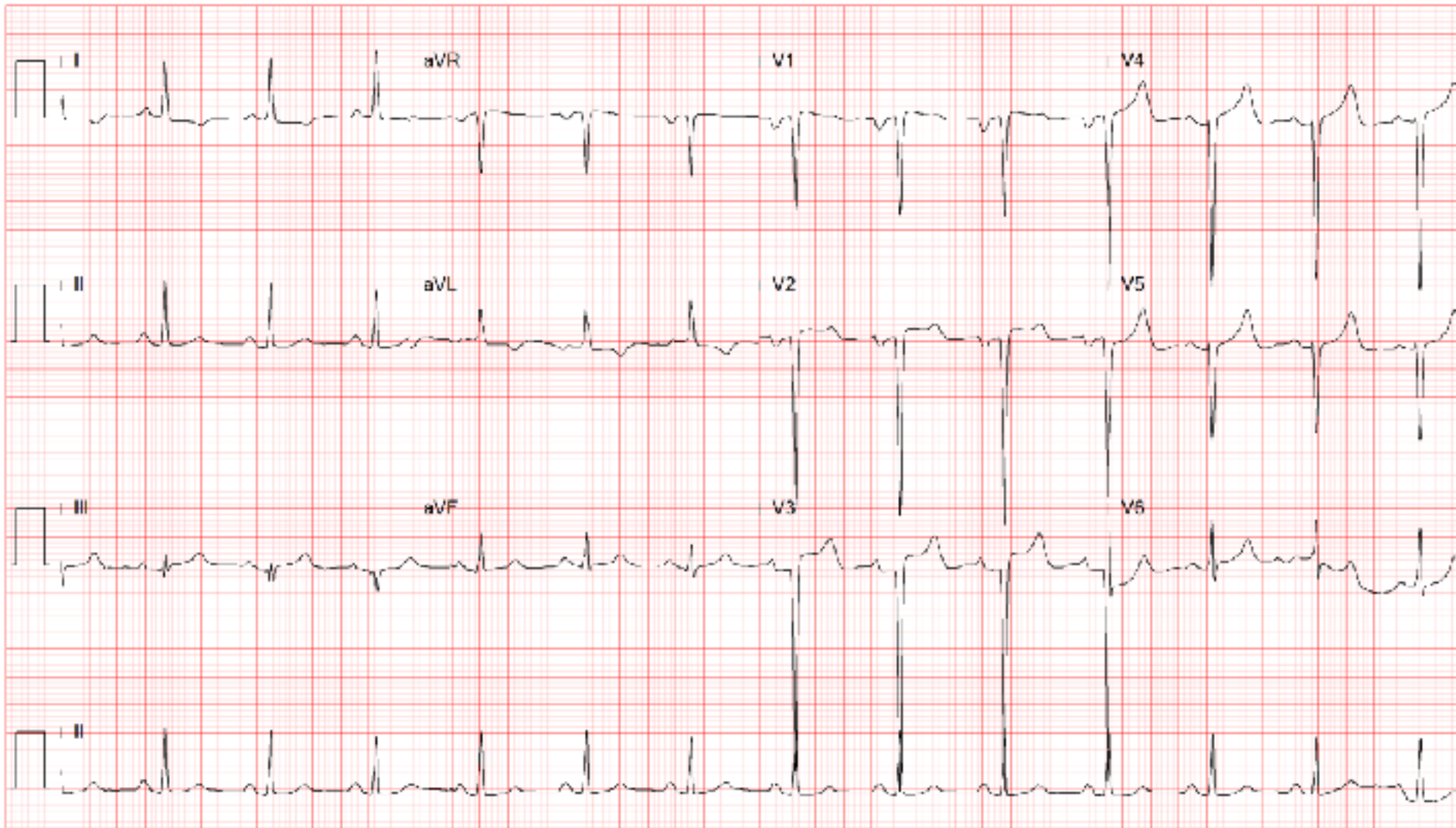
72F, ESRD on HD via R permcath; BT 39.3  
7/14 s/p permcath - 7/15 1st HD - 7/16 high fever



-14005455  
1999/09/25



**72F, ESRD on HD via R permcath; BT 39.3**  
**7/14 s/p permcath - 7/15 1st HD - 7/16 high fever**





72F, ESRD on HD via R permcath; BT 39.3  
7/14 s/p permcath - 7/15 1st HD - 7/16 high fever



**mindray**

chung 14885455

17/07/2022

13:25:29

AP 92.0% MI 1.3 TIS 0.1

L12-4s

Vascular Access

M7

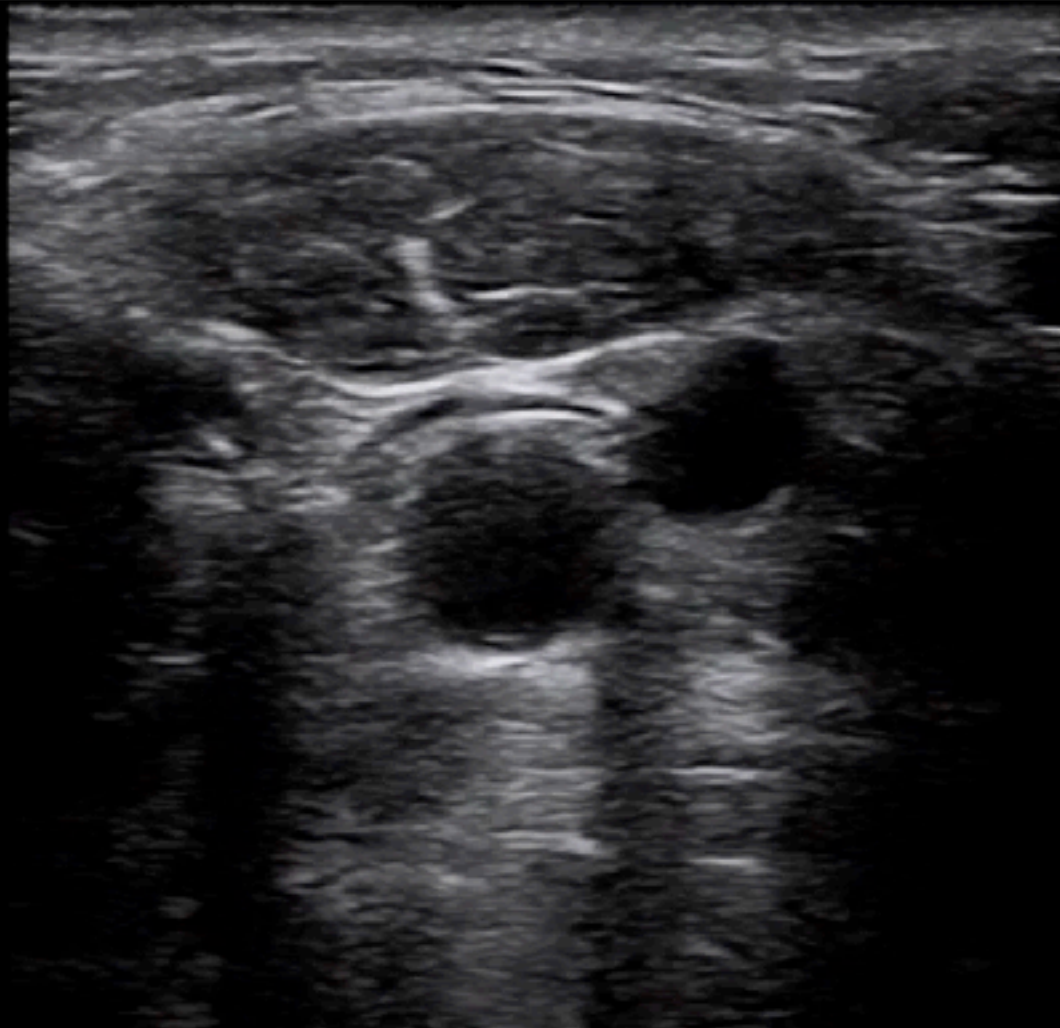
B1

F7.5 /D3.7

G52 /FR43

IP5 /DR95

**M**



1/96

# 72F, ESRD on HD via R permcath; BT 39.3 7/14 s/p permcath - 7/15 1st HD - 7/16 high fever



**mindray**

chung 14885455

17/07/2022

13:26:07

AP 92.0% MI 1.2 TIS 0.0

L12-4s

Vascular Access

M7

B1

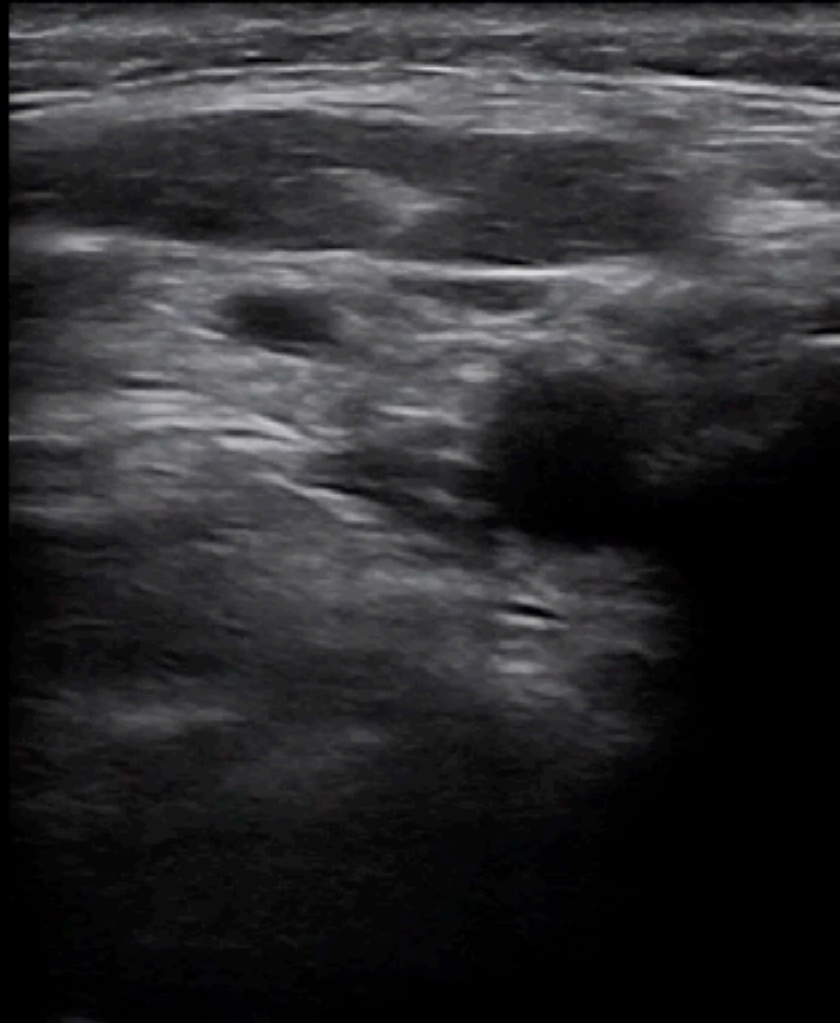
F7.5 / D4.6

G52 / FR43

IP5 / DR95



**M**



-2



-4

72F, ESRD on HD via R permcath; BT 39.3  
7/14 s/p permcath - 7/15 1st HD - 7/16 high fever



**mindray**

chung 14885455

17/07/2022

13:26:23

AP 92.0% MI 1.2 TIS 0.0

L12-4s

Vascular Access

M7

B1

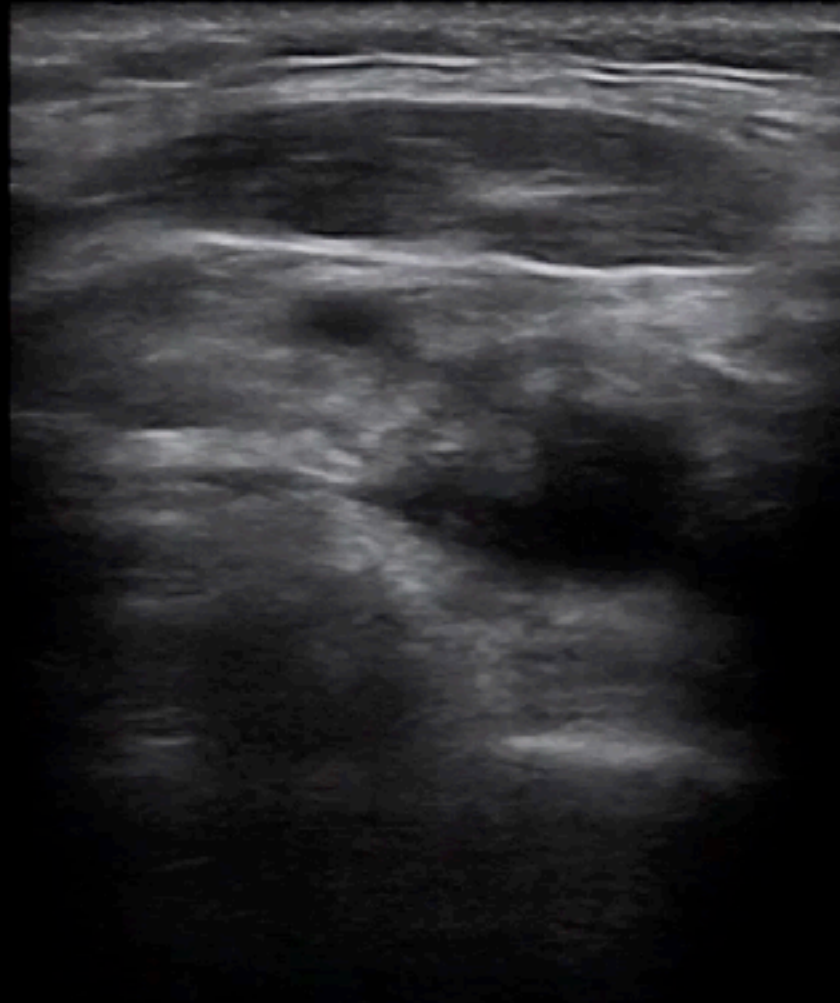
F7.5 /D4.6

G52 /FR43

IP5 /DR95



**M**



-2



-4



1/195



# 72F, ESRD on HD via R permcath; BT 39.3 7/14 s/p permcath - 7/15 1st HD - 7/16 high fever



**mindray**

chung 14885455

17/07/2022

13:26:49

AP 92.0% MI 1.2 TIS 0.0

L12-4s

Vascular Access

M7

B1

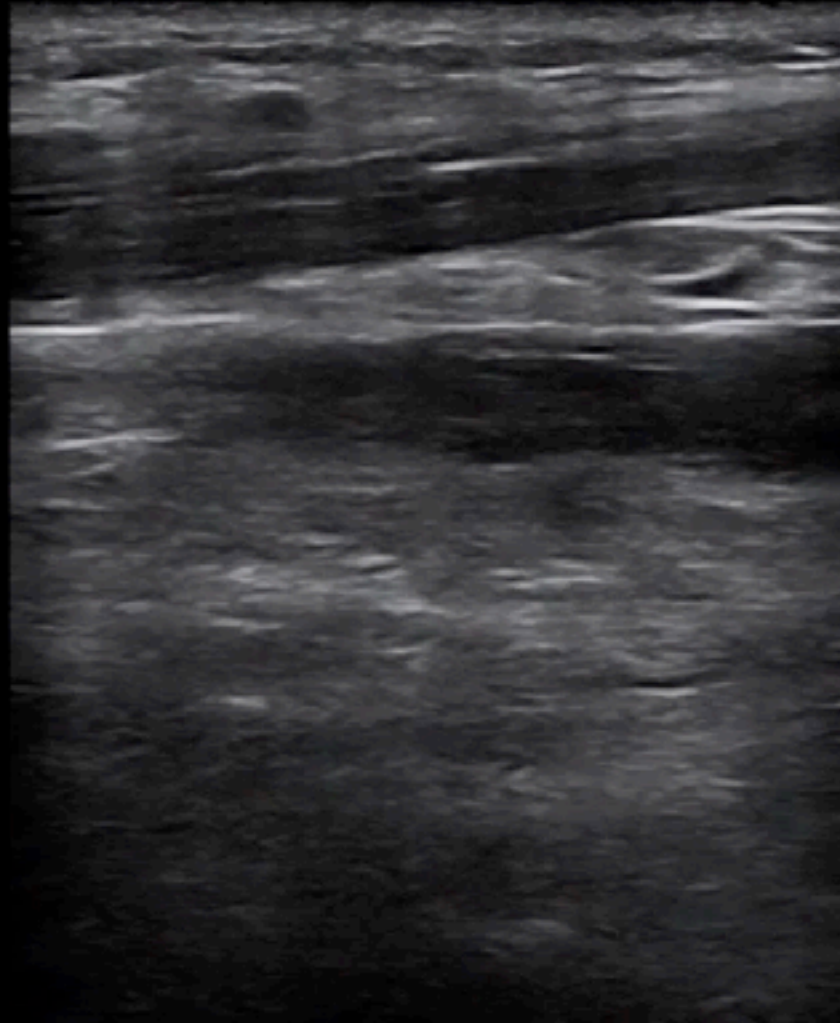
F7.5 /D4.6

G52 /FR43

IP5 /DR95



**M**



-2

-4

1/195

# 72F, ESRD on HD via R permcath; BT 39.3 7/14 s/p permcath - 7/15 1st HD - 7/16 high fever



**mindray**

chung 14885455

17/07/2022

13:28:55

AP 92.0% MI 1.2 TIS 0.0

L12.4s

Vascular Access

M7

B2

F7.5 / D4.6

G52 / FR43

IP5 / DR95



**M**



-2



-4

1/195

# 72F, ESRD on HD via R permcath; BT 39.3 7/14 s/p permcath - 7/15 1st HD - 7/16 high fever



**mindray**

chung 14885455

17/07/2022

13:29:32

AP 92.0% MI 1.2 TIS 0.0

L12.4s

Vascular Access

M7

B2

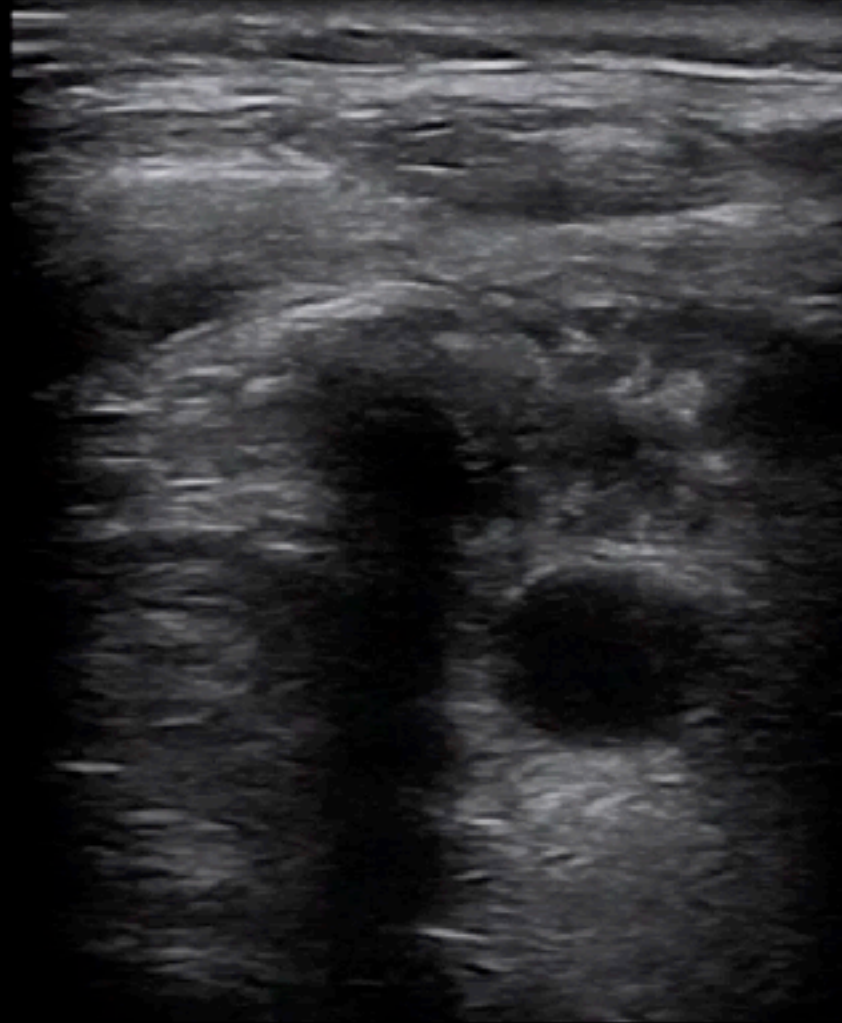
F7.5 /D4.6

G52 /FR43

IP5 /DR95



**M**



-  
-  
-  
-  
-2  
-  
-  
-4  
-



72F, ESRD on HD via R permcath; BT 39.3  
7/14 s/p permcath - 7/15 1st HD - 7/16 high fever



**mindray**

chung 14885455

17/07/2022

13:30:16

AP 92.0% MI 1.2 TIS 0.0

L12-4s

Vascular Access

M7

B2

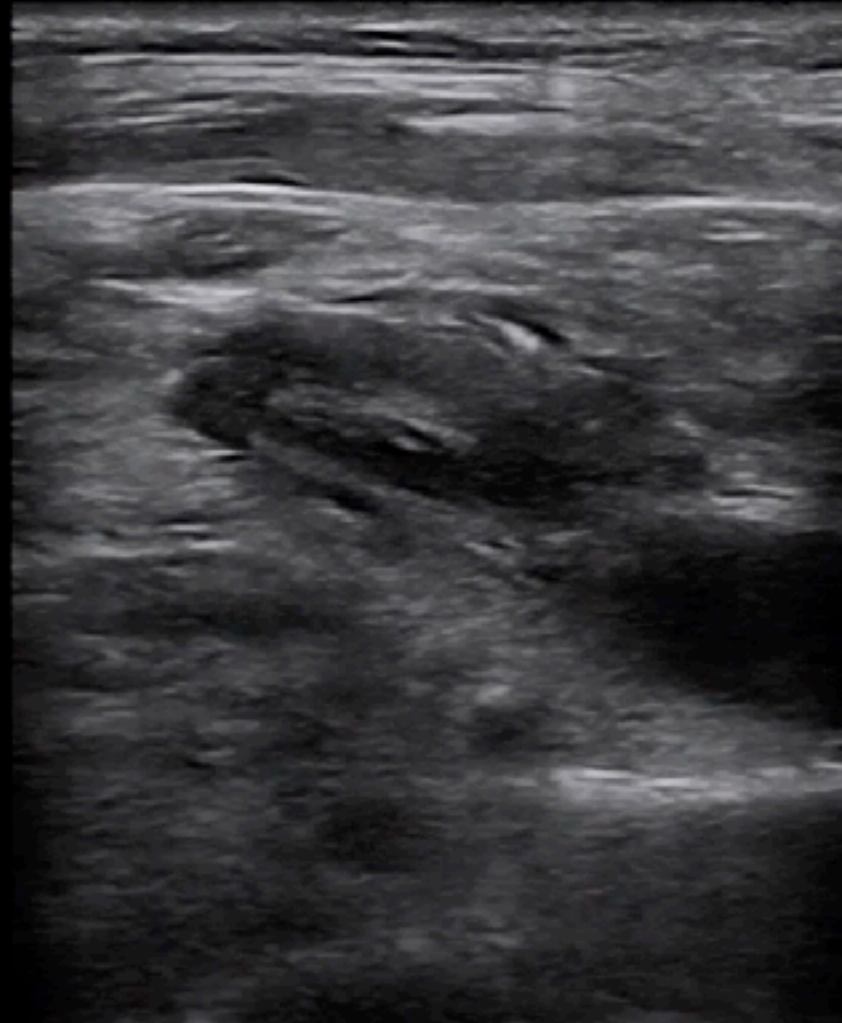
F7.5 /D4.6

G52 /FR43

IP5 /DR95



**M**



-2

-4

1/195

# 72F, ESRD on HD via R permcath; BT 39.3 7/14 s/p permcath - 7/15 1st HD - 7/16 high fever



**mindray**

chung 14885455

17/07/2022

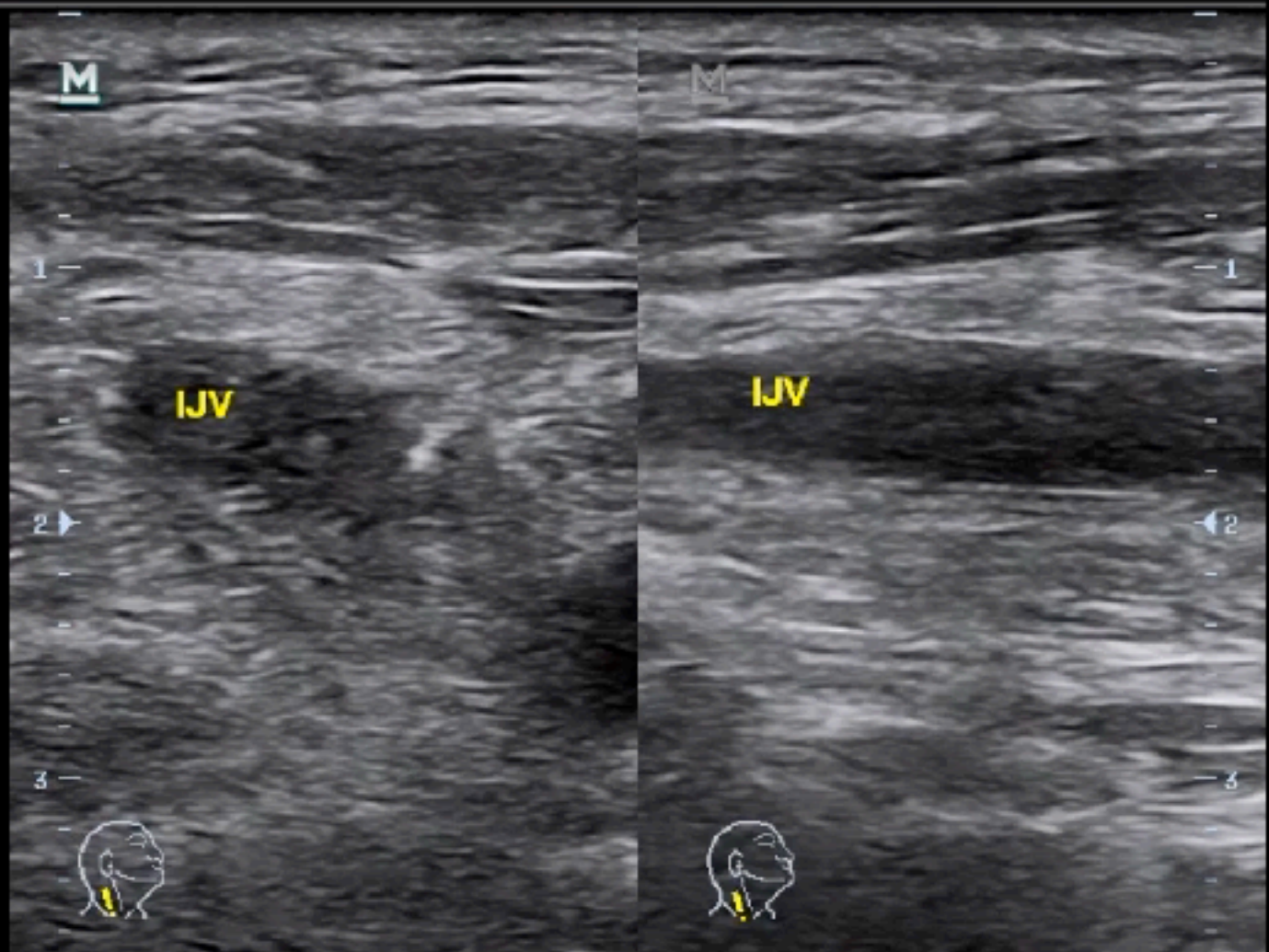
13:31:09

AP 92.0% MI 1.3 TIS 0.1

L12-4s

Vascular Access

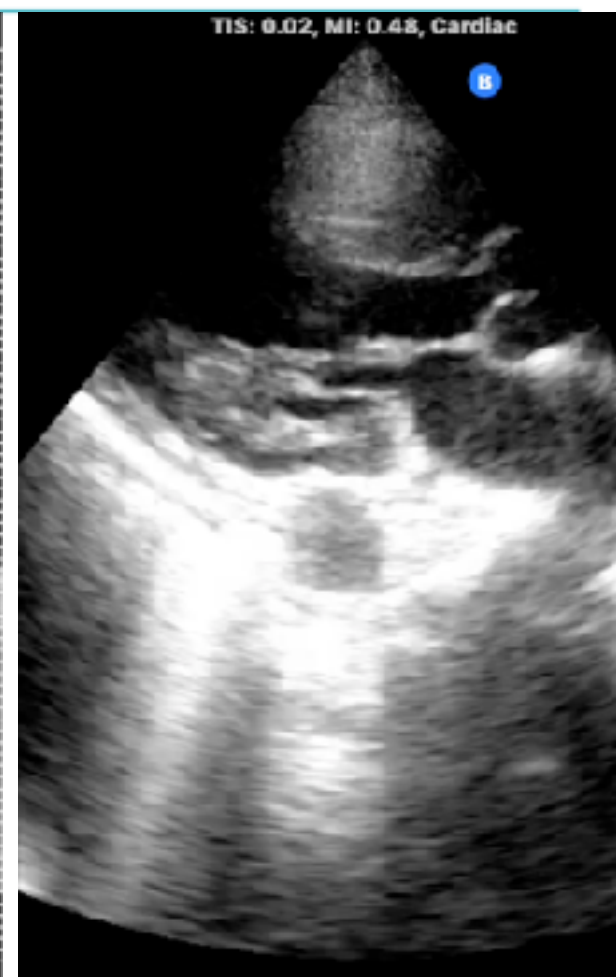
M7  
B1  
F7.5 /D3.7  
G52 /FR43  
IP5 /DR95



1/28

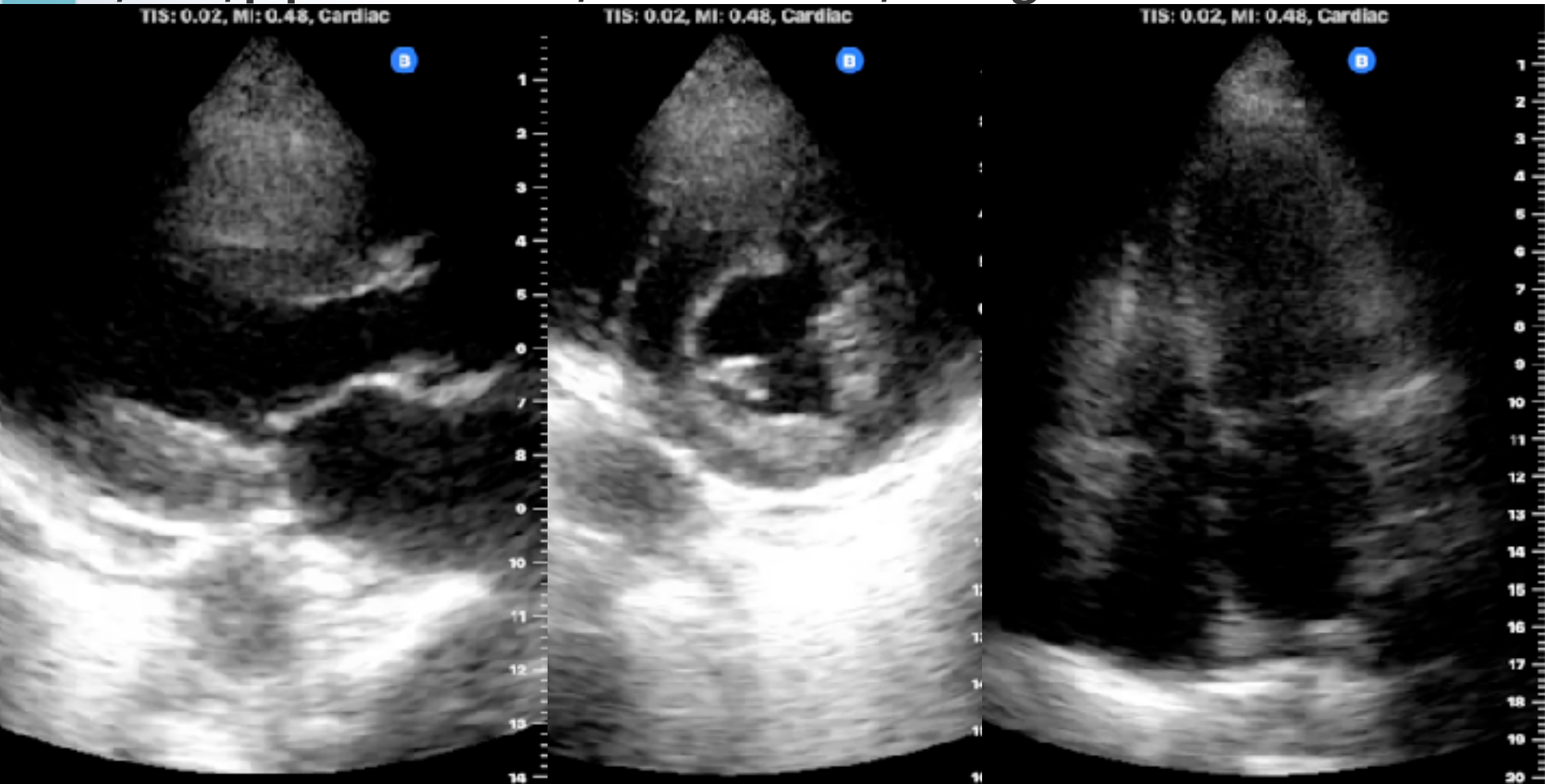
195/195

72F, ESRD on HD via R permcath; BT 39.3  
7/14 s/p permcath - 7/15 1st HD - 7/16 high fever





72F, ESRD on HD via R permcath; BT 39.3  
7/14 s/p permcath - 7/15 1st HD - 7/16 high fever



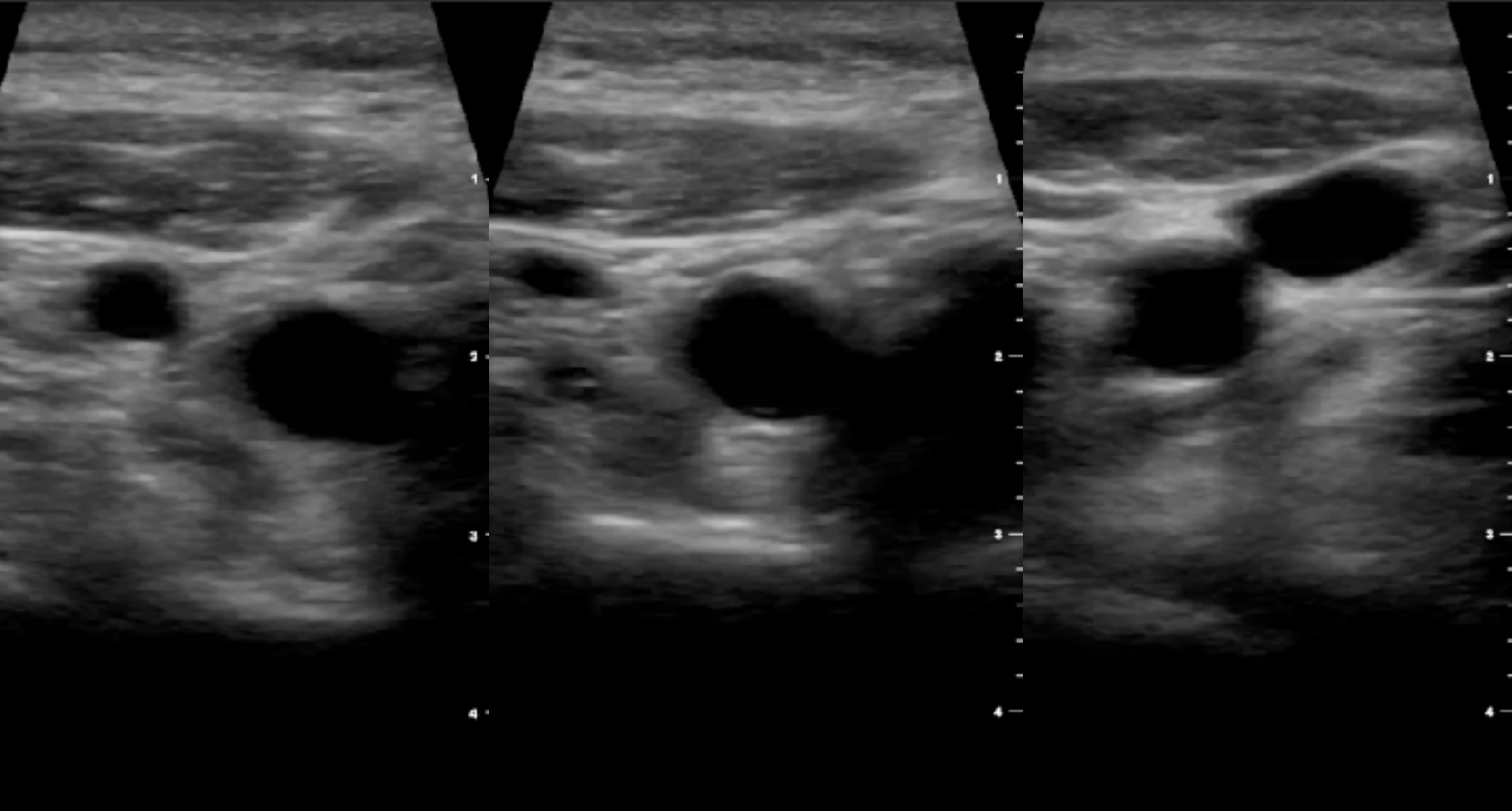
# B/C: SA; Septic thrombophlebitis of IJV



TIS: 0.01, MI: 0.35, Vascular: Carotid

TIS: 0.01, MI: 0.35, Vascular: Carotid

TIS: 0.01, MI: 0.35, Vascular: Carotid



# Suspect Lemierre syndrome (Most common pathogen: *Fusobacterium necrophorum*)



TIS: 0.01, MI: 0.35, Vascular: Carotid

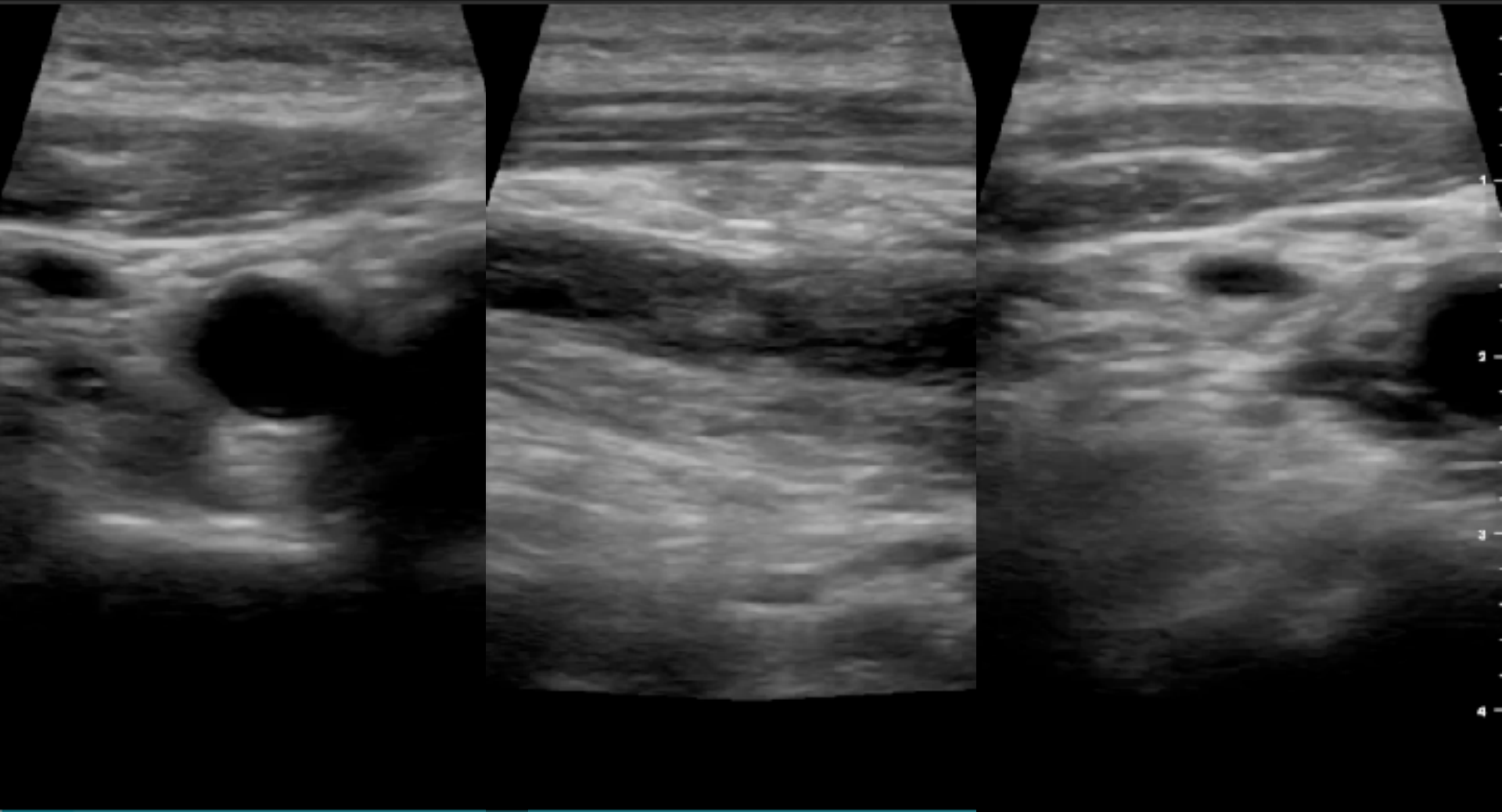
TIS: 0.01, MI: 0.35, Vascular: Carotid

TIS: 0.01, MI: 0.35, Vascular: Carotid

B

B

B





# 44M, both legs weakness, K 2.2, 彰基轉回



mindray

tseng 04333801

13/07/2022

16:31:17

AP 92.9% MI 1.4 TIS 0.1

L12 4s

Thyroid

M7

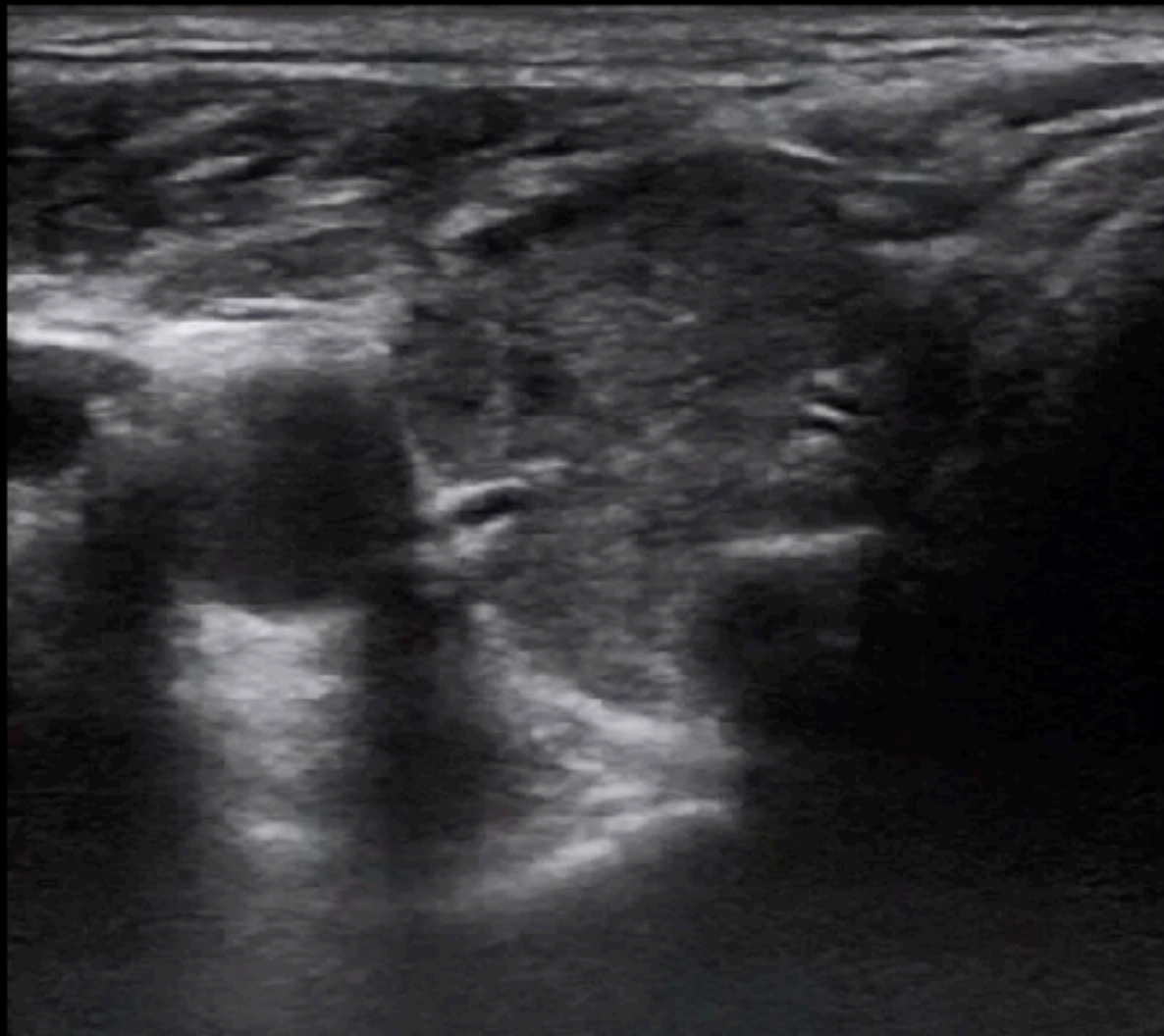
R1

FH11.0 /D3.7

G60 /FR22

IP5 /DR119

M



— 1

— 2

— 3

# 44M, both legs weakness, K 2.2 , 彰基轉回



mindray

tseng 04333801

13/07/2022

16:31:29

AP 92.9% MI 1.4 TIS 0.1

L12 4s

Thyroid

M7

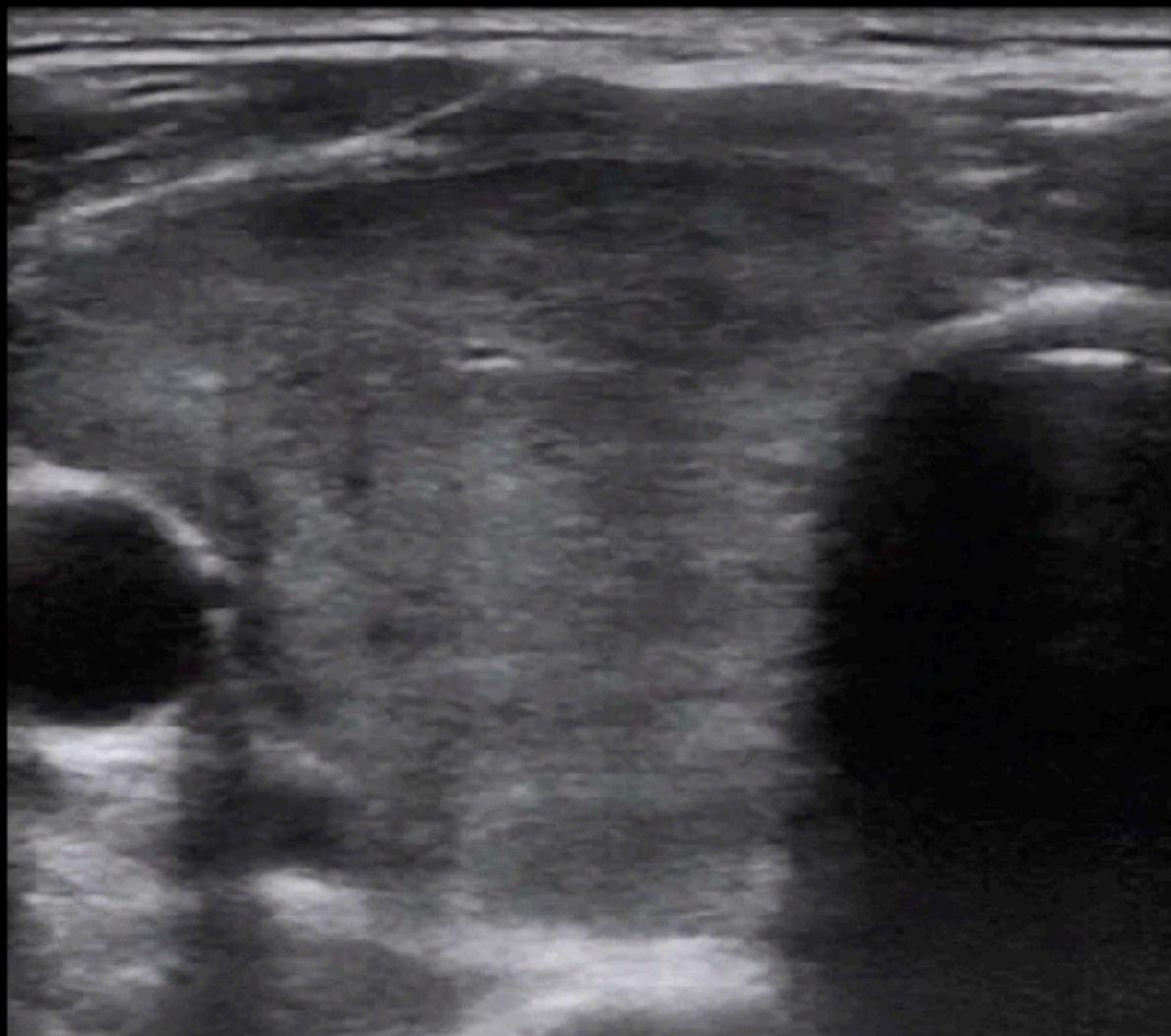
R1

FH11.0 /D3.7

G60 /FR22

IP5 /DR119

M



1  
2  
3



# 44M, both legs weakness, K 2.2 , 彰基轉回

**mindray**

tseng 04333801

13/07/2022

16:32:24

AP 92.9% MI 1.4 TIS 0.3

L12 4s

Thyroid

M7

R1

FH11.0 /D3.7

G60 /FR11

IP5 /DR119

C

F5.7 /G63

IP5 /WF383

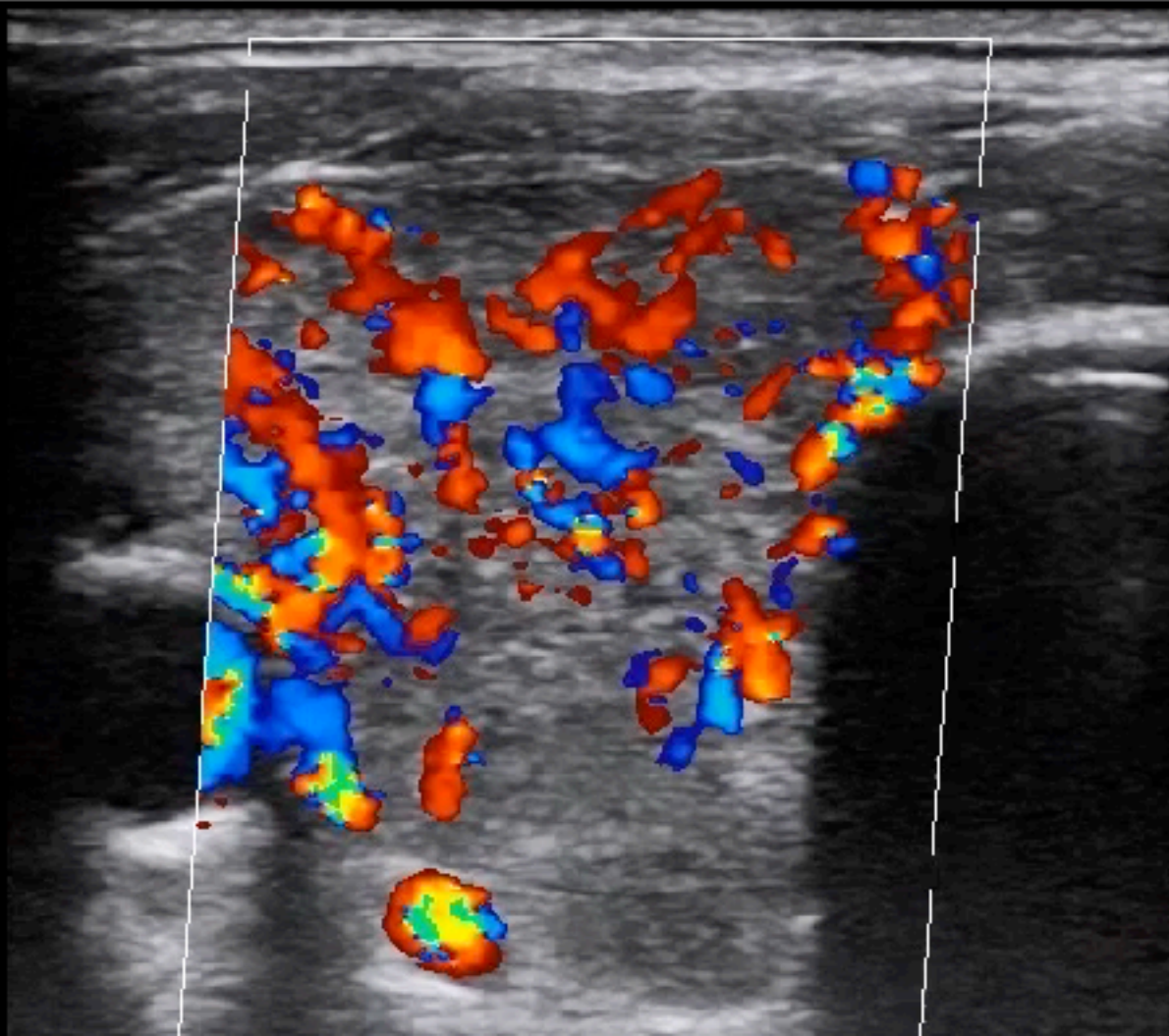
PRF1.7k

11.4



-11.4

**M**



1  
2  
3



# 44M, both legs weakness, K 2.2 , 彰基轉回



mindray

tseng 04333801

13/07/2022

16:32:48

AP 92.9% MI 1.4 TIS 0.3

L12 4s

Thyroid

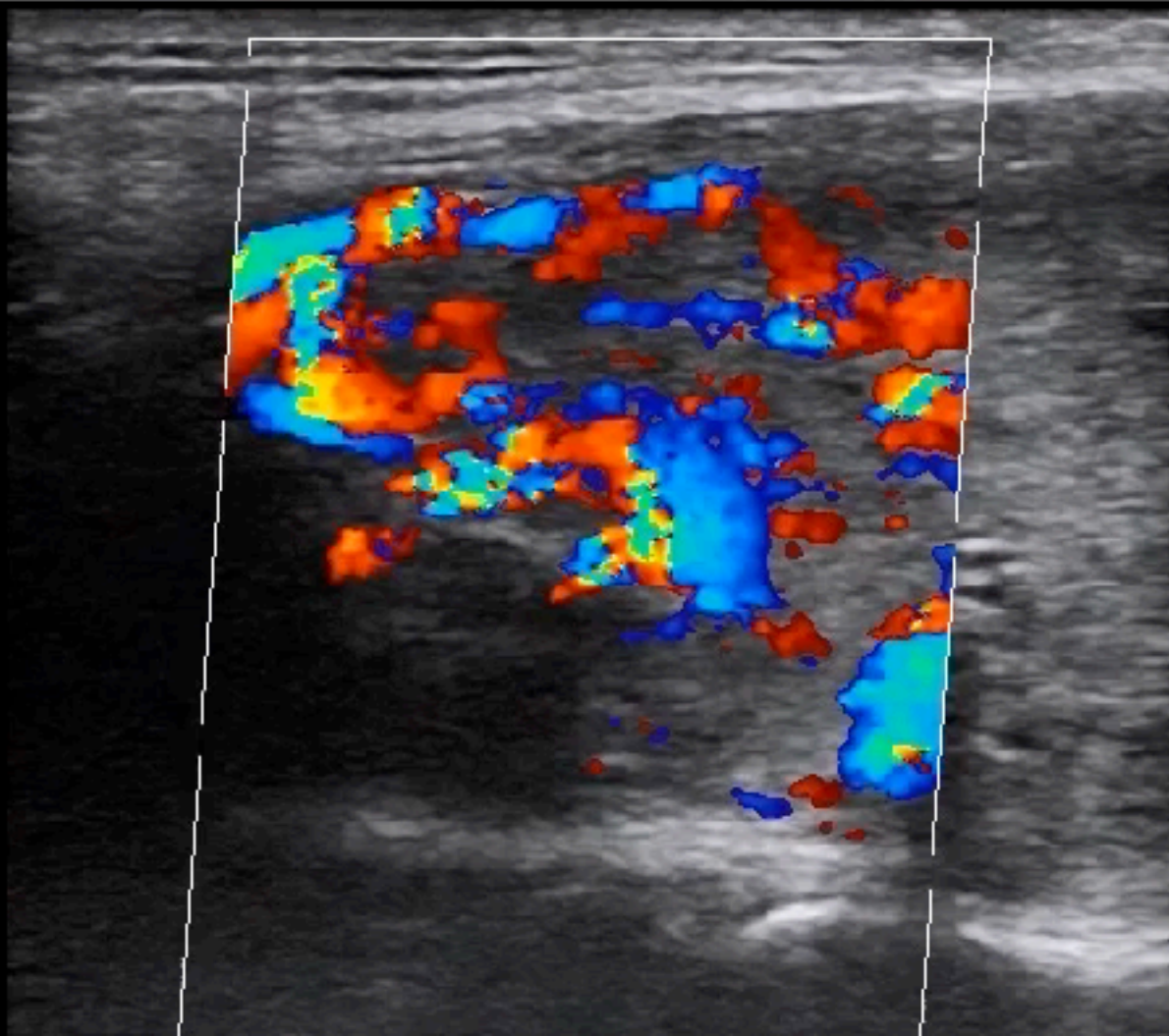
M7  
R1  
FH11.0 /D3.7  
G60 /FR11  
IP5 /DR119  
  
C  
F5.7 /G63  
IP5 /WF383  
PRF1.7k

11.4



-11.4

**M**



1  
2  
3



# 44M, both legs weakness, K 2.2 , 彰基轉回

**mindray**

tseng 04333801

13/07/2022

16:33:12

AP 92.9% MI 1.4 TIS 0.3

L12 4s Thyroid

M7

B1

FH11.0 /D3.7

G60 /FR11

IP5 /DR119

C

F5.7 /G63

IP5 /WF383

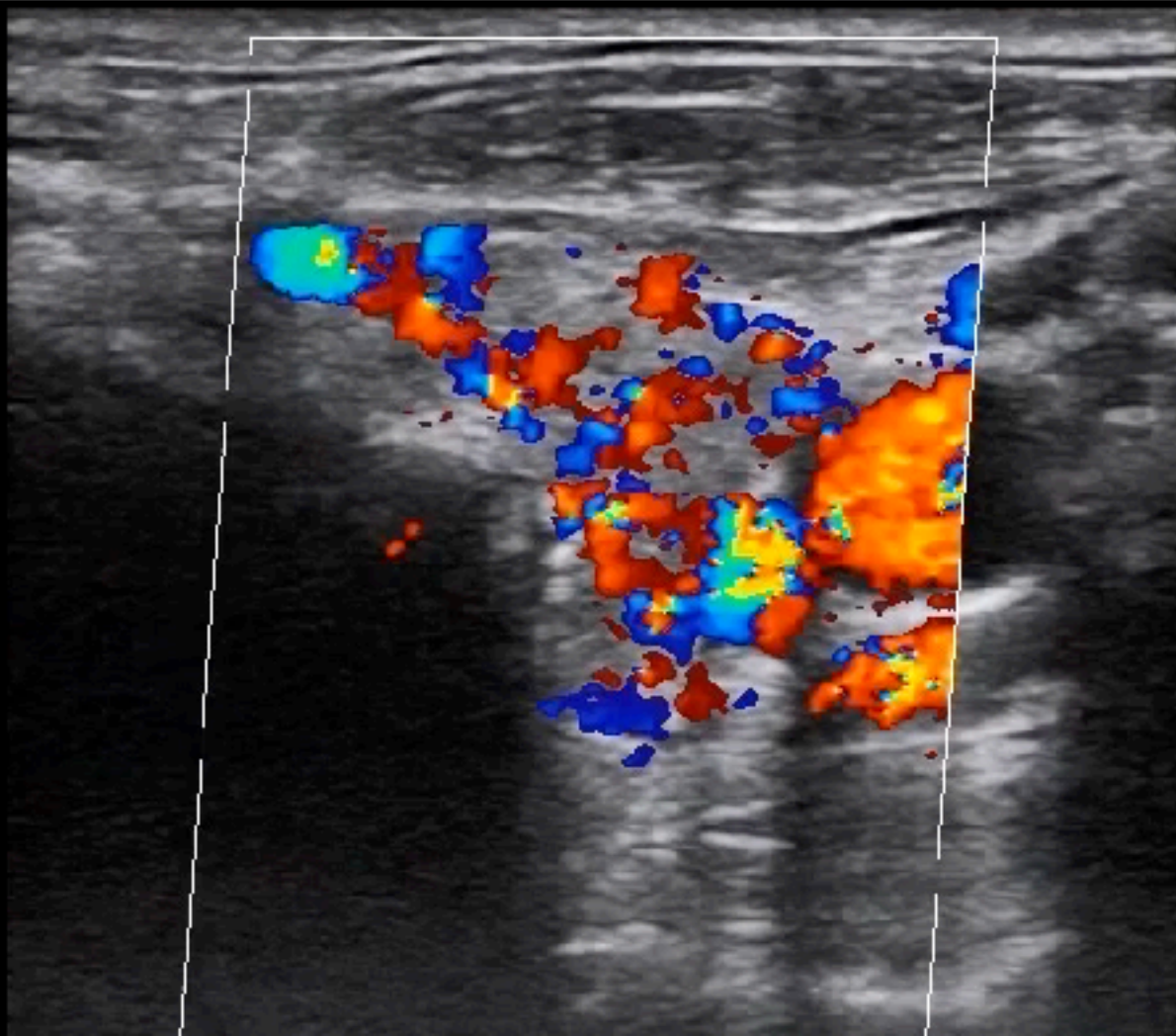
PRF1.7k

11.4



-11.4

**M**



1  
2  
3



# 44M, both legs weakness, K 2.2 , 彰基轉回



**mindray**

tseng 04333801

13/07/2022

16:33:22

AP 92.9% MI 1.4 TIS 0.3

L12 4s

Thyroid

M7

R1

FH11.0 /D3.7

G60 /FR11

IP5 /DR119

C

F5.7 /G63

IP5 /WF383

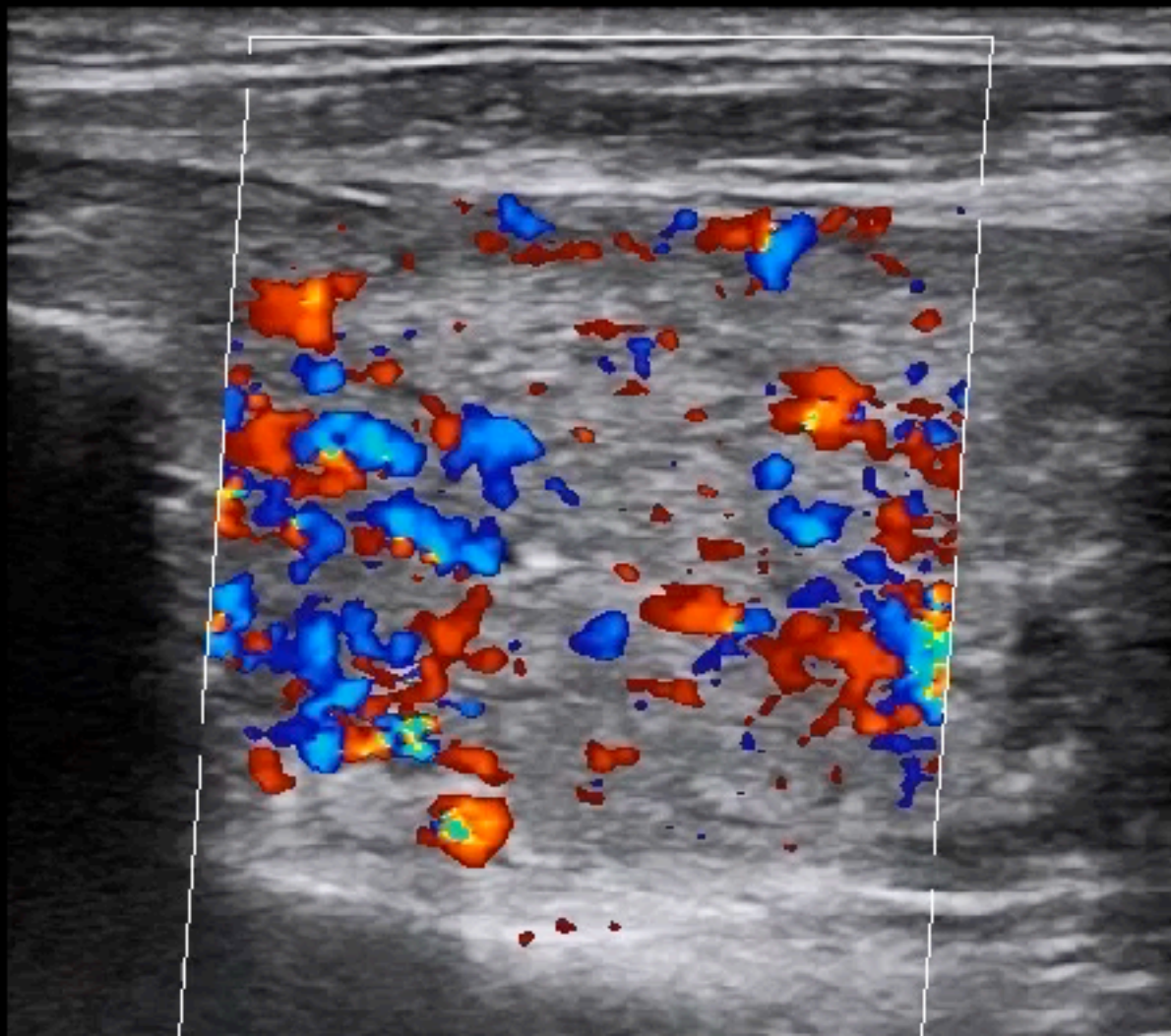
PRF1.7k

11.4



-11.4

**M**



1  
2  
3



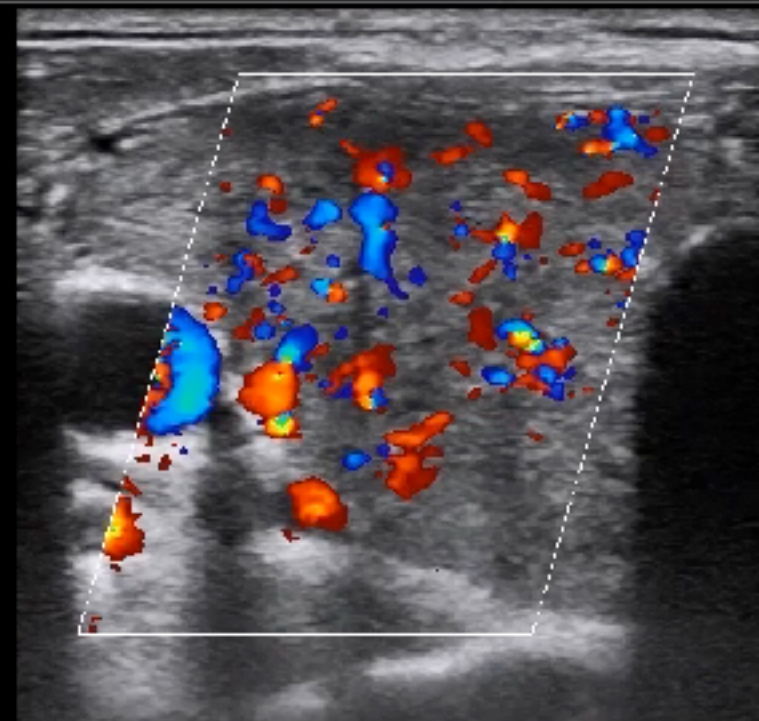
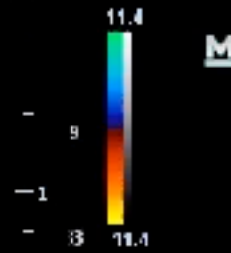
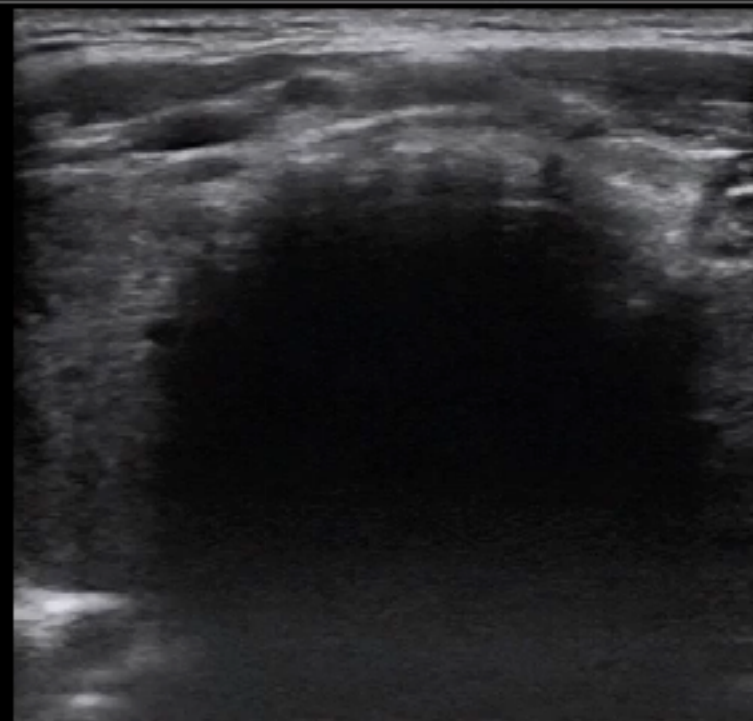
# Grave's disease / Toxic multinodular goiter



13/07/2022 16:25:47 AP 97.9% MI 1.4 IIS 0.1  
1.12 4u Thyroid

lowrig 0.4333801

13/07/2022 16:25:53 AP 97.9% MI 1.4 IIS 0.2  
1.12 4u Thyroid



1 1/2 19

1 1/7 9



# 46M, 右腰痛，解尿困難

PHILIPS HUANG CHEN HUA 03/01/1976  
01037775 SHH

MI 0.6 7/19/2022  
TIS 0.0 6:48:13 PM

ABD  
C6-2  
32Hz  
13.0cm

2D  
HGen  
Gn 100  
56  
1/3/3





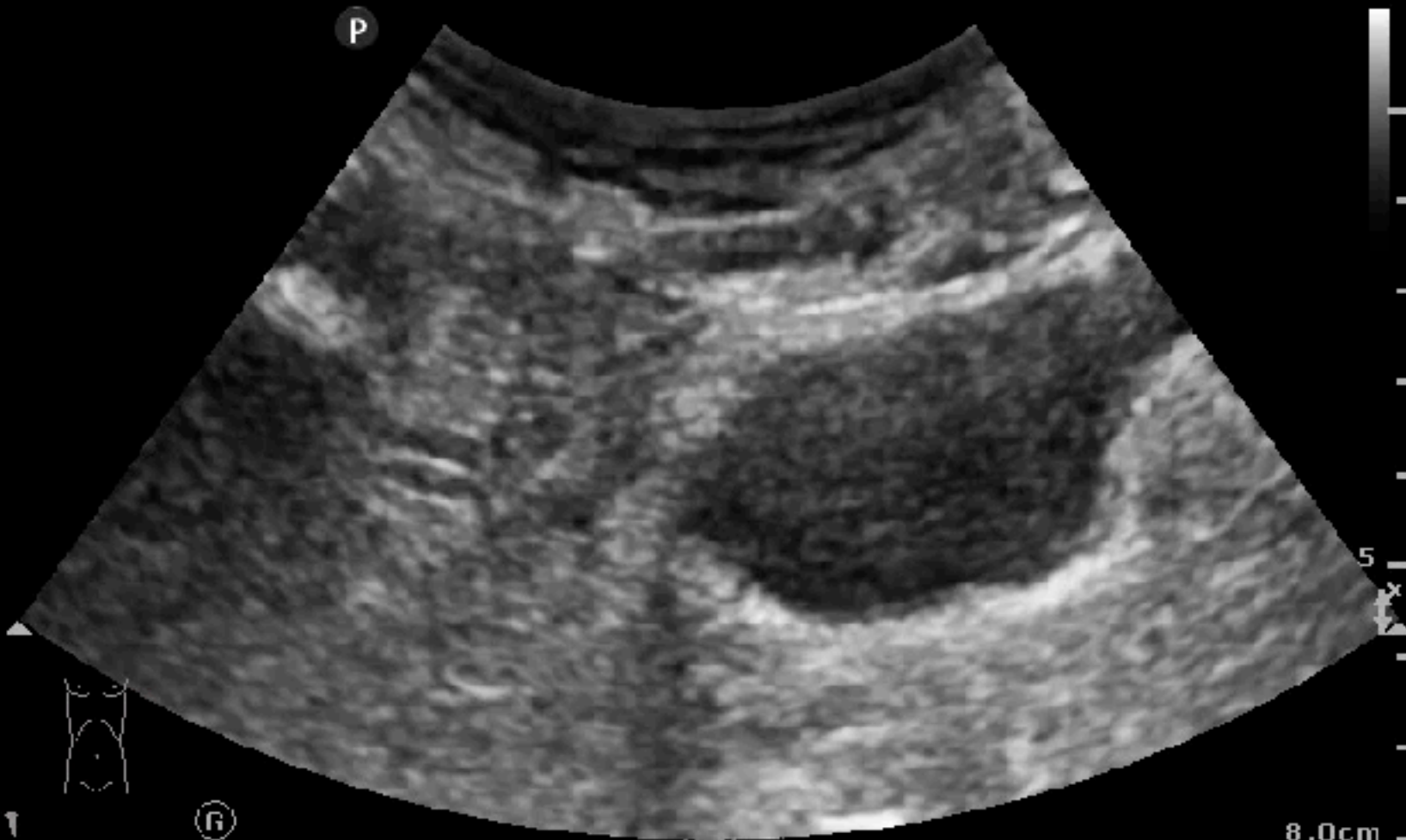
# 46M, 右腰痛，解尿困難

PHILIPS HUANG CHEN HUA 03/01/1976  
01037775 SHH

MI 0.6 7/19/2022  
TIS 0.0 6:51:17 PM

ABD  
C6-2  
43Hz  
8.0cm

2D  
HGen  
Gn 100  
56  
1/3/3







# 46M, 右腰痛，解尿困難

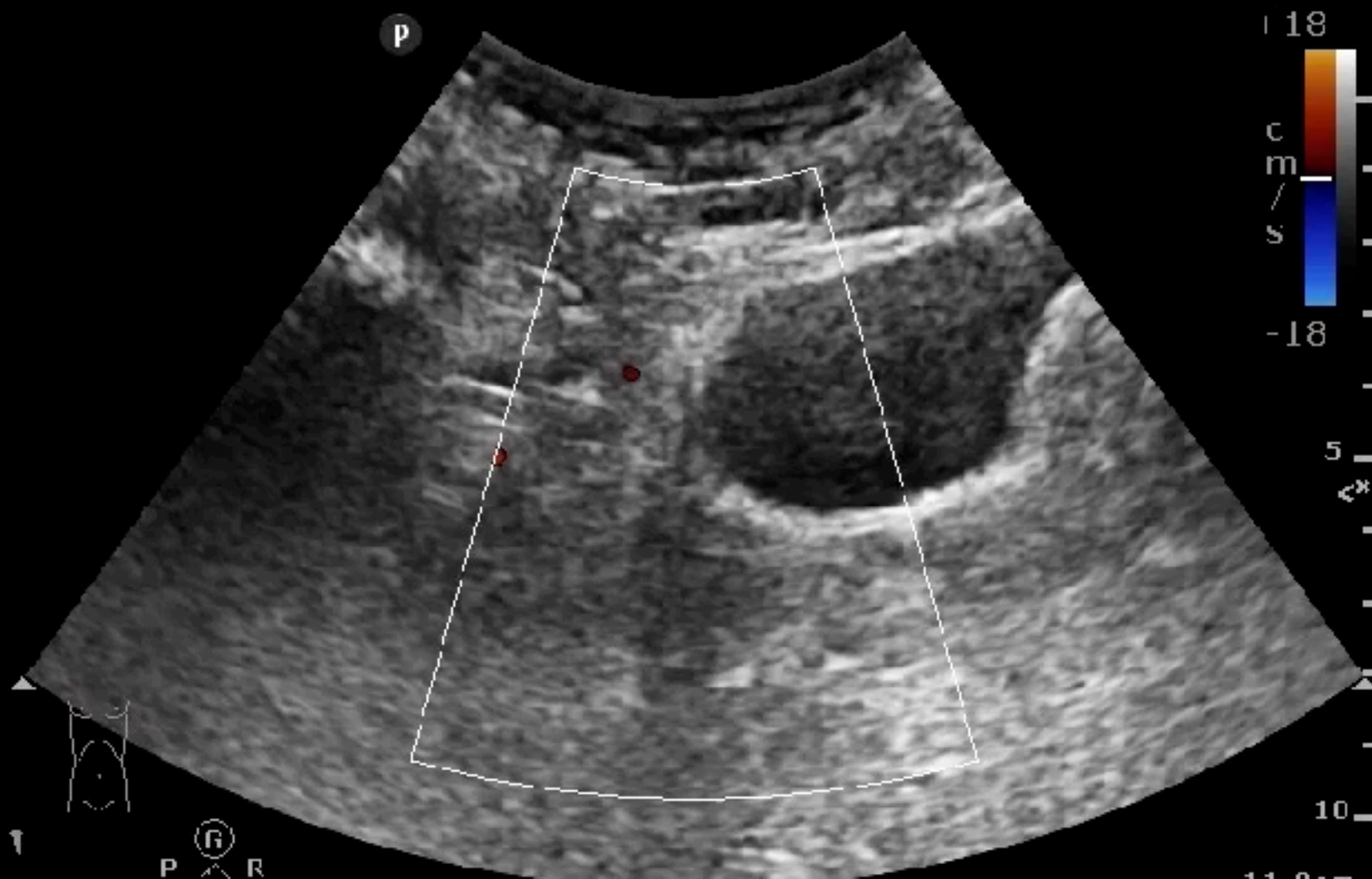
PHILIPS HUANG CHEN HUA 03/01/1976  
01037775 SHH

MI 0.9 7/19/2022  
TIS 0.1 6:51:01 PM

ABD  
C6-2  
10Hz  
11.0cm

2D  
HGen  
Gn 100  
56  
1/3/3

Color  
2.5 MHz  
Gn 60  
3/7/3  
Filtr Med





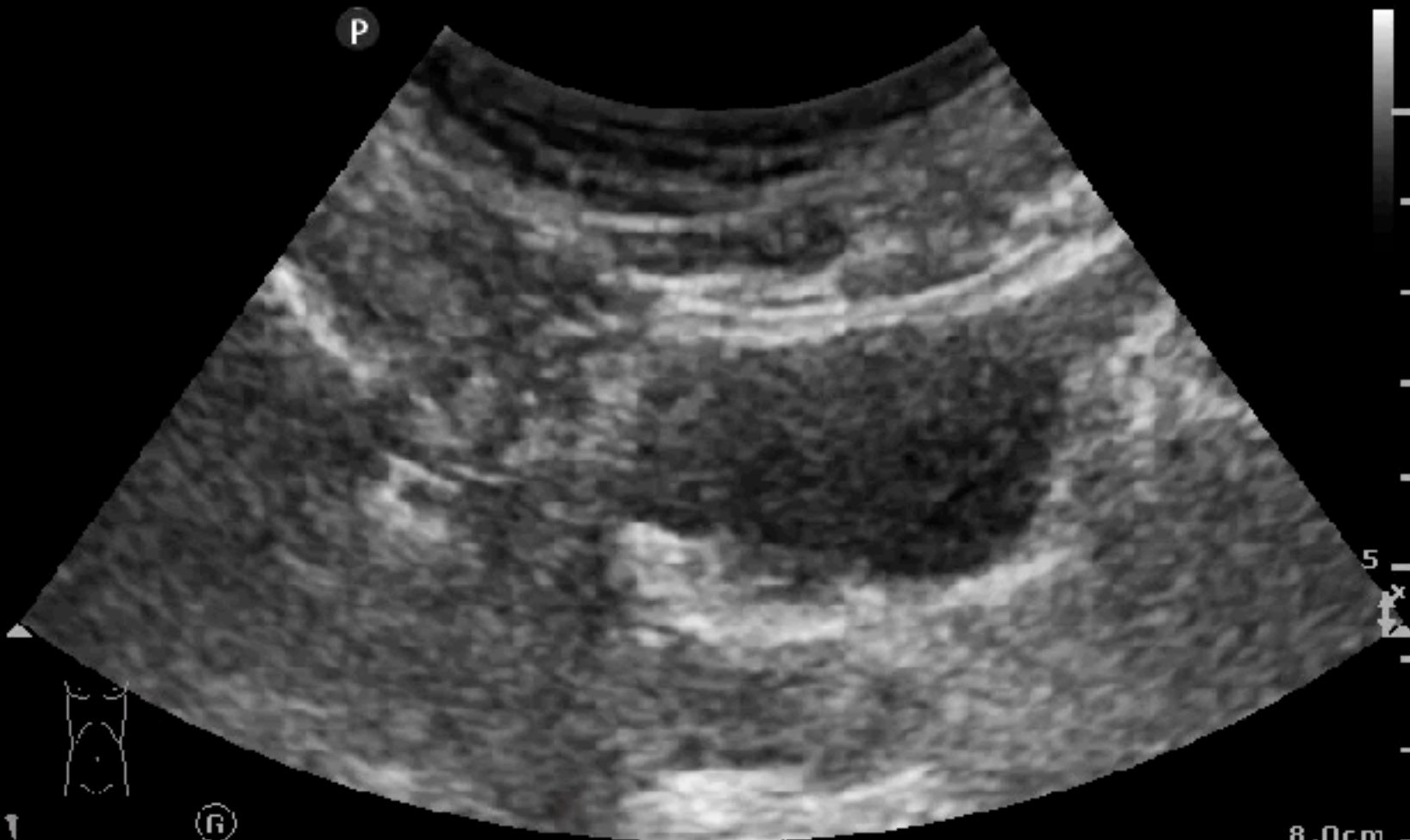
# 46M, 右腰痛，解尿困難

PHILIPS HUANG CHEN HUA 03/01/197G  
01037775 SHH

MI 0.6 7/19/2022  
TIS 0.0 6:51:31 PM

ABD  
C6-2  
43Hz  
8.0cm

2D  
HGen  
Gn 100  
56  
1/3/3



8.0cm



# 46M, 右腰痛，解尿困難

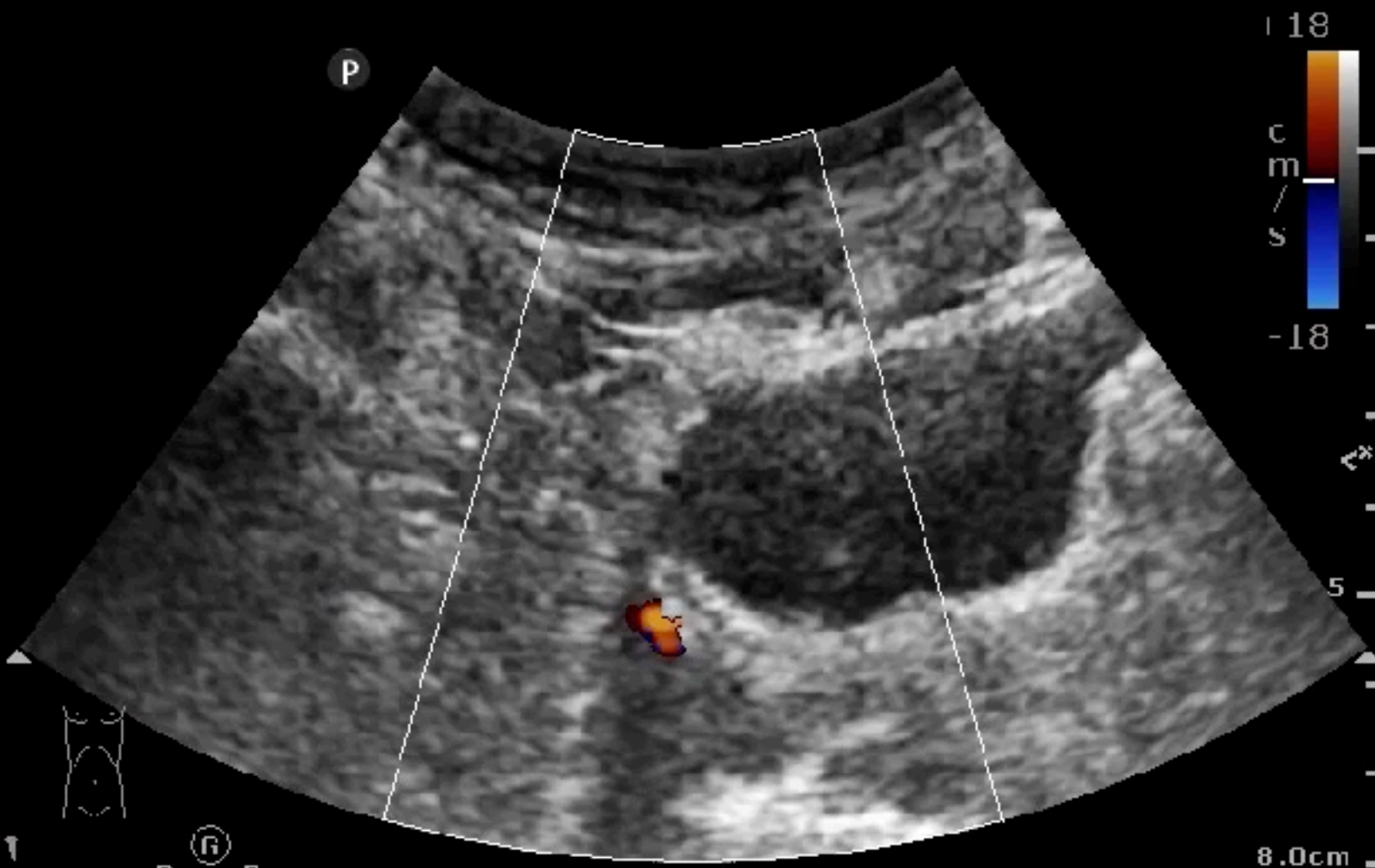
PHILIPS HUANG CHEN HUA 03/01/1976  
01037775 SHH

MI 0.7 7/19/2022  
TIS 0.4 6:51:38 PM

ABD  
C6-2  
13Hz  
8.0cm

2D  
HGen  
Gn 100  
56  
1/3/3

Color  
2.5 MHz  
Gn 60  
3/7/3  
Fltr Med





# UVJ stone with twinkling artifact



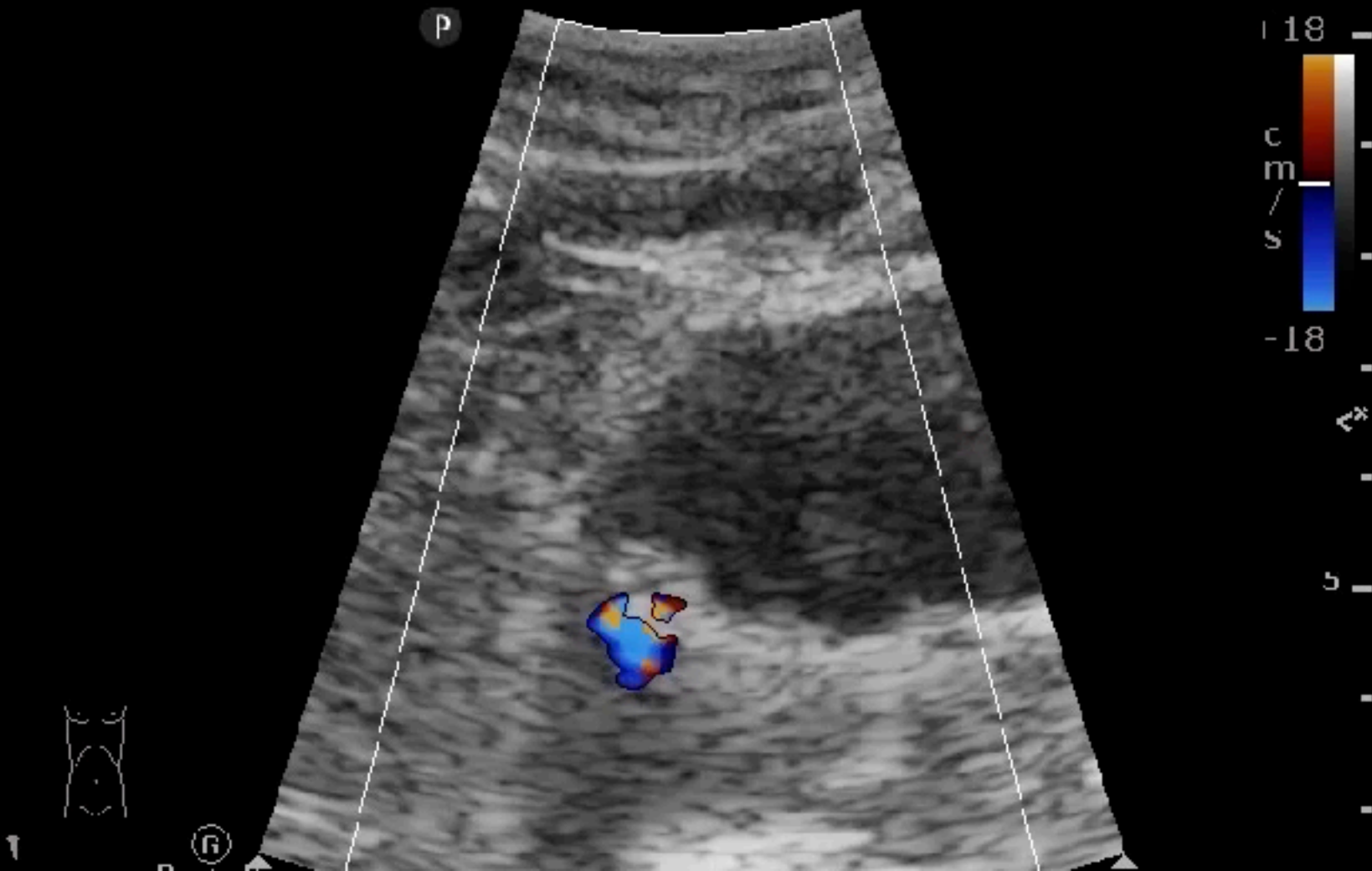
PHILIPS HUANG CHEN HUA 03/01/1976  
01037775 SHH

MI 0.7 7/19/2022  
TIS 0.1 6:52:16 PM

ABD  
C6-2  
15Hz  
HD Zoom

2D  
HGen  
Gn 100  
56  
1/3/3

Color  
2.5 MHz  
Gn 60  
3/7/3  
Filtr Med





努力可能會說謊，  
但努力不會白費。

羽生結弦

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