

CHIUSURA DELL'AURICOLA NELLA PREVENZIONE DELL'EMBOLIA CARDIOGENA

PARMA , ORDINE DEI MEDICI 21 GENNAIO 2014

IL RUOLO DELL'ECOCARDIOGRAFIA

U.TALIANI

UO DI CARDIOLOGIA

AZIENDA OSPEDALIERO UNIVERSITARIA DI PARMA



INDICAZIONE IN BASE A CRITERI CLINICI

1. Rischio embolico medio alto



- **Rischio emorragico elevato**
- Controindicazione a terapia anticoagulante

2 RECIDIVA DI STROKE IN TAO BEN CONDOTTA

QUALE METODICA ECOCARDIOGRAFICA ?

- **ECOCARDIOGRAFIA TRANSTORACICA**

ASSE CORTO SEZIONE AORTICA

APICALE 4 CAMERE

TRANSTORACICO 3D

- utilità scientifica?

- utilizzabile nel follow-up dei pazienti trattati

- **ECOCARDIOGRAFIA TRANSESOFAGEA**

TRANSESOFAGEO 3D

FUNZIONE DELL'ECOCARDIOGRAFIA

- **DETERMINANTE NEL DEFINIRE LA GENESI DEL CARDIOEMBOLISMO E LA LOCALIZZAZIONE DEL TROMBO (FUNZIONE EZIOPATOGENETICA)**
- **VALUTAZIONE PREOPERATORIA**
- **MONITORAGGIO IN CORSO DI PROCEDURA**
- **FOLLOW-UP DEL PAZIENTE TRATTATO**

LOCALIZZAZIONE DELLA TROMBOSI

Importance of the underlying substrate in determining thrombus location in atriale fibrillation: implication for left atril appendage closure

P. Sanders, R Mahajan et al. From University of Adelaide

Heart, Marzo 2012

ANALISI STATISTICA DELLA LETTERATURA

- *Trovati 1206 articoli riguardanti trombosi e fibrillazione atriale*
- *34 articoli presentavano criteri sufficienti*
 - a) *minimo 10 casi con trombosi riportata*
 - b) *precisa localizzazione della trombosi atriale (ECO TE)*

- *17 studi su fibrillazione atriale valvolare*
- *10 studi su fibrillazione atriale non valvolare*
- *8 studi comprendenti entrambe*

LOCALIZZAZIONE DEI TROMBI

- *Fibrillazione atriale valvolare 44% auricola*
 - *Fibrillazione atriale ad eziologia mista 78% auricola*
 - ***Fibrillazione atriale non valvolare 89% auricola***
-
- *Frequente riscontro di trombi nelle cavità atriali :*
 1. *Pazienti non decoagulati*
 2. *Storia di stroke*
 3. *Disfunzione ventricolare*

VALUTAZIONE PREINTERVENTO

- **ECOCARDIOGRAMMA TT** NEL PERCORSO DI INQUADRAMENTO CLINICO DEL PAZIENTE
 - **ECOCARDIOGRAMMA TRANSESOFAGEO**
- ***Analisi morfologica dell'auricola : monolobata, plurilobata***
- ***Dimensioni sufficienti ad accogliere il device***
- **Presenza di trombosi auricolare**
- **Calcolo delle dimensioni per scegliere la misura del device**

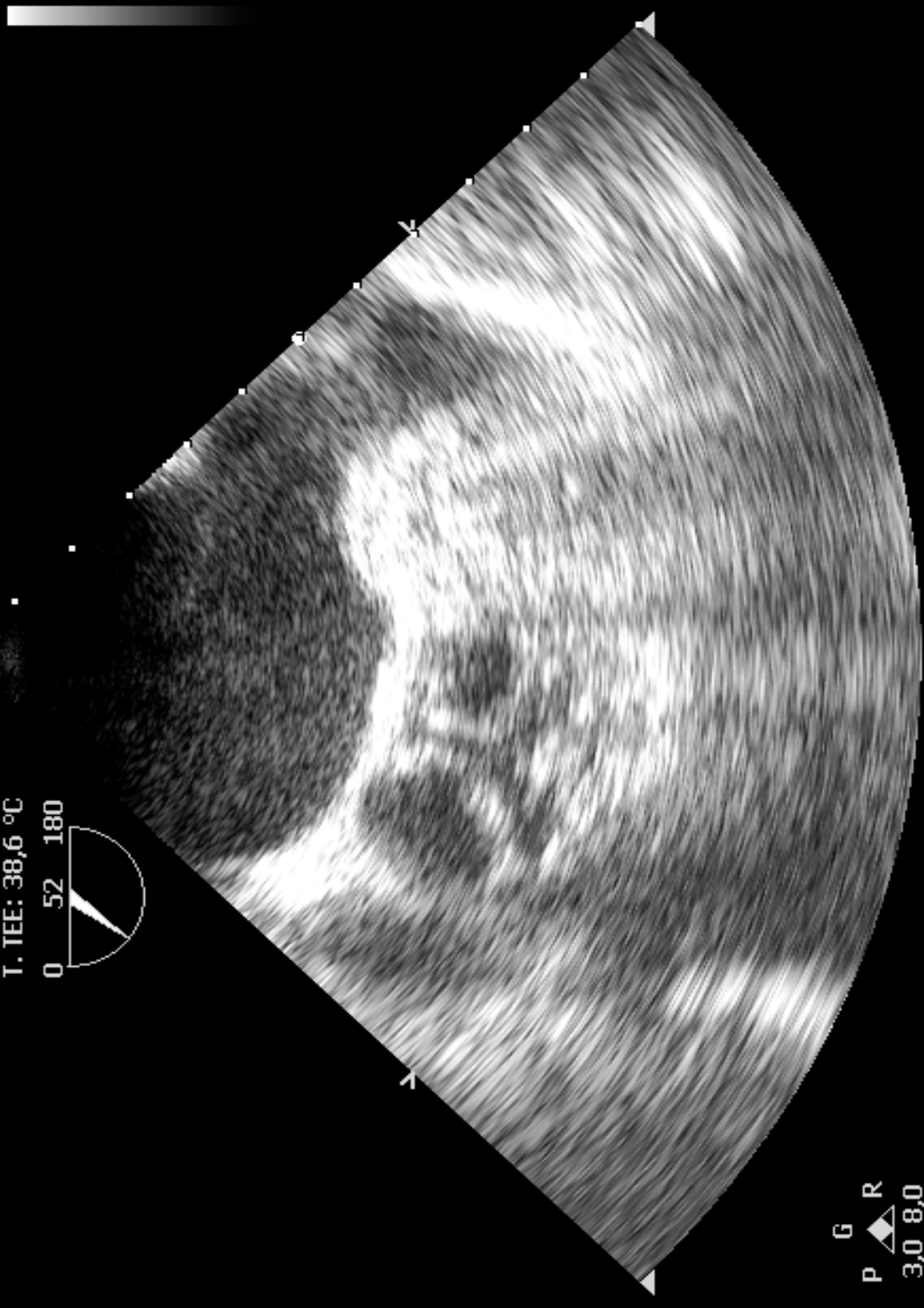
TEE
K7-2t
4Hz
12cm

2D
Gen.
Quad. 60
C 50
4/2/0
75 mm/s

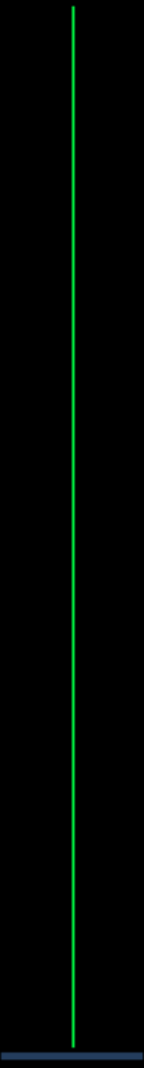
T. Paz: 37,0 °C
T. TEE: 38,6 °C



P



G
P ▲ R
3,0 8,0

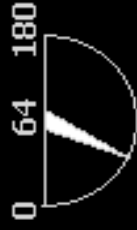


TEE
X7-2t
44Hz
12cm

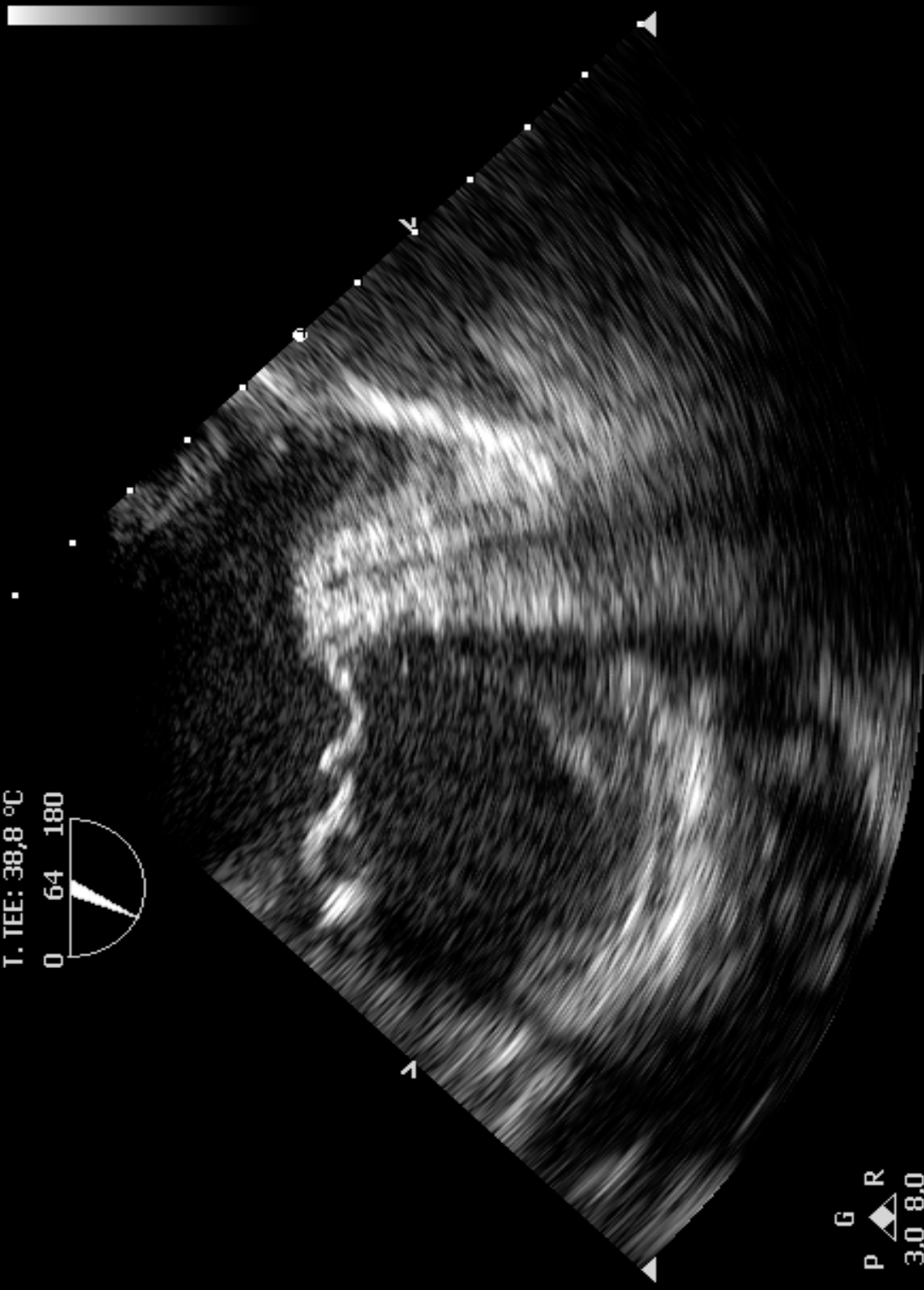
2D

Gen.
Quad. 30
C 50
4/2/0
75 mm/s

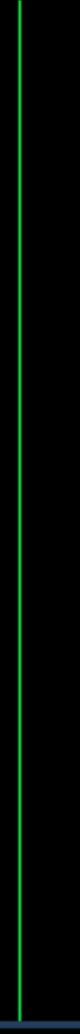
T. Paz: 37,0 °C
T. TEE: 38,8 °C



P



G
P ▲ R
3,0 8,0





PHILIPS

5 mm

AMB.DIP.CARDIOLOGIA

VR 5Hz

5cm

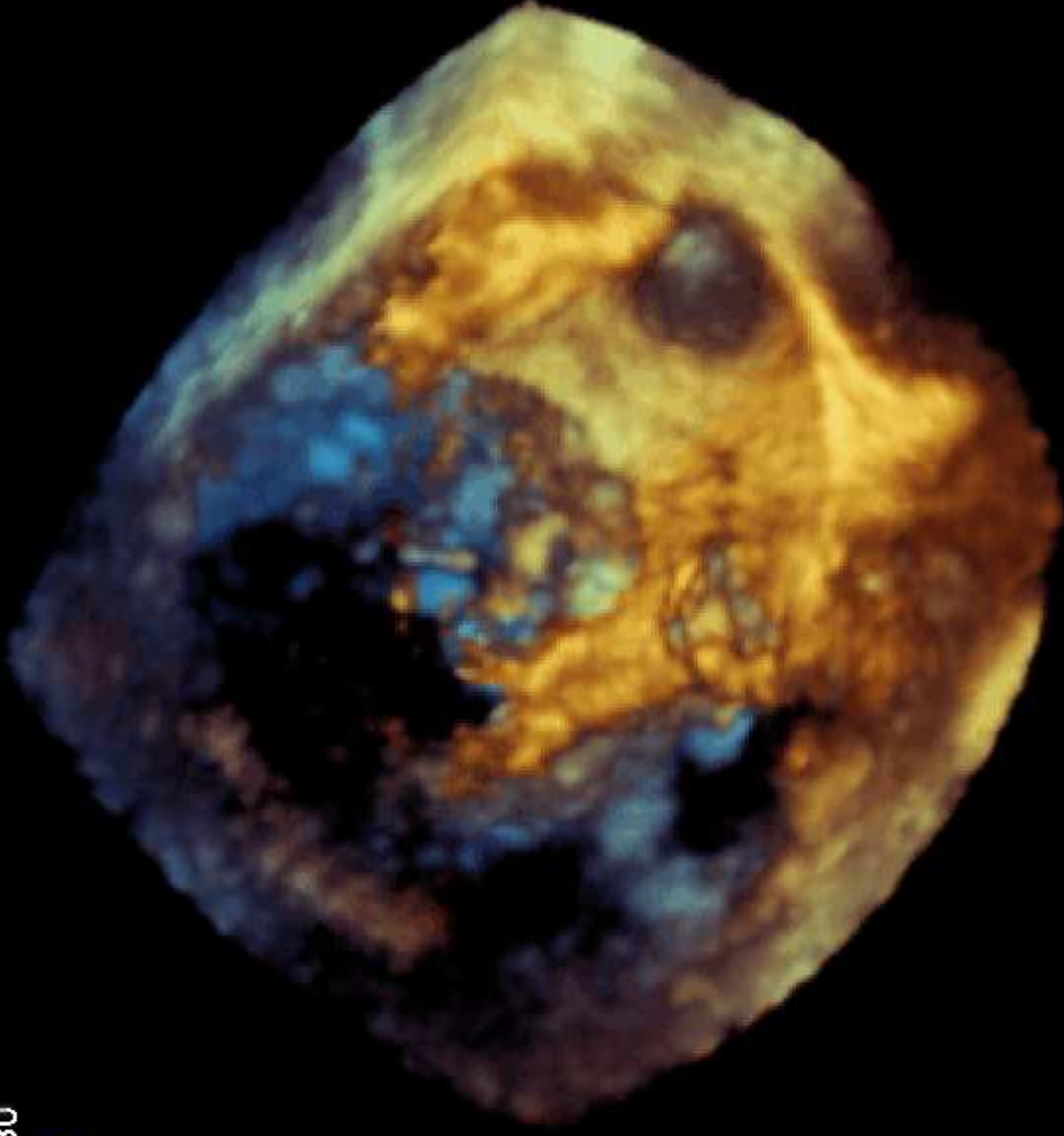
0 90 180



ive 3D

D 11%

D 50dB



V

0 bpm

AMB.DIP.CARDIOLOGIA

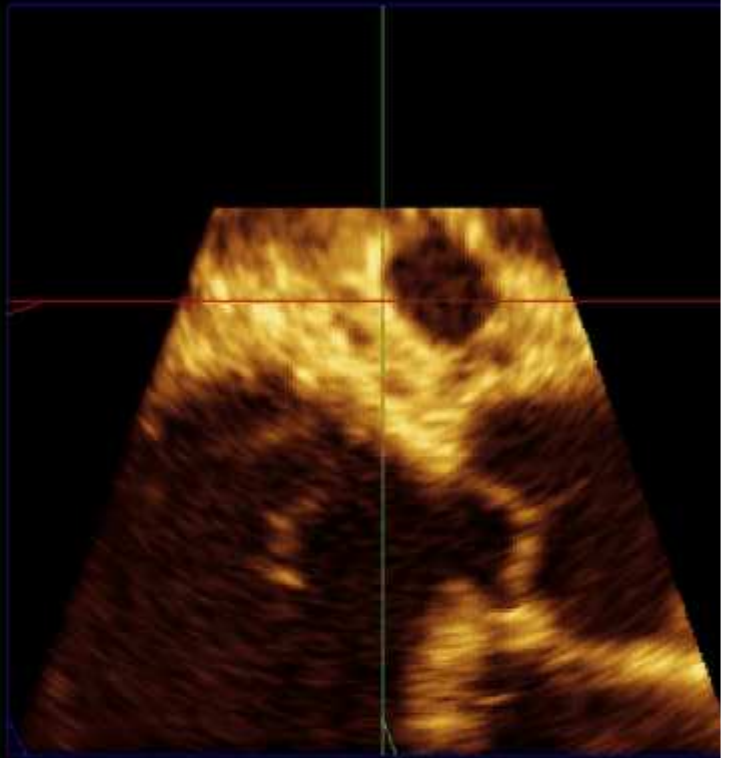
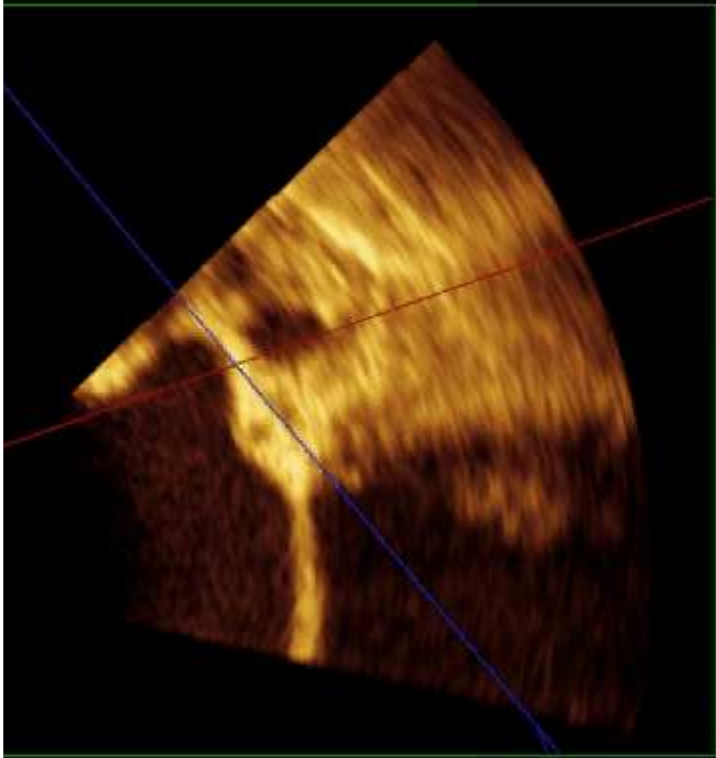
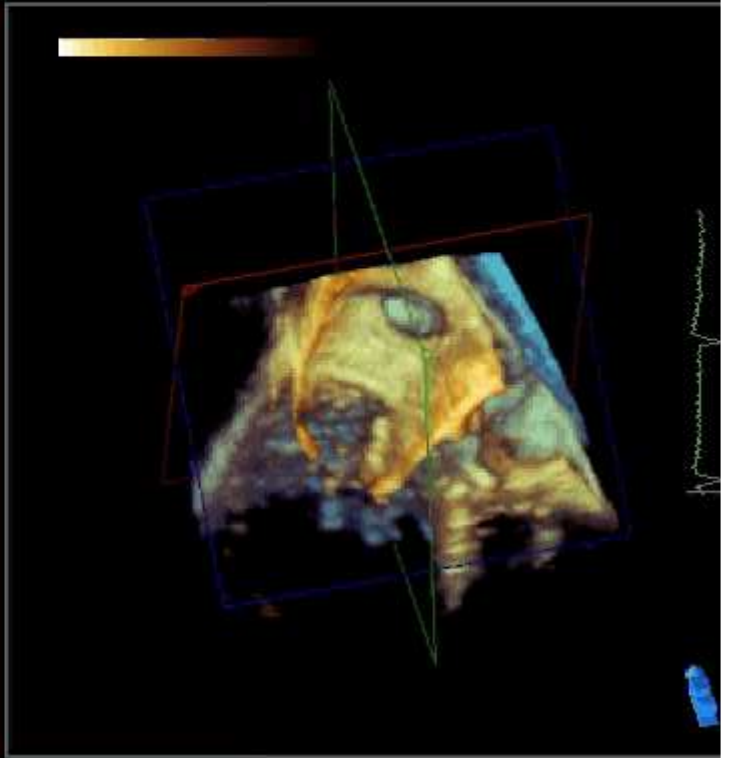
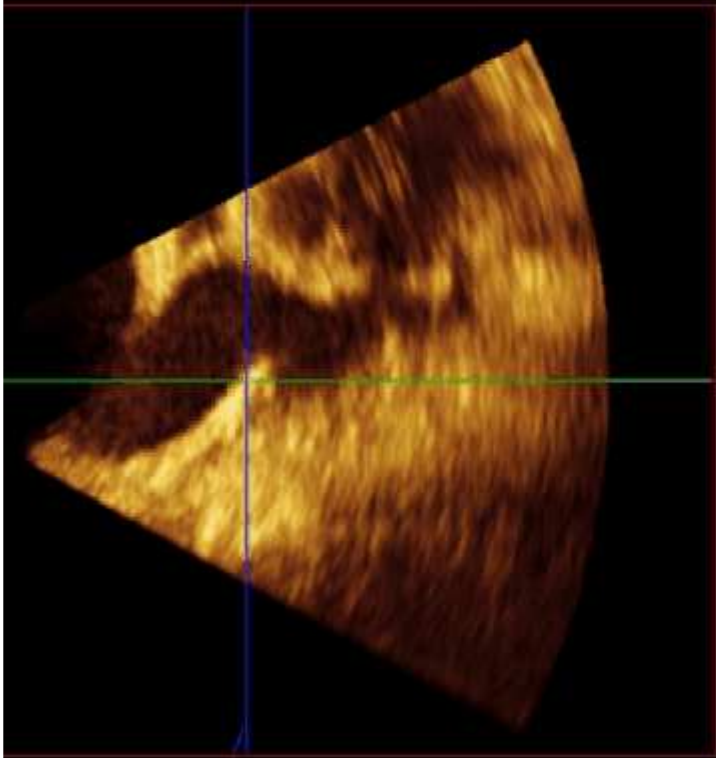
FR 11Hz 0 90 180

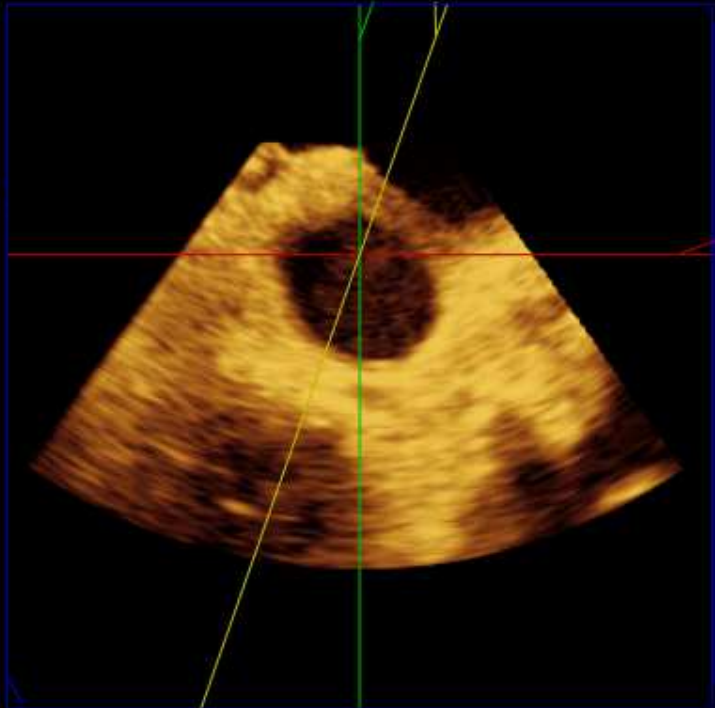
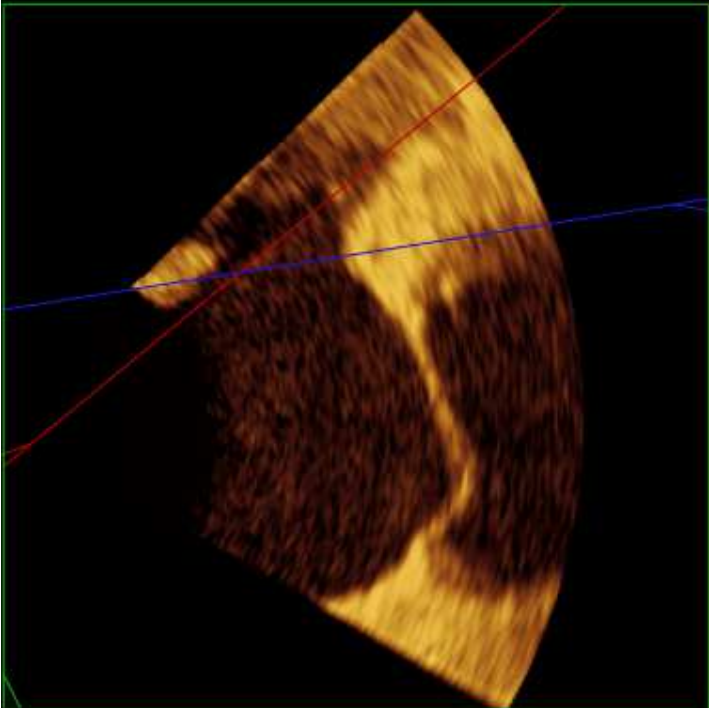
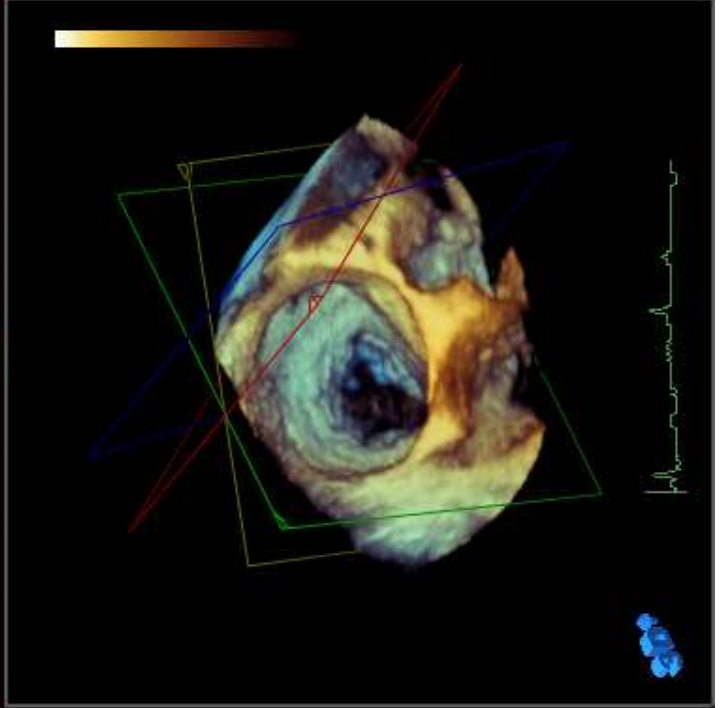
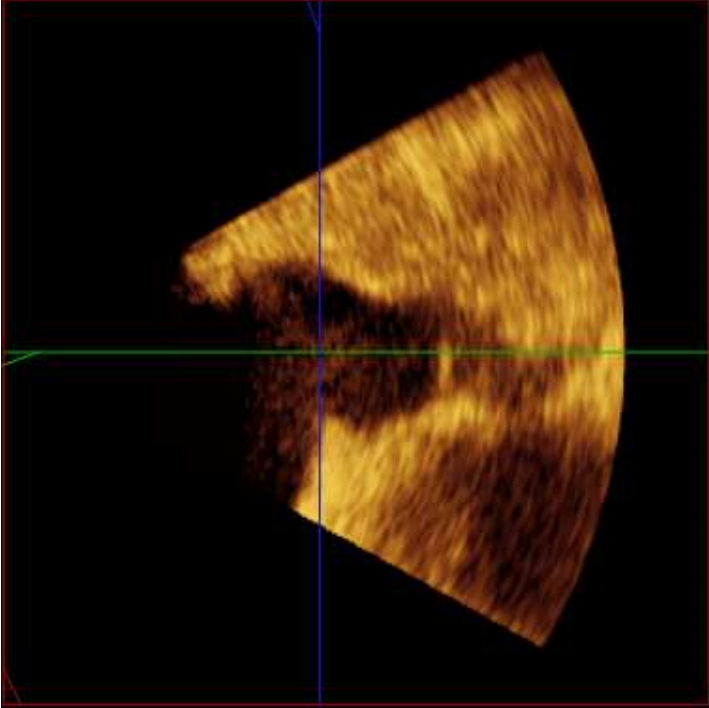


ive 3D
D 47%
D 40dB

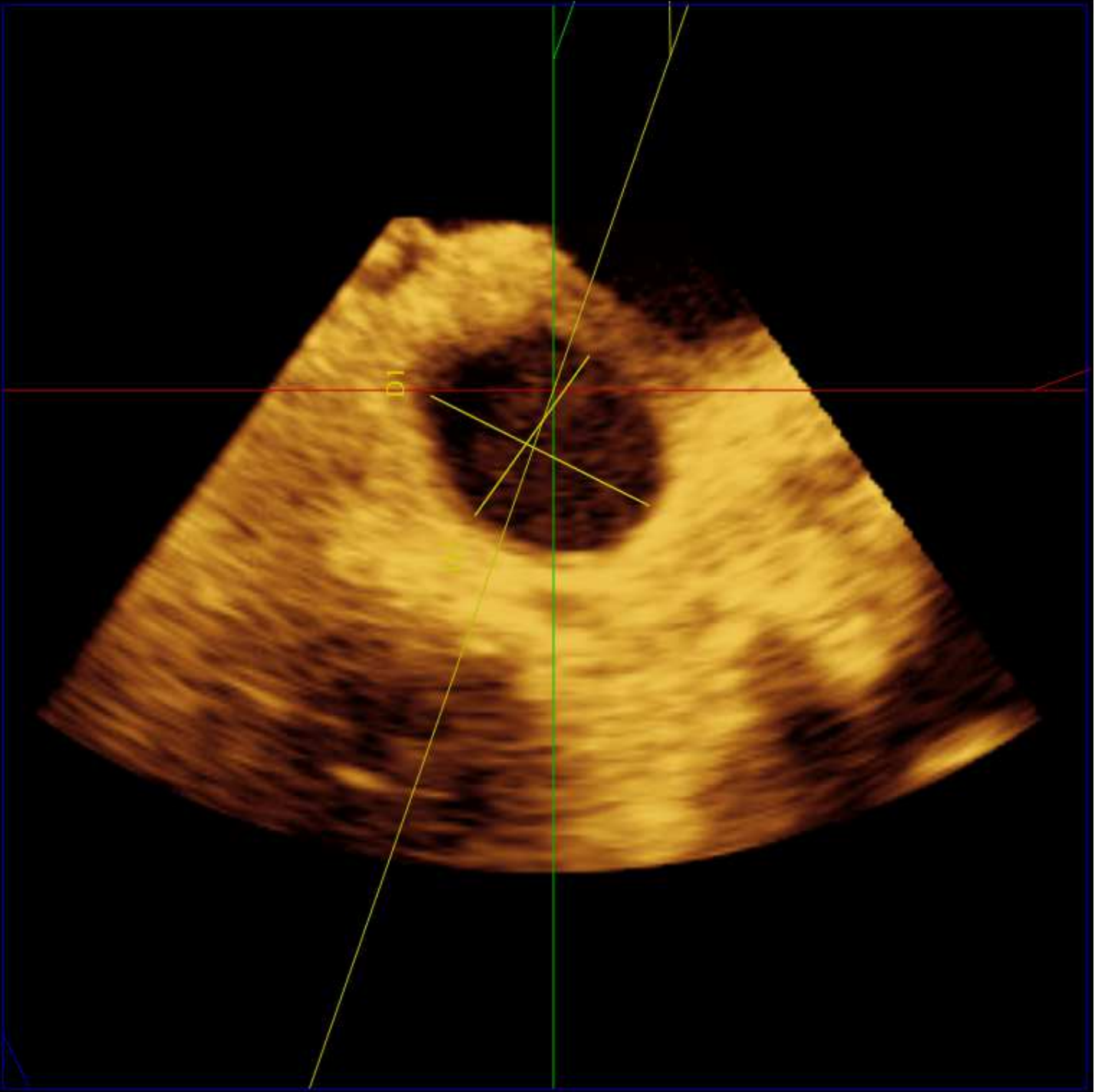


79 bpm





Distanze
I X
D1 = 2.27 cm
I X
D2 = 1.82 cm
I X



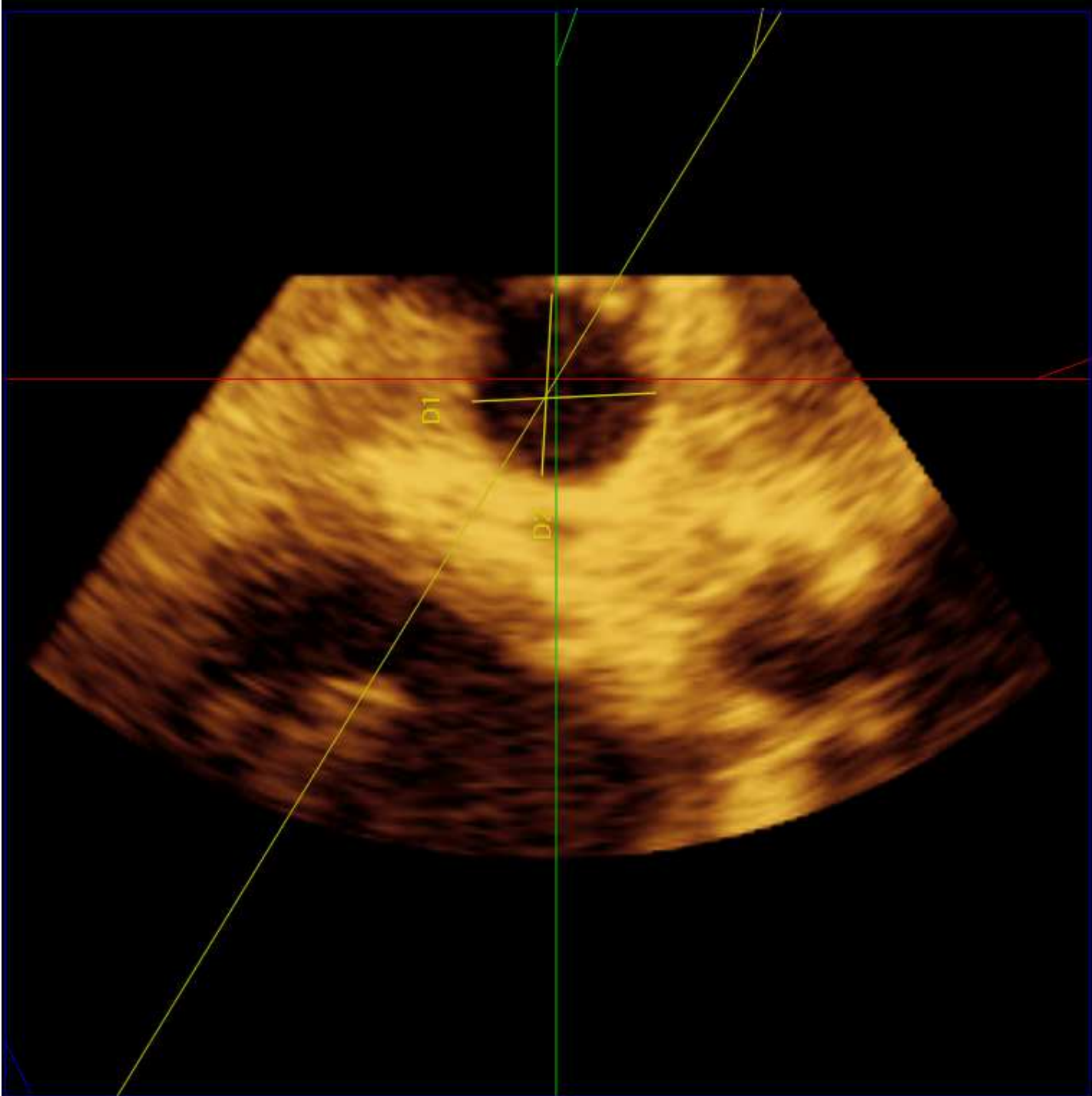
Distanze

D1 = 1.71 cm

I X

D2 = 1.68 cm

I X



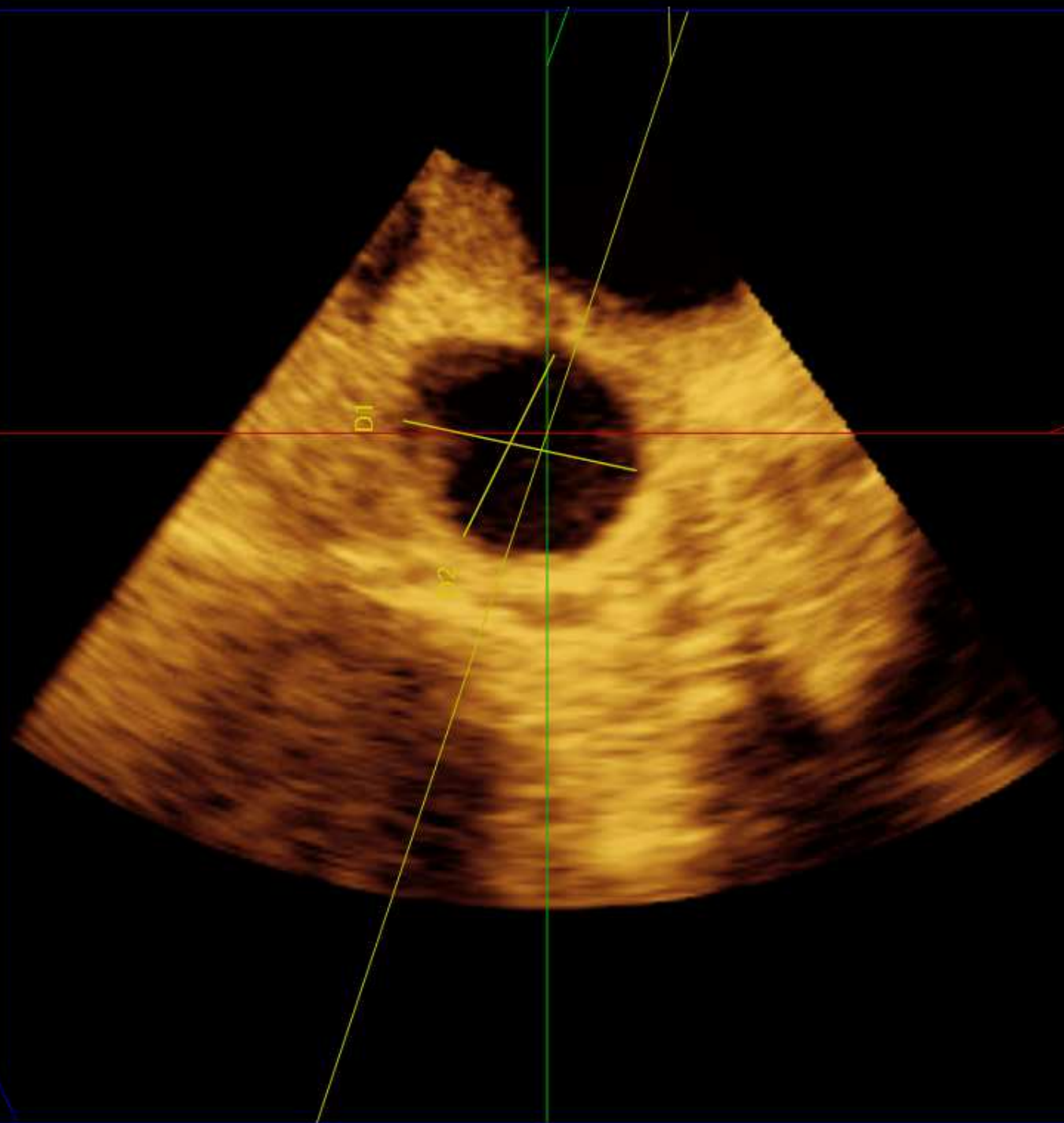
Distanze

D1 = 2.18 cm

D2 = 1.86 cm

I X

I X



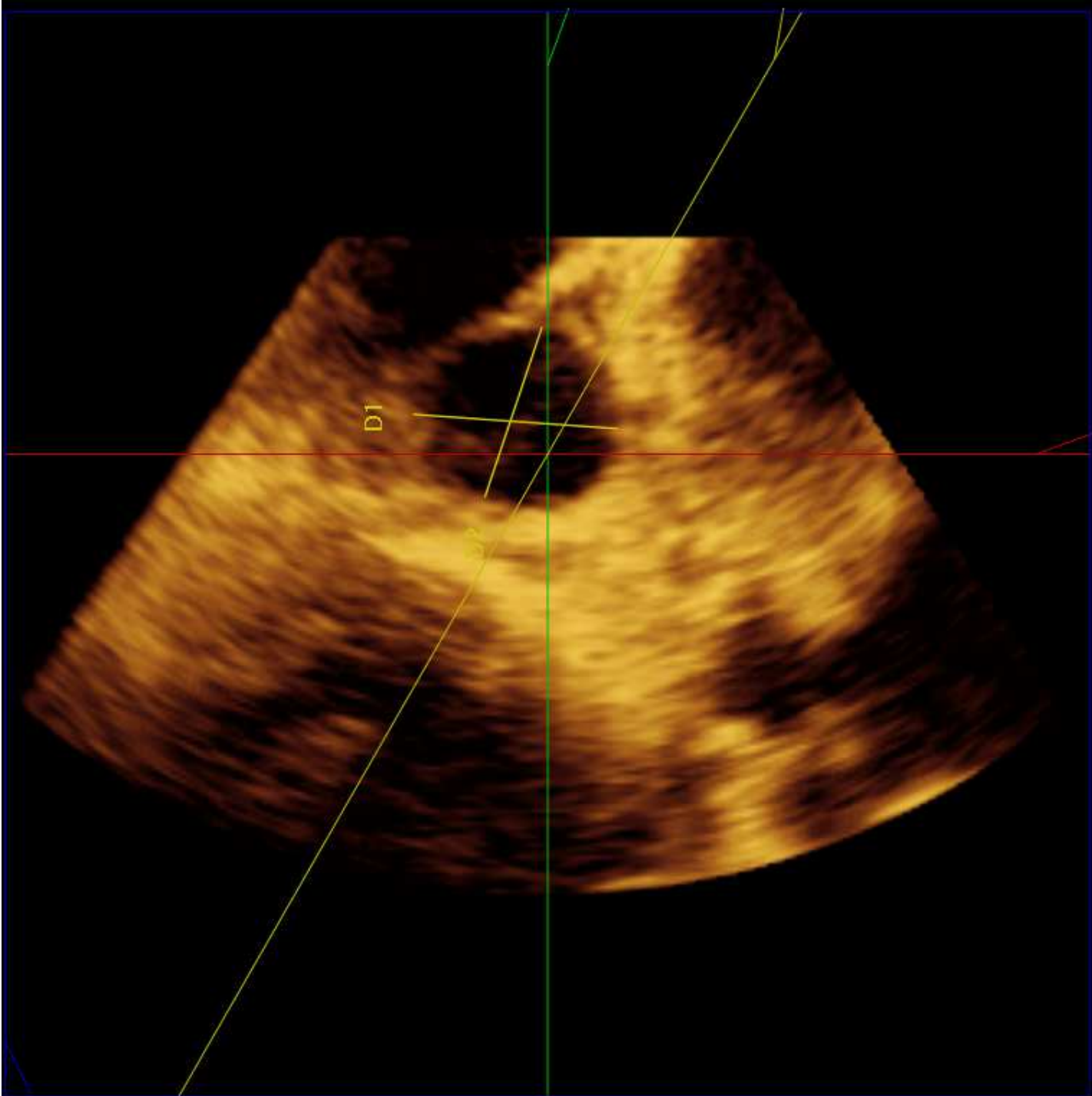
Distanze

D1 = 1.92 cm

I X

D2 = 1.68 cm

I X



Evaluation of the left atrial appendage with real time 3-dimensional transesophageal echocardiography.

Implication for catheter based left atrial appendage closure

G. Nucifora, FF Faletra et al.

Circ Cardiovasc Imaging 2011

- ***Confronto tra transesofageo 2D e transesofageo 3D, utilizzando come gold standard CT 64 slice, nelle misure delle dimensioni dell'auricola***
- ***Transesofageo 2D sottostima la dimensione dell'auricola***
- ***Transesofageo 3D (metodo Q lab) presenta misure sovrapponibili a CT scan***

MONITORAGGIO DELLA PROCEDURA

- **Puntura transettale**
- **Posizione del catetere in auricola sinistra**
- **Controllo delle complicanze procedurali : versamento pericardico, trombosi**
- **Misure delle dimensioni dell'auricola confrontate con le misure angiografiche**
- **Valutazione dell'apertura del plug e suo corretto posizionamento**
- **Apertura del disco esterno**
- **Verifica del mantenimento del corretto posizionamento del device durante la fase di trazione prima del rilascio**
- **Controllo delle complicanze procedurali precoci: versamento pericardico, dislocazione, interferenza con le strutture vicine.**

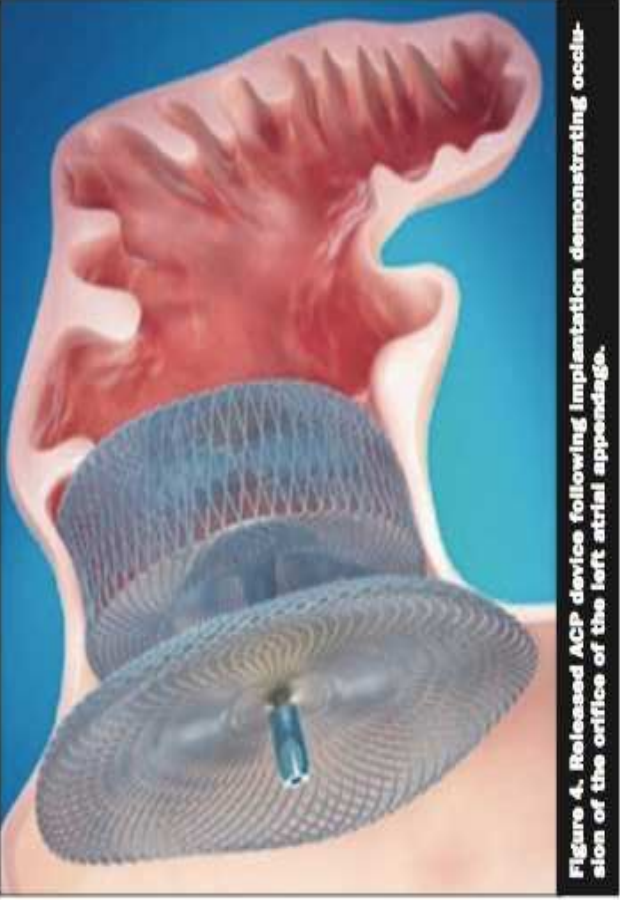
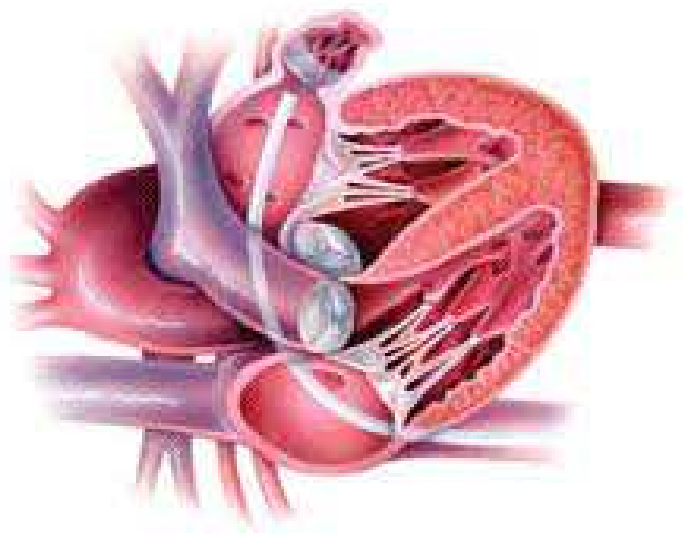


Figure 4. Released ACP device following implantation demonstrating occlusion of the orifice of the left atrial appendage.





1 cm

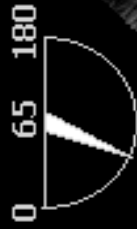
PHILIPS

TEE
X7-2t
44Hz
12cm

2D

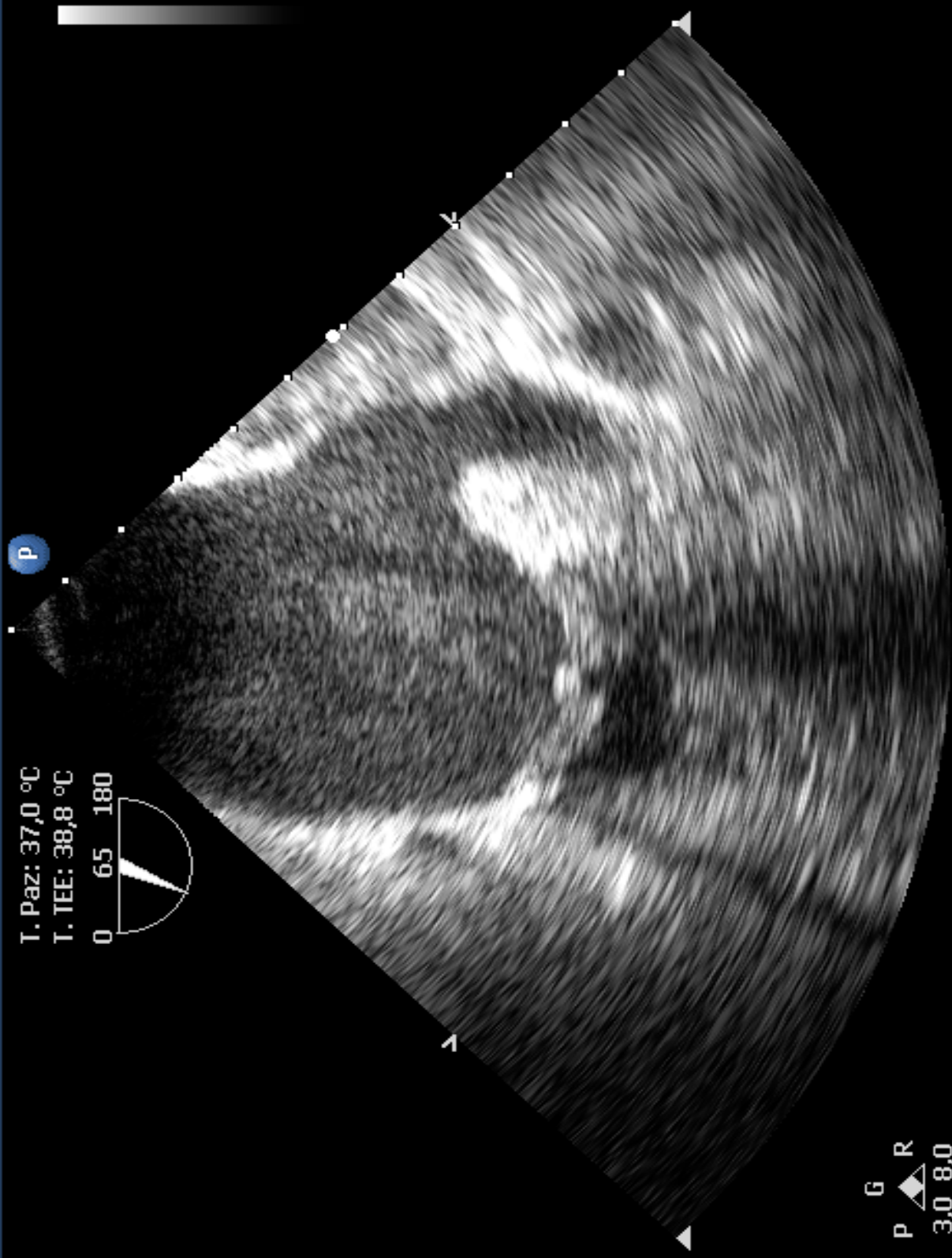
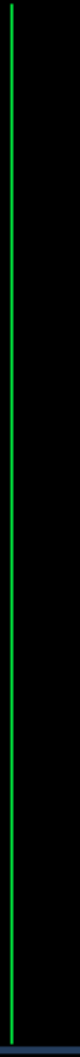
Gen.
Quad. 69
C 50
4/2/0
75 mm/s

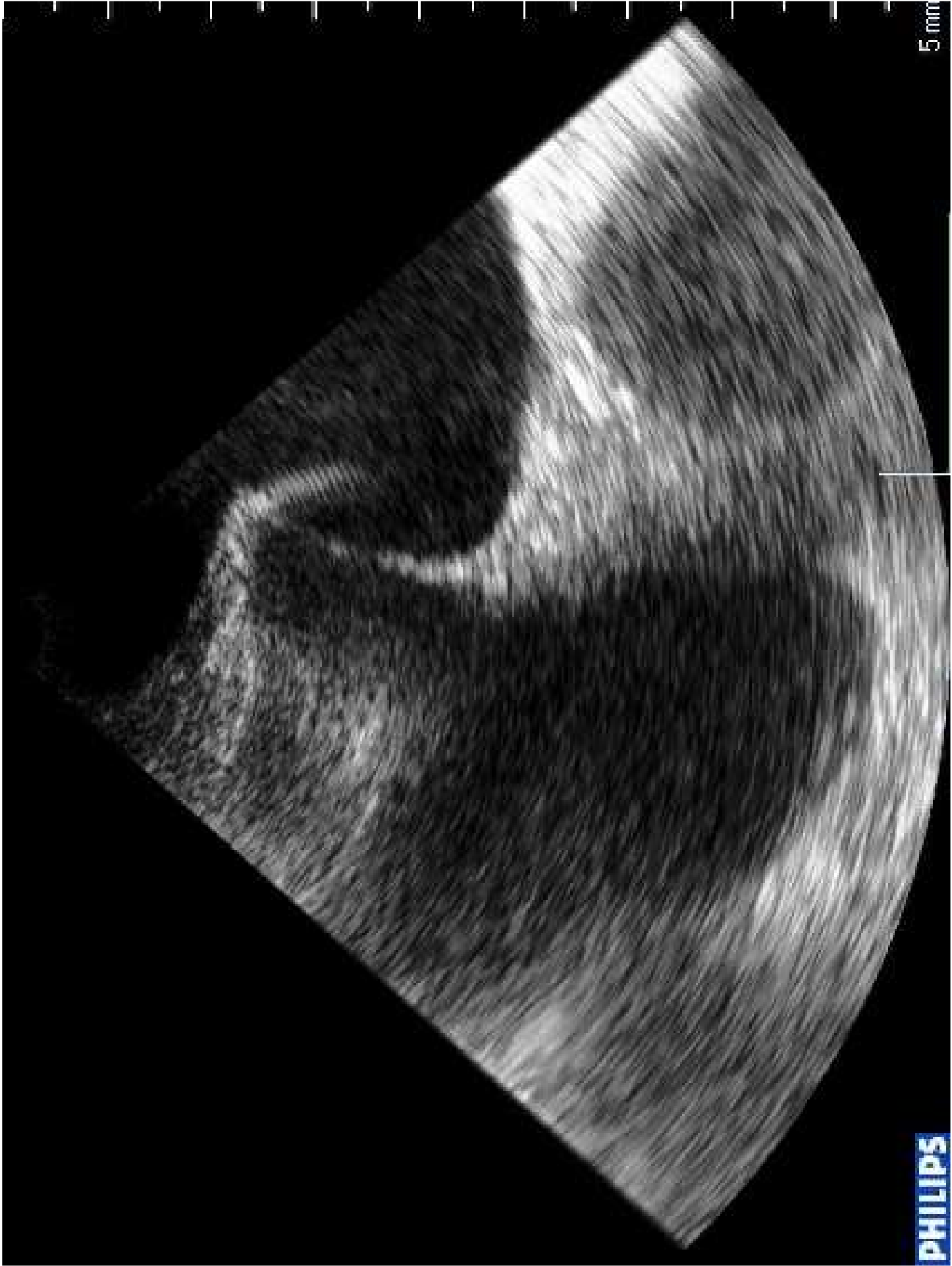
T. Paz: 37,0 °C
T. TEE: 38,8 °C



P

G
P ▲ R
3,0 8,0

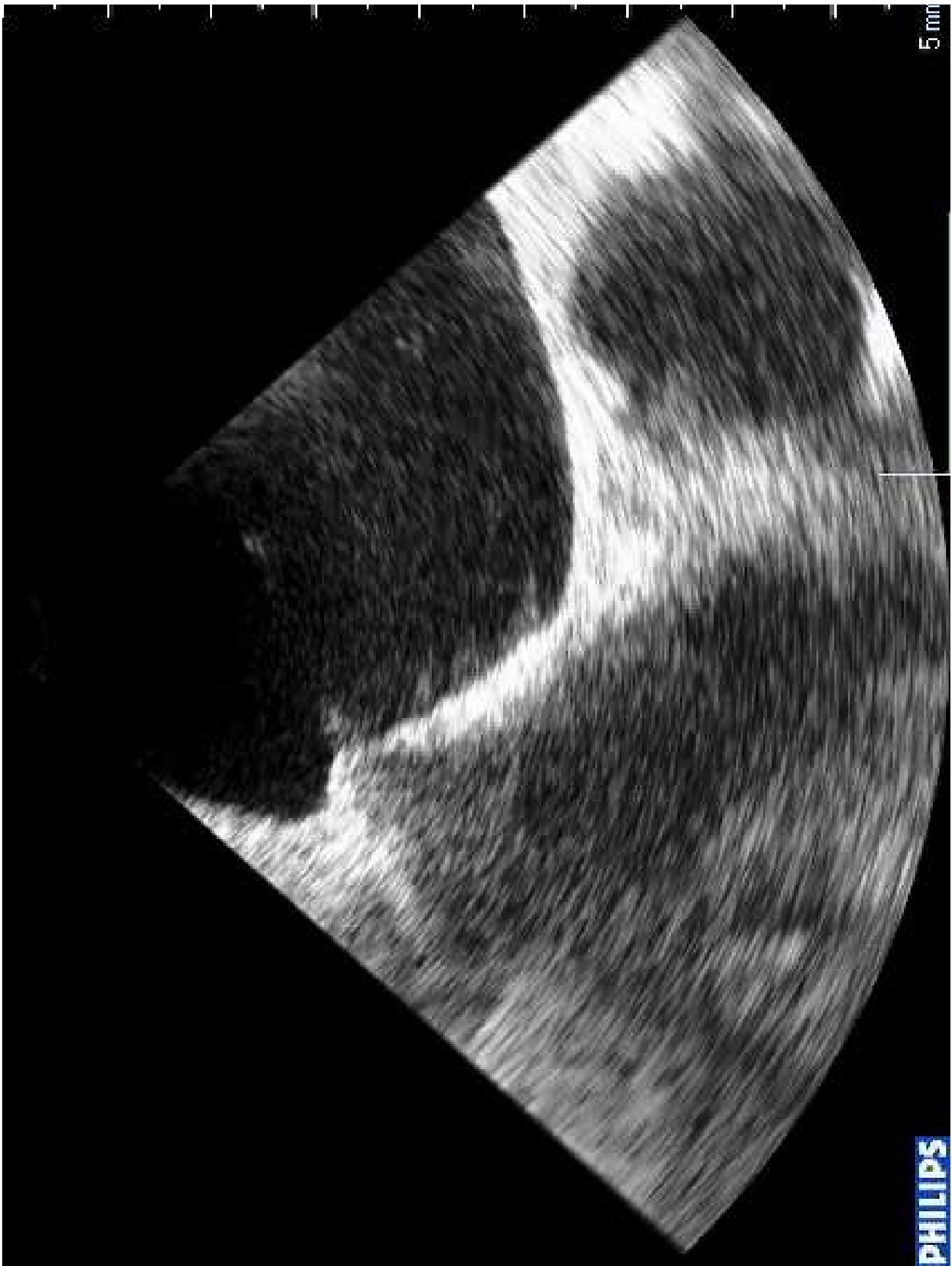




PHILIPS

5 mm

5 mm



PHILIPS



1 cm

PHILIPS

TEE
X7-2t
44Hz
10cm

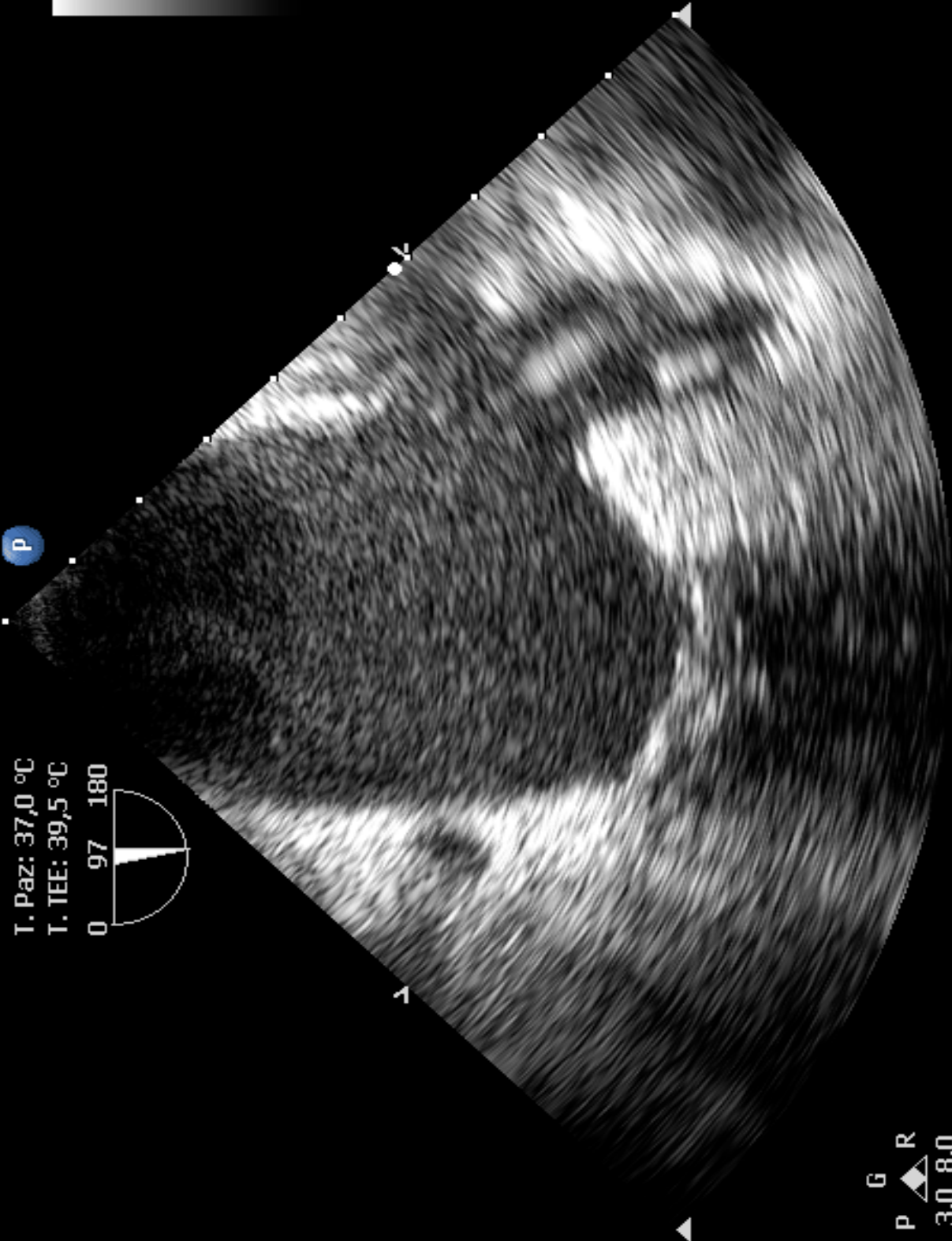
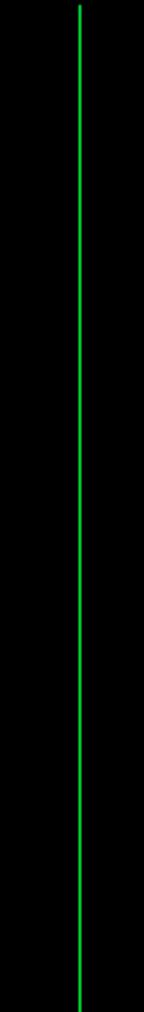
2D
Gen.
Quad. 58
C 50
4/2/0
75 mm/s

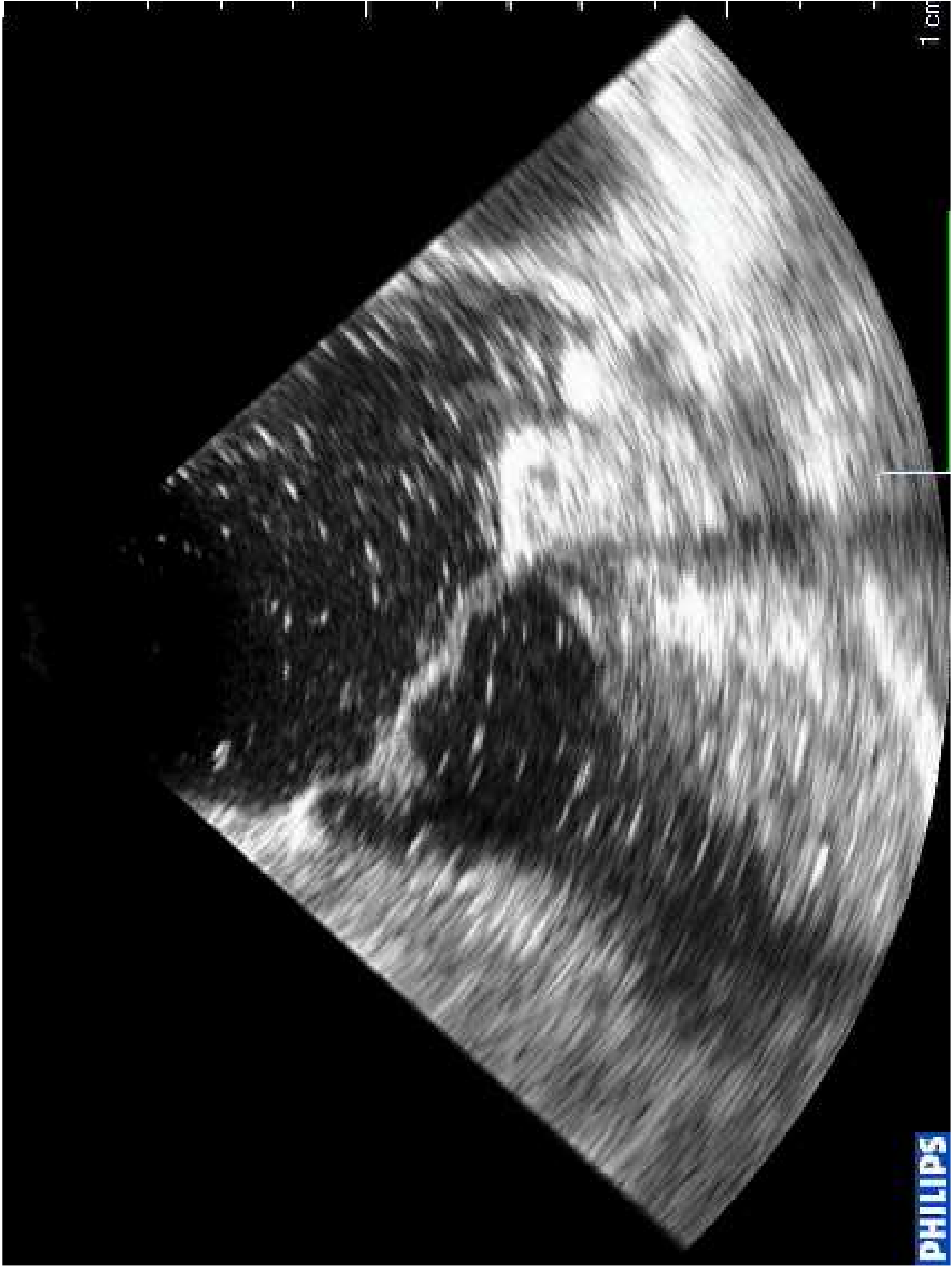
T. Paz: 37,0 °C
T. TEE: 39,5 °C
0 97 180



P

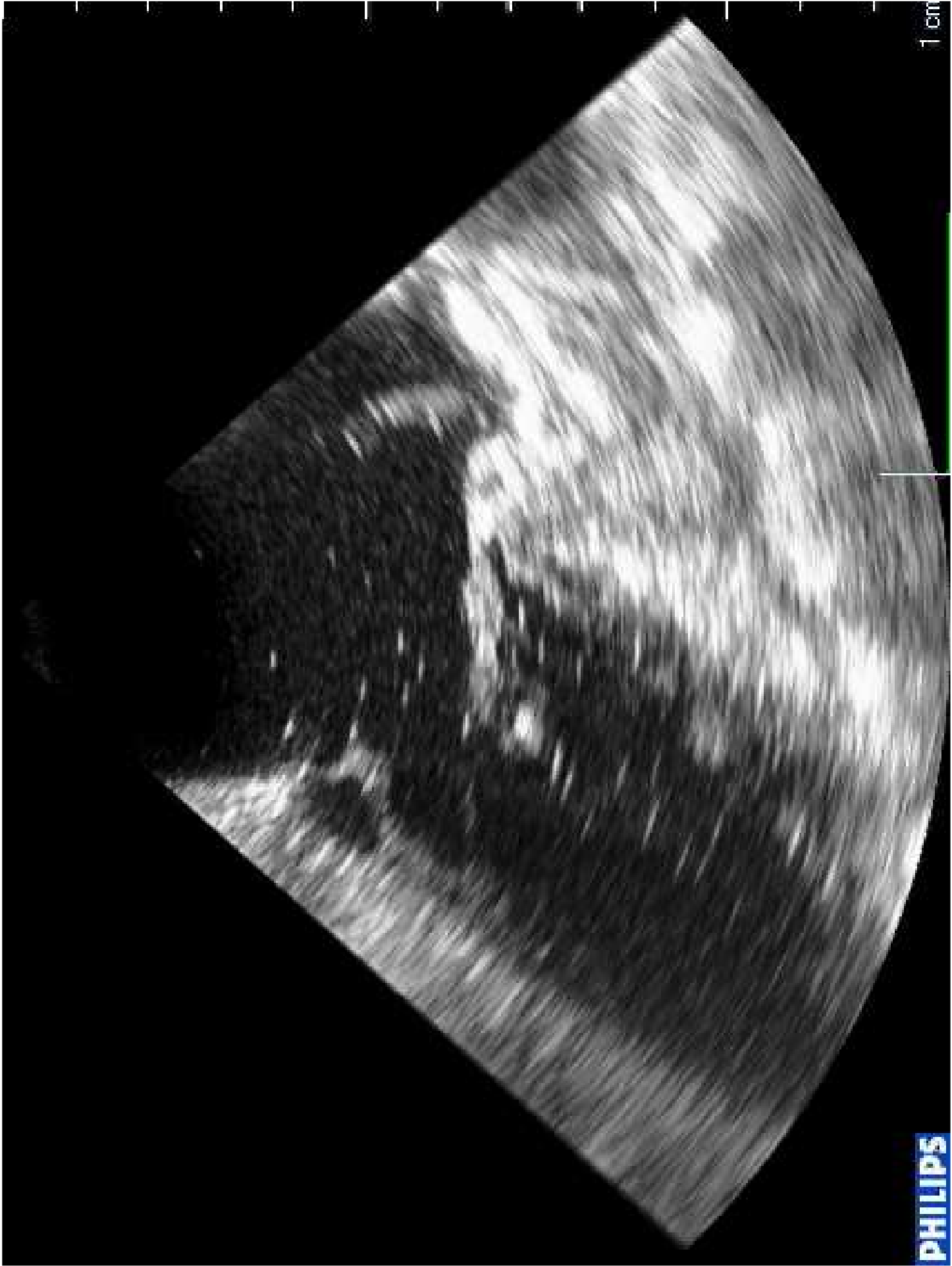
G
P ▲ R
3,0 8,0





PHILIPS

1 cm



1 cm

PHILIPS

TEE
X7-2t
44Hz
10cm

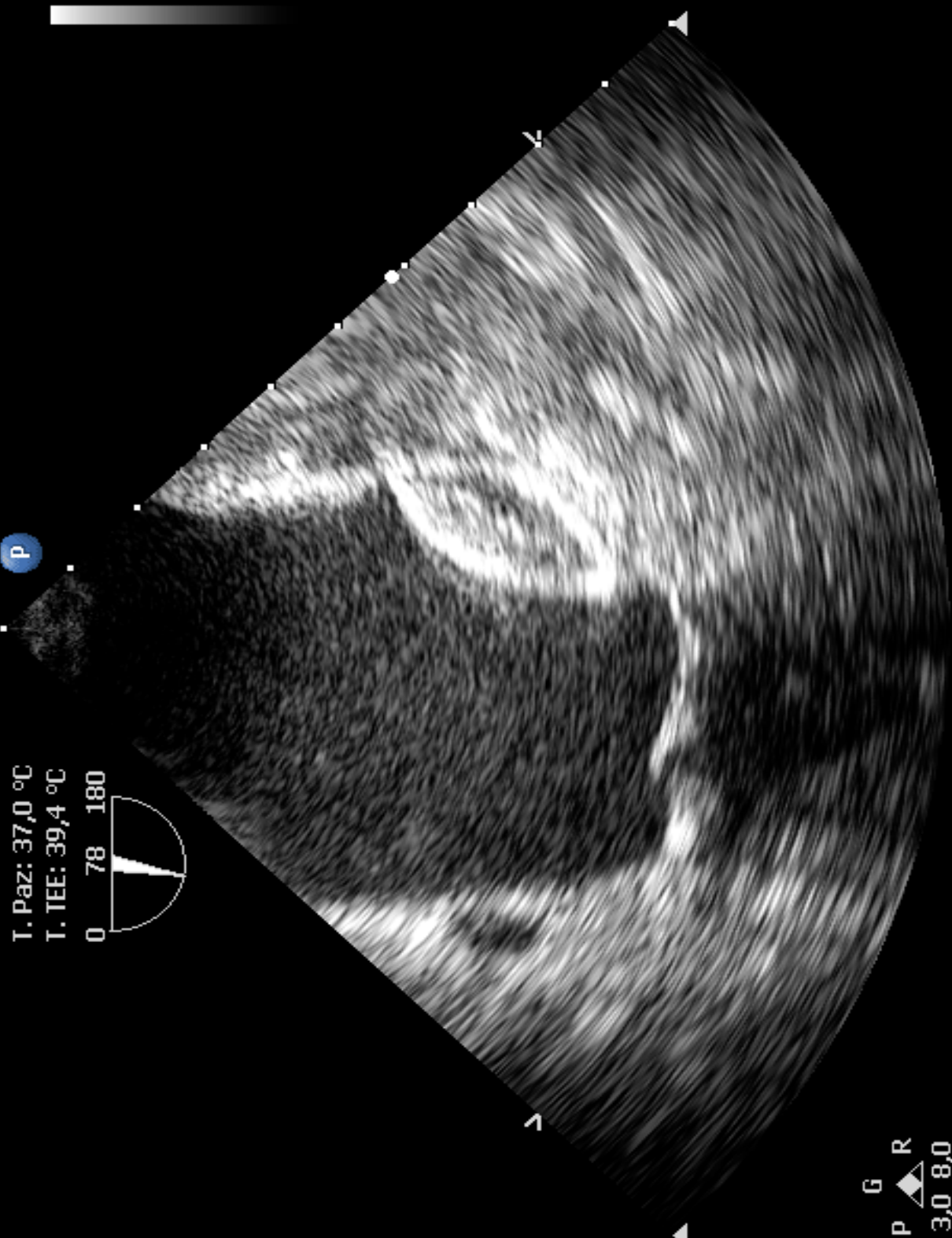
2D

Gen.
Quad. 58
C 50
4/2/0
75 mm/s

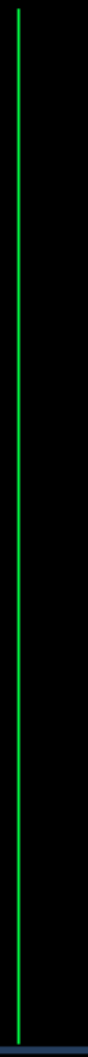
T. Paz: 37,0 °C
T. TEE: 39,4 °C
0 78 180



P



G
P ▲ R
3,0 8,0



TEE
X7-2t
44Hz
10cm

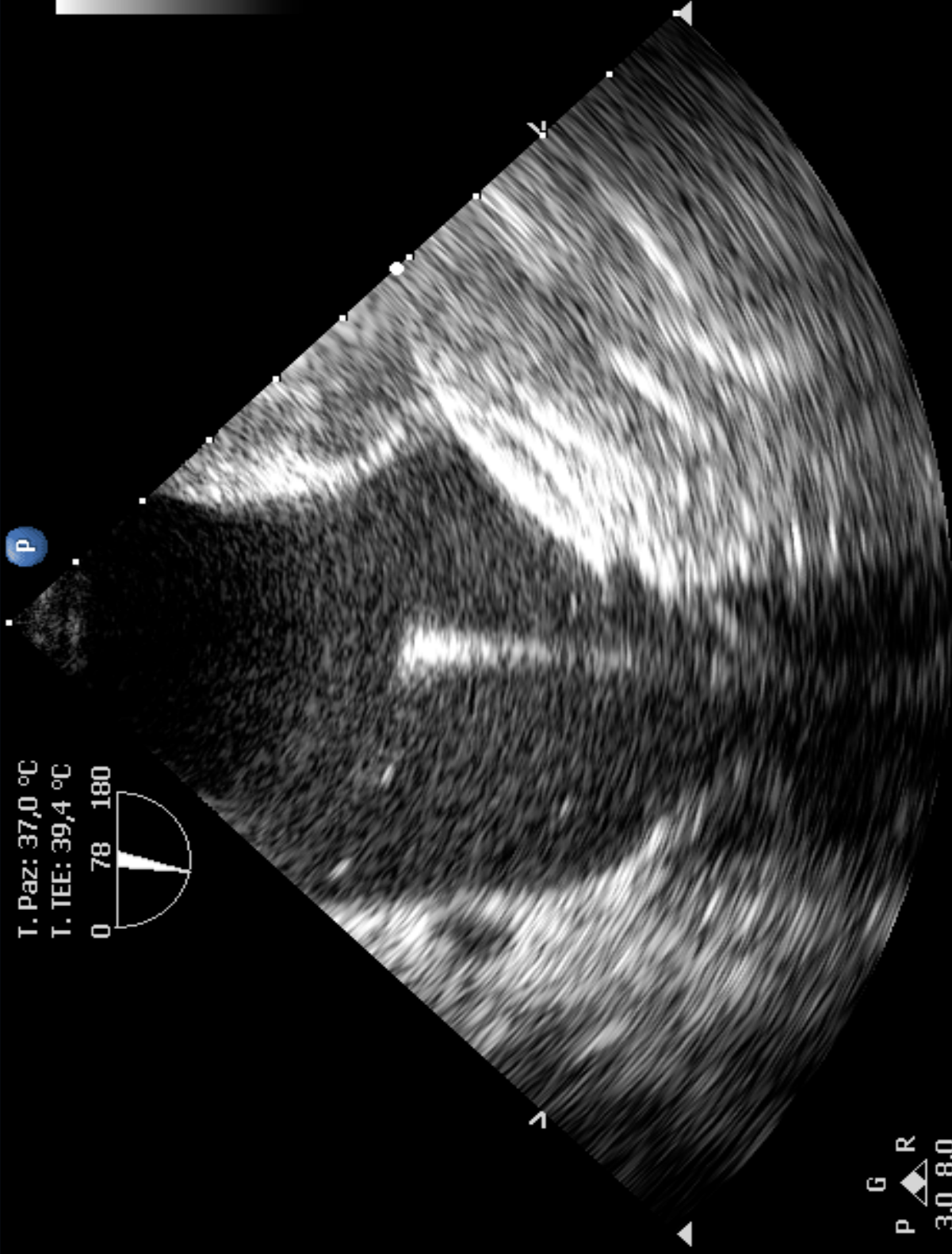
2D

Gen. 58
Quad. 58
C 50
4/2/0
75 mm/s

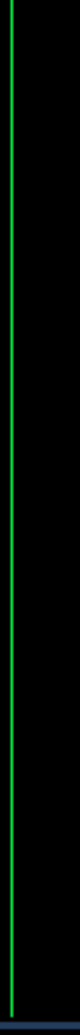
T. Paz: 37,0 °C
T. TEE: 39,4 °C



P



G
P ▲ R
3,0 8,0

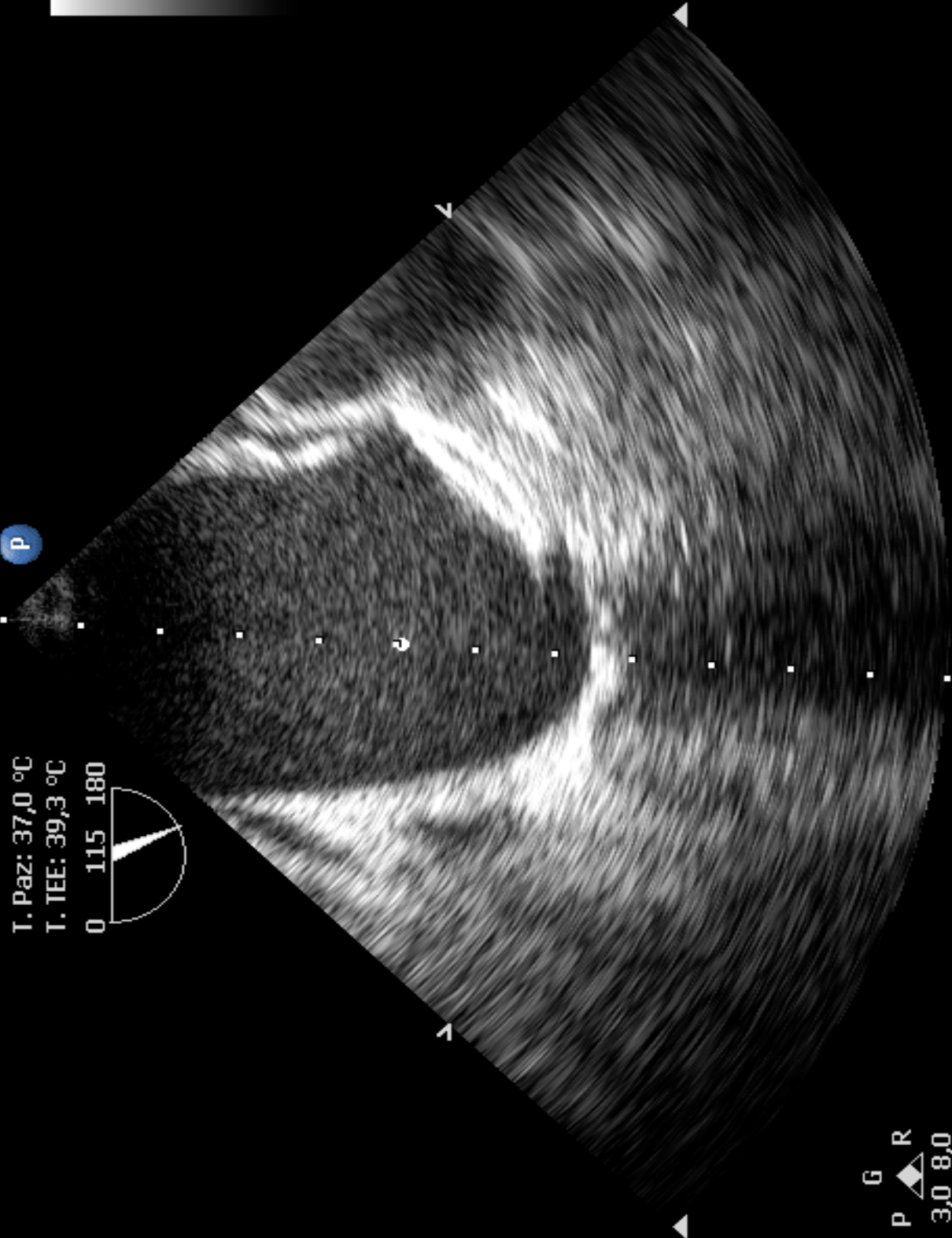


TEE
X7-2t
44Hz
12cm

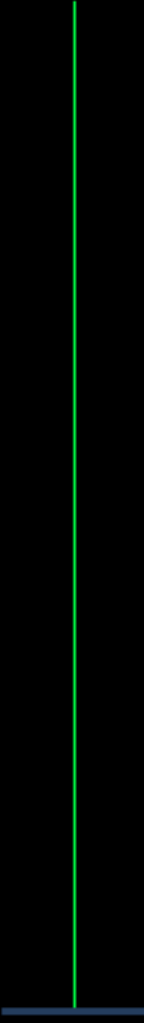
2D

Gen.
Quad. 58
C 50
4/2/0
75 mm/s

T. Paz: 37,0 °C
T. TEE: 39,3 °C
0 115 180



G
P ▲ R
3,0 8,0



AMB.DIP.CARDIOLOGIA

MR 6HZ

5cm

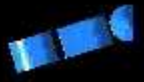
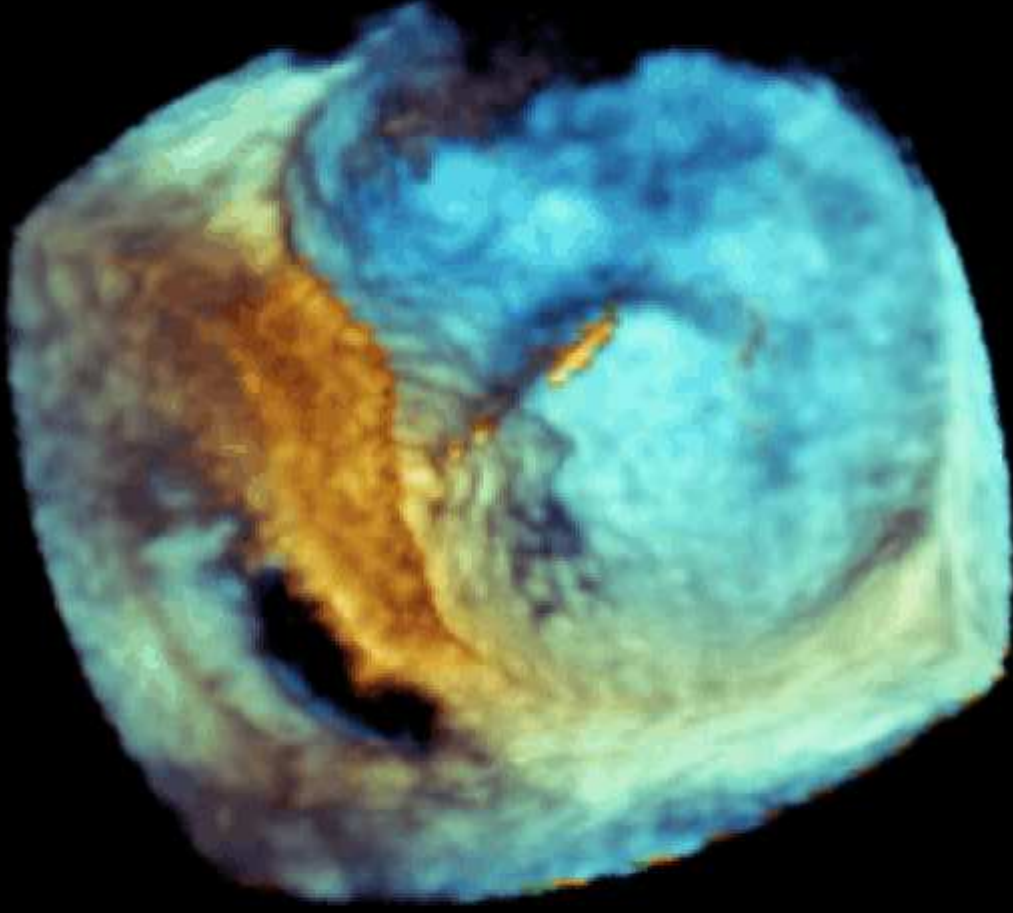
0 90 180



ive 3D

D 22%

D 42dB



V



0 bpm

AMB.DIP.CARDIOLOGIA

MR 6HZ

5cm

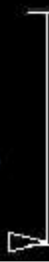
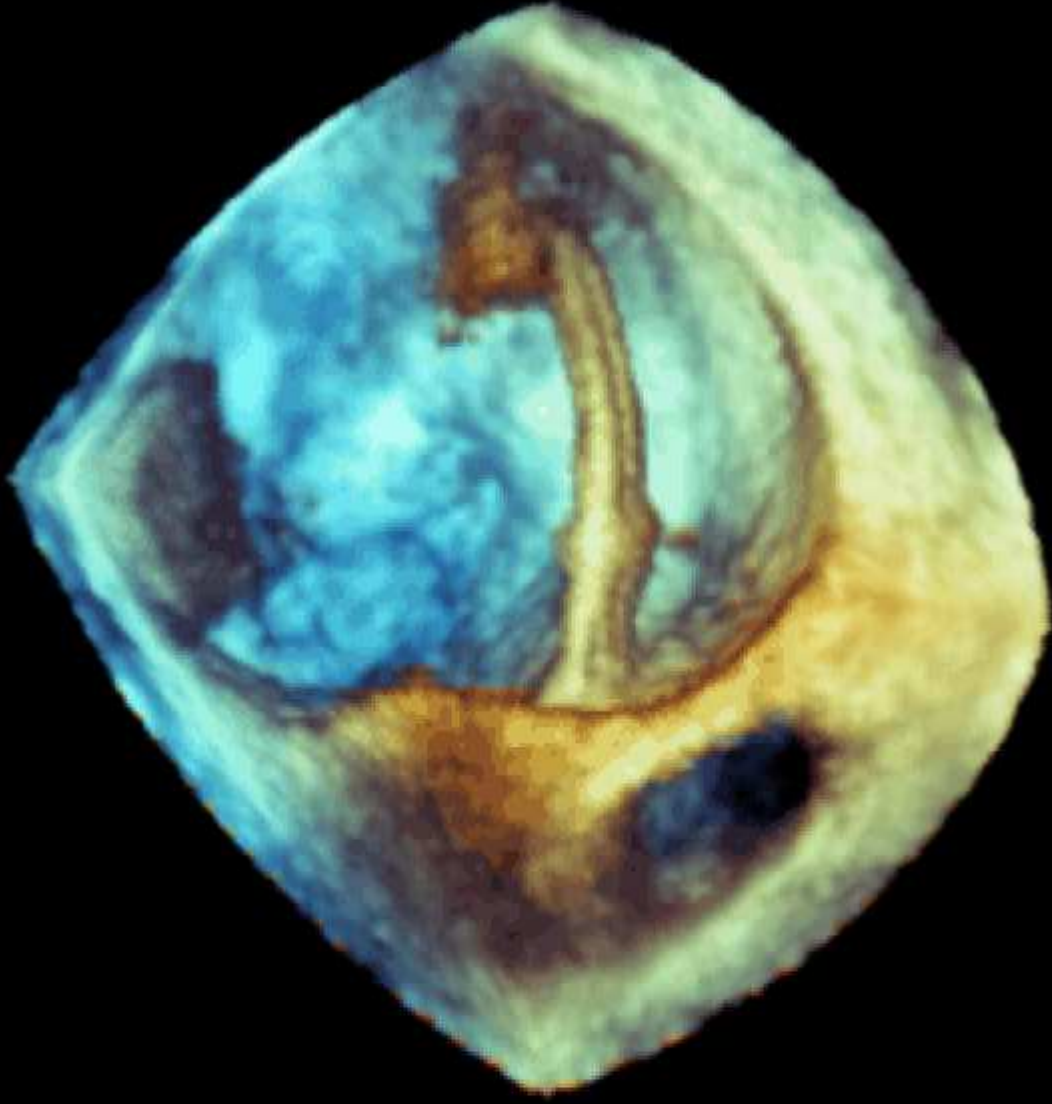
0 50 180



ive 3D

D 28%

D 39dB



0 bpm

AMB.DIP.CARDIOLOGIA

FR 4Hz 0 95 180

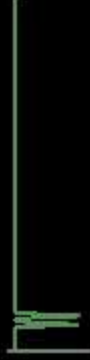
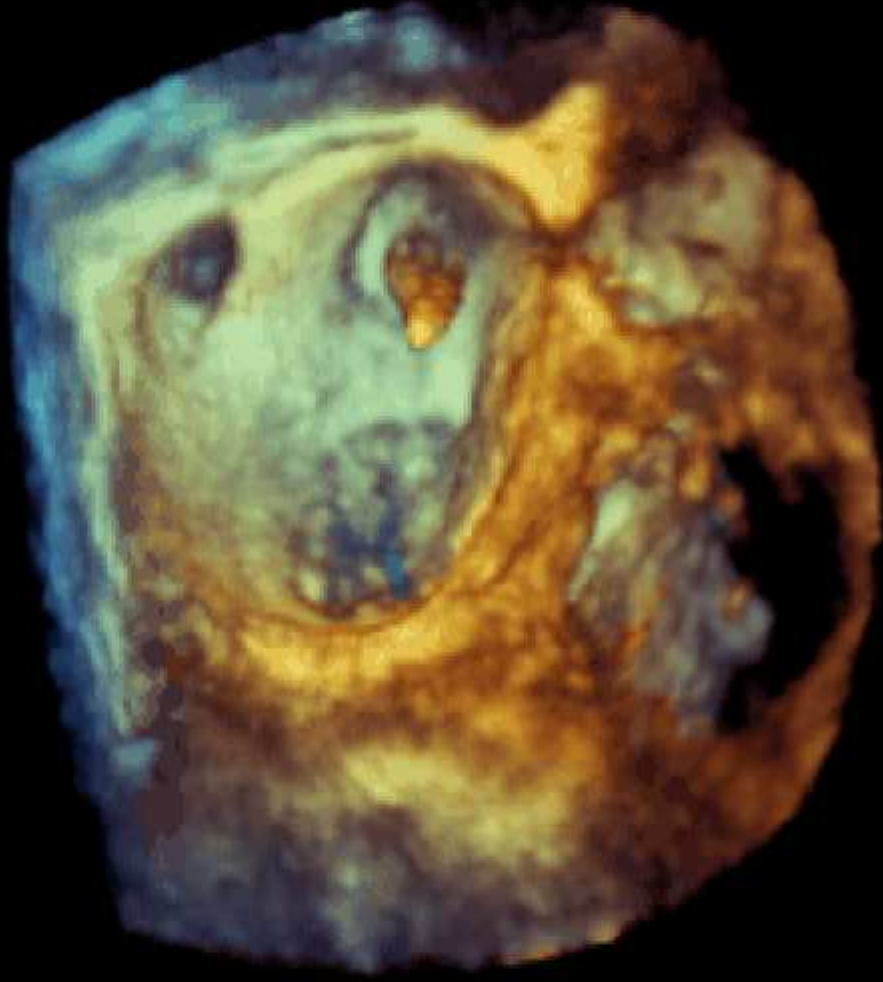


3cm

ive 3D

D 6%

D 50dB



0 bpm

AMB.DIP.CARDIOLOGIA

VR 5Hz

5cm

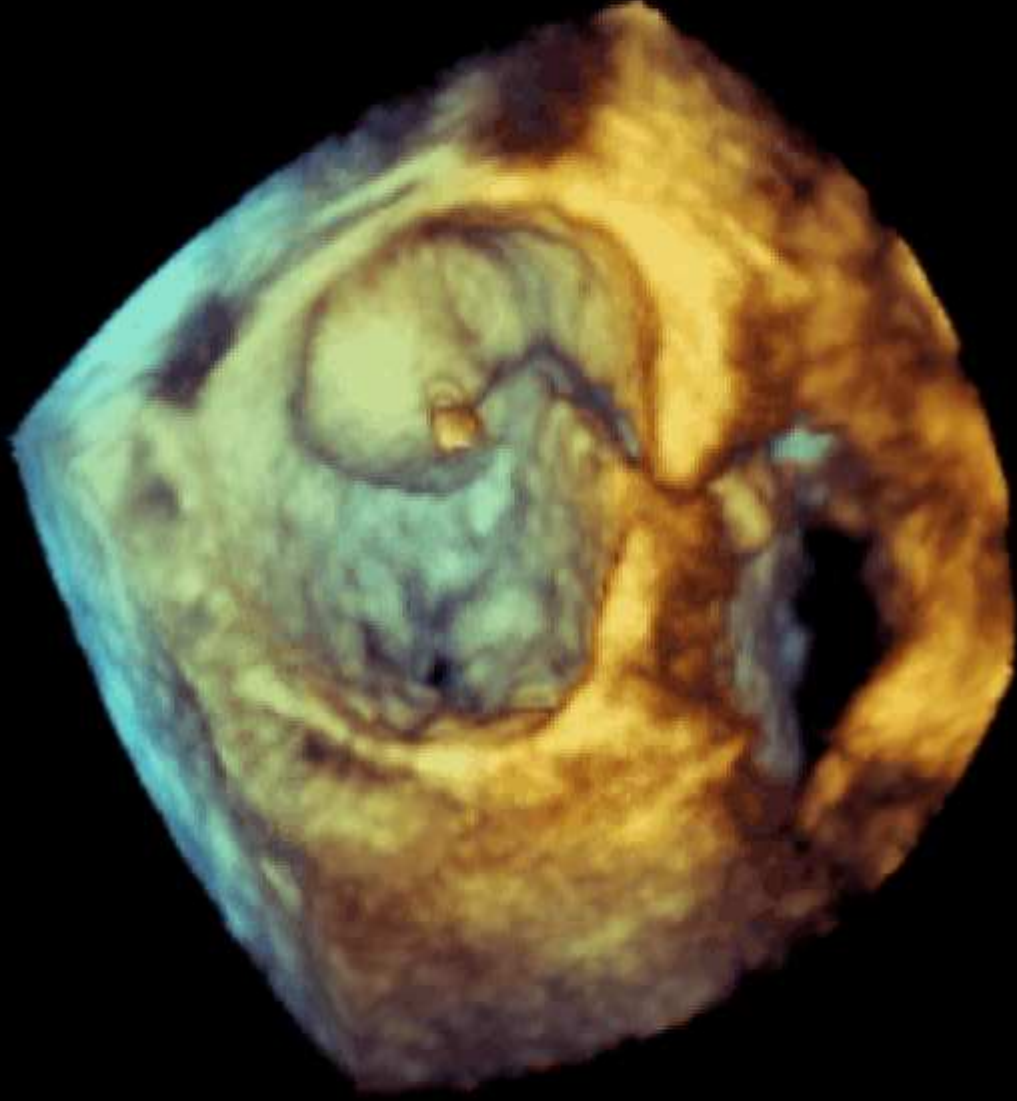
0 80 180



ive 3D

D 5%

D 50dB



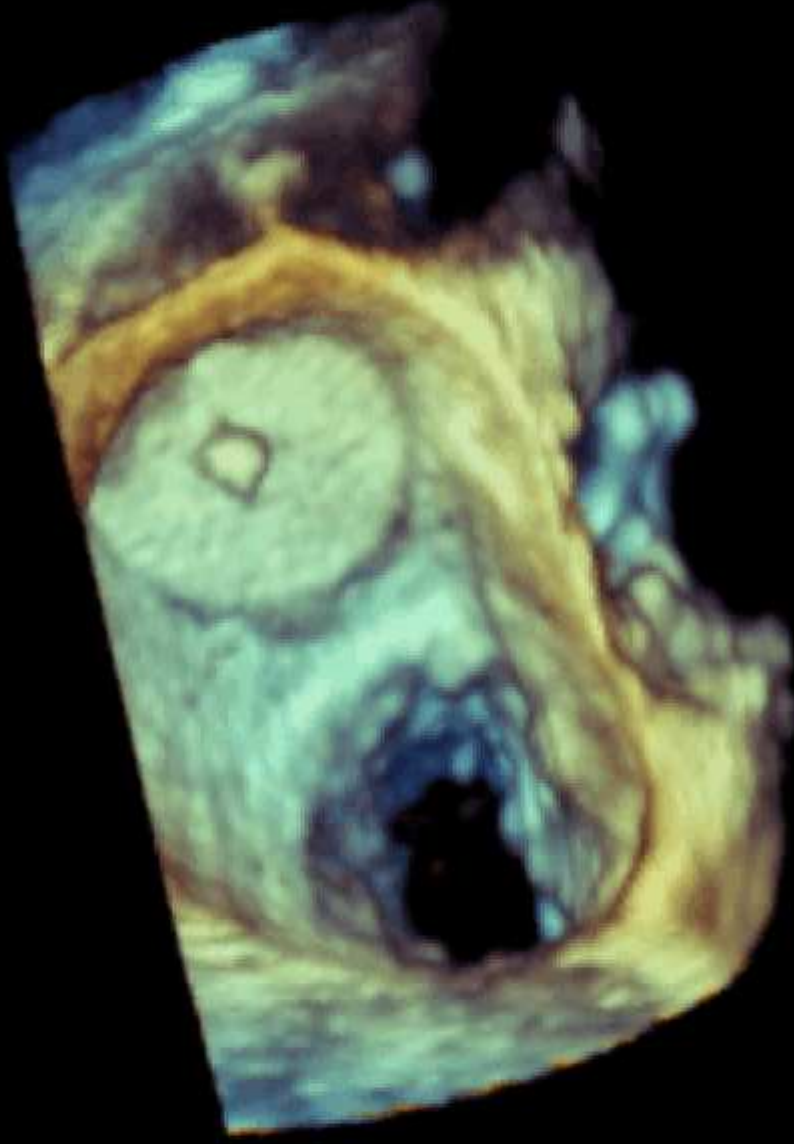
0 bpm

AMB.DIP.CARDIOLOGIA

FR 11Hz 0 90 180



ive 3D
D 40%
D 40dB



91 bpm

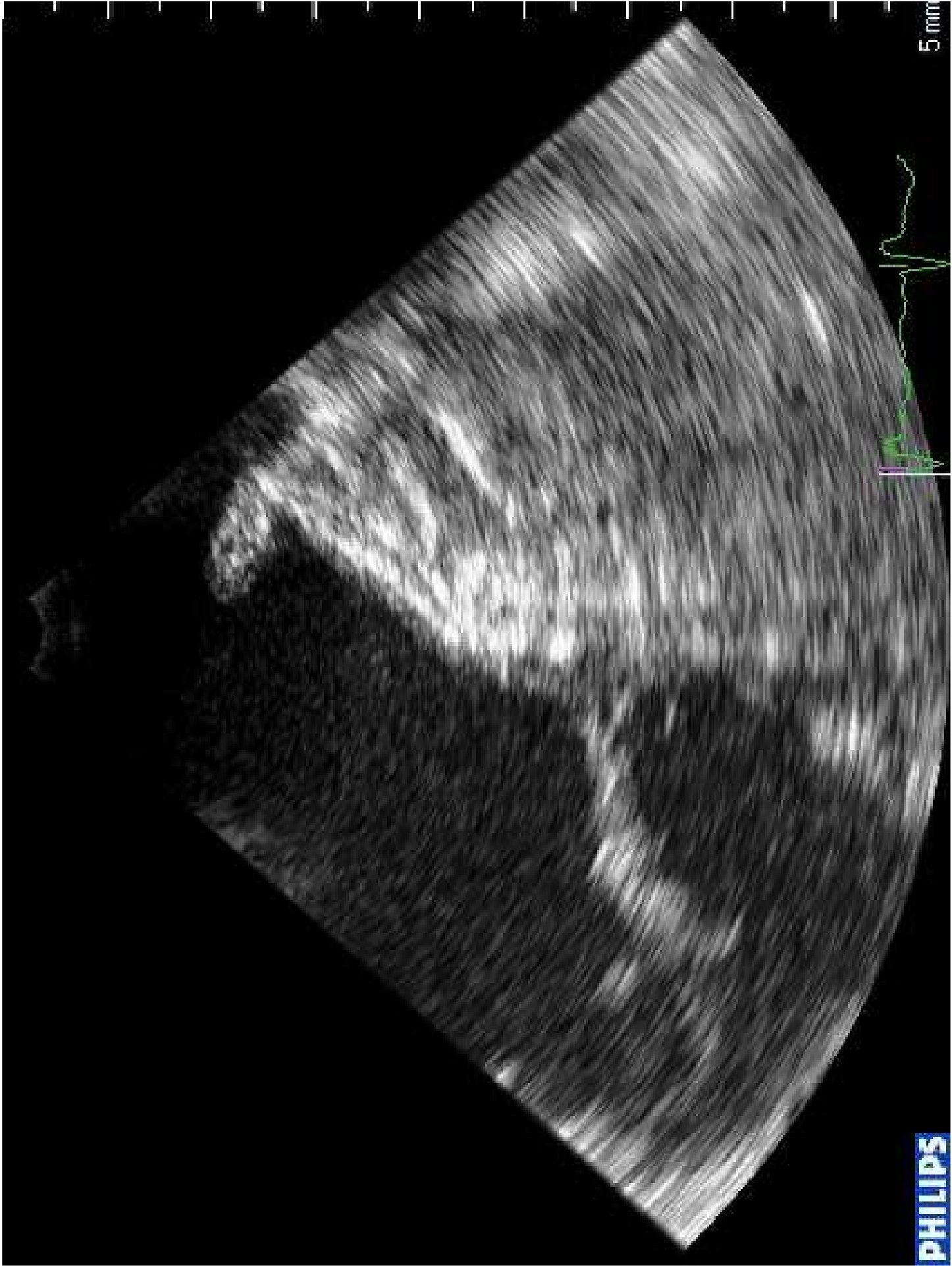
FOLLOW-UP ECOCARDIOGRAFICO

ECOCARDIO TT

Controllo predimissione ed a 15 giorni

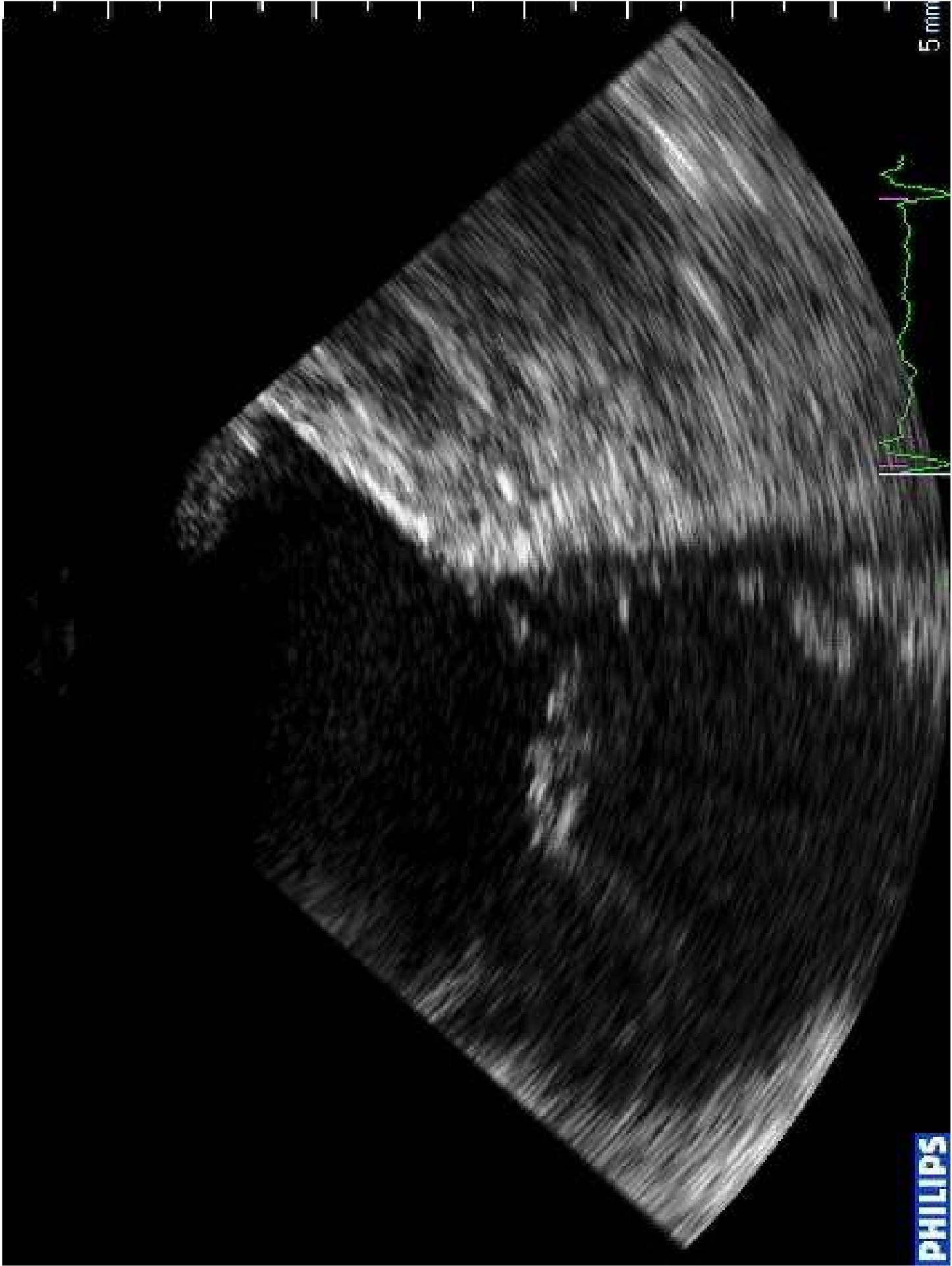
ECOCARDIO TE

- **Controllo ad 1 mese, 6 mesi, un anno**
Percorso stabilito nello studio PROTECT AF
- **VERSAMENTO PERICARDICO**
- **TROMBOSI DEL DEVICE**
- **EMBOLIZZAZIONE DEL DEVICE O MALPOSIZIONAMENTO**
- **LEAK**

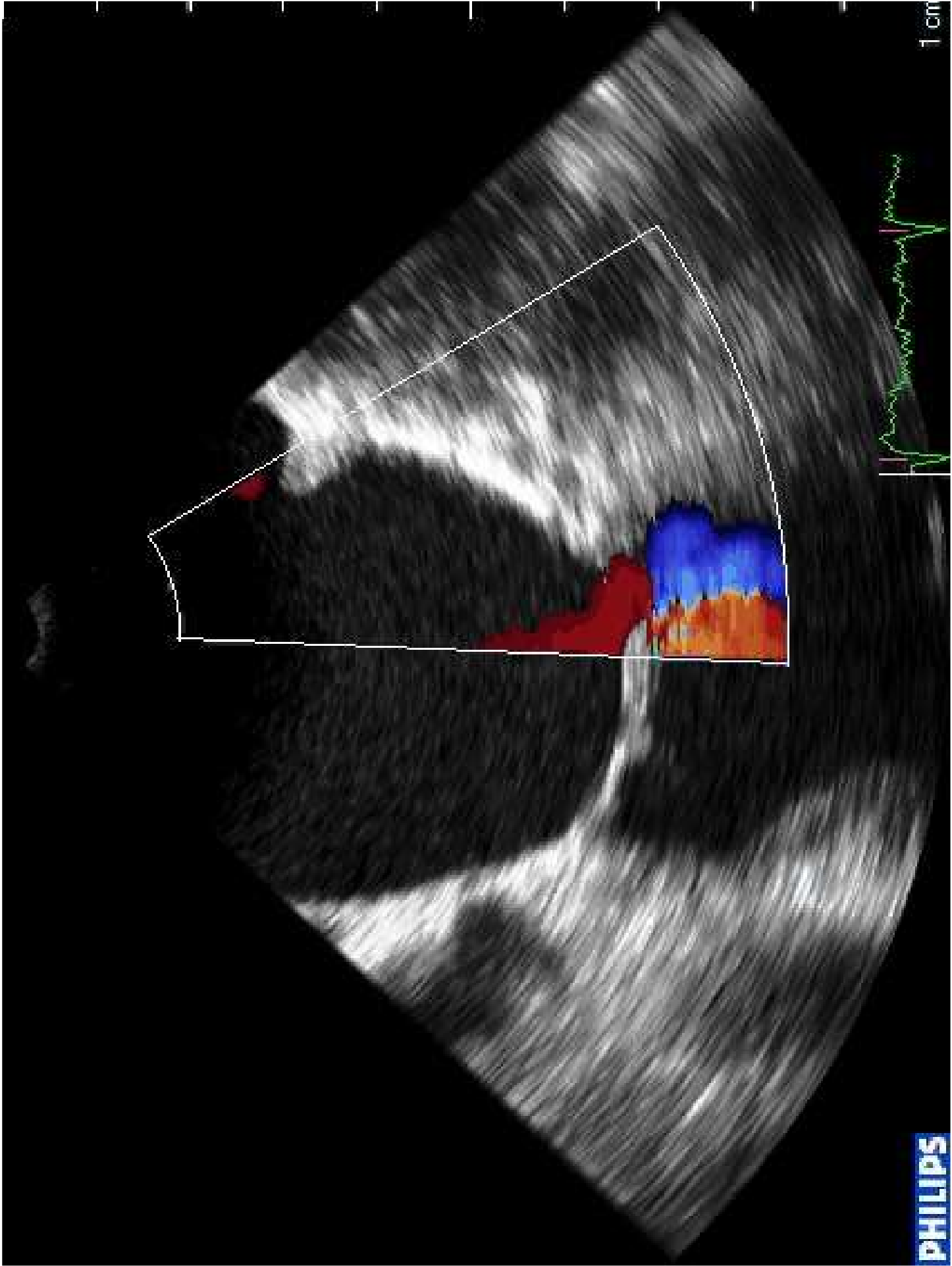


PHILIPS

5 mm



PHILIPS

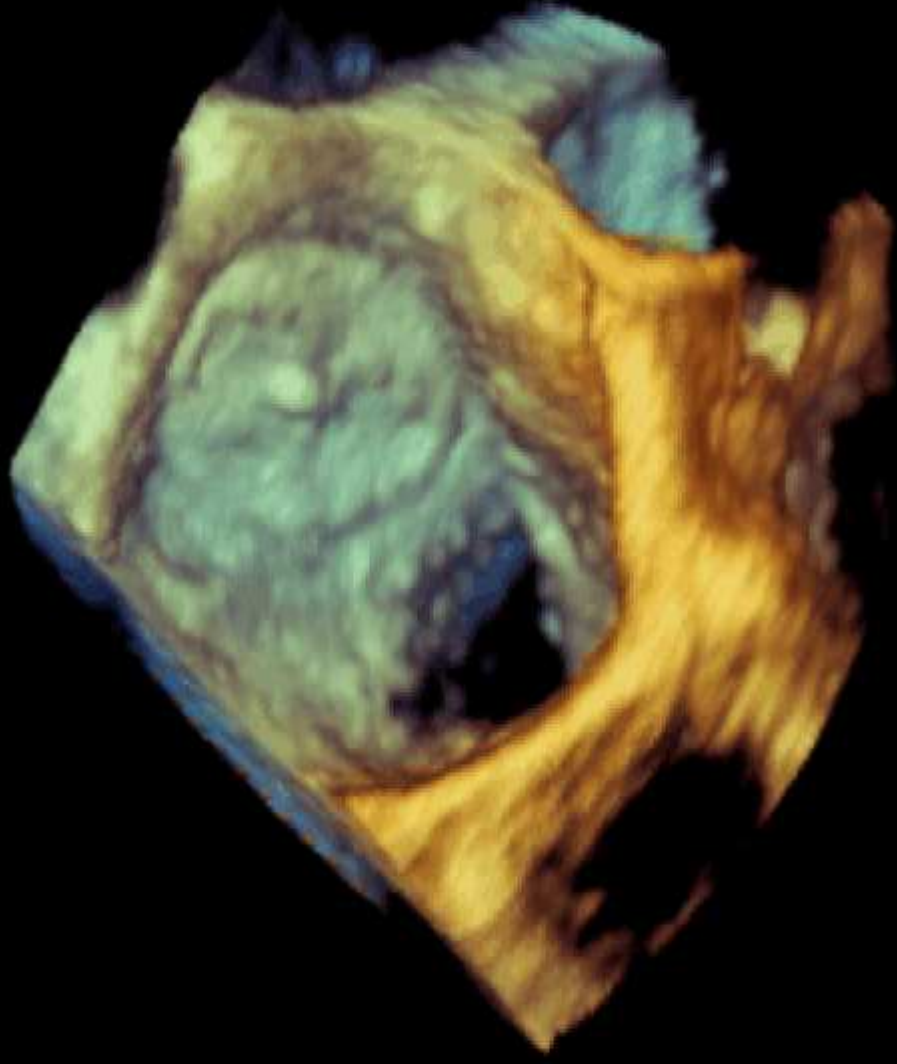


AMB.DIP.CARDIOLOGIA

FR 12Hz 0 70 180



ive 3D
D 18%
D 40dB



65 bpm

