

# Lessons learned



“Old dog - new tricks”

Rhodri M Evans

# Updates : lessons


ed

- Parathyroid imaging
- Tattooing
- Alcohol
- Ethanol ablation - nodal metastases

# Parathyroid

- Large adenomas (>1cm) Grey scale : 100%
- Small adenomas (>1cm) Grey scale : 11%
- Small adenomas : combined with colour, power Doppler & graded compression : 89%

Sonography in primary hyperparathyroidism; review with emphasis scanning technique .S Reeder, T Desser, R Weigel, R B Jeffrey .J  
Ultrasound medicine 21:539 -552.2002

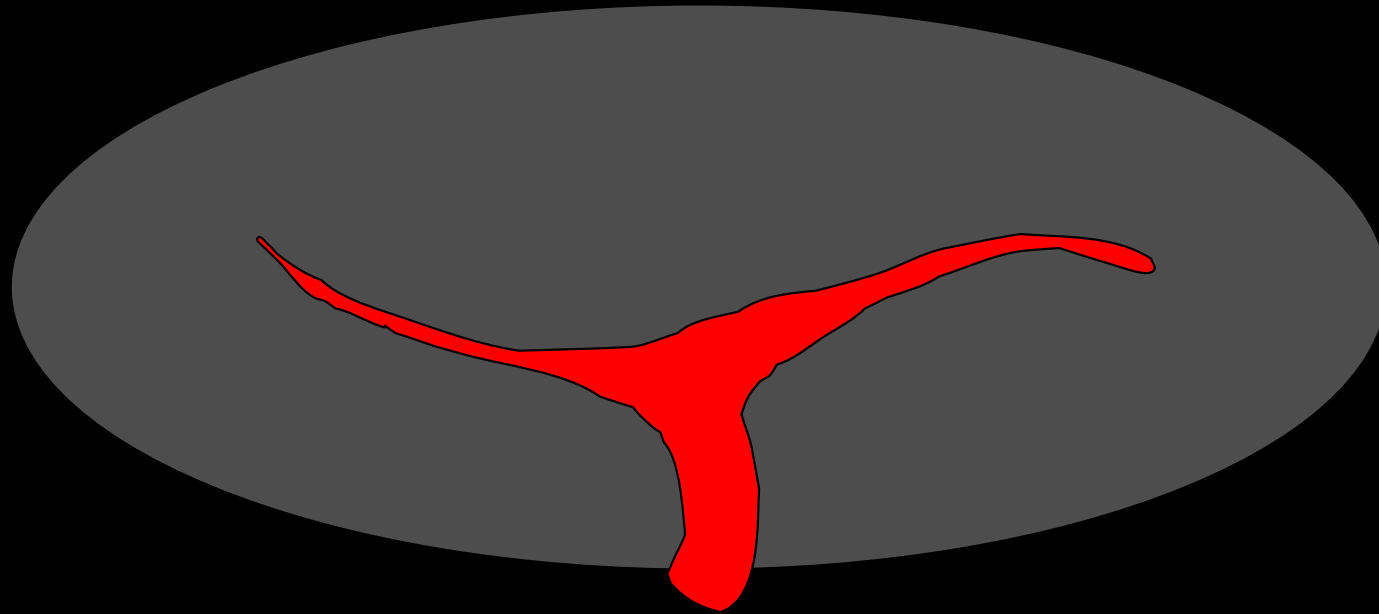


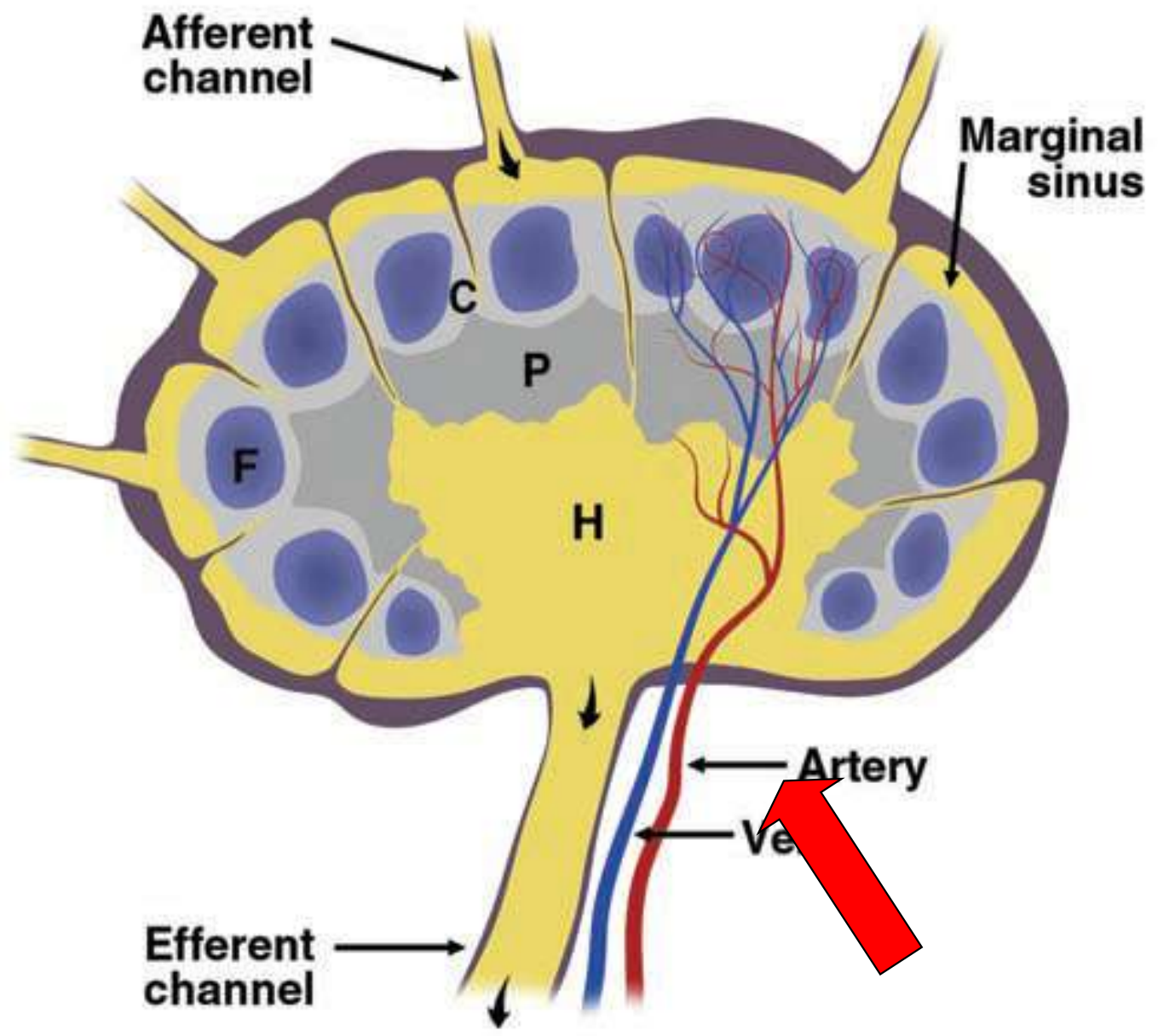
# Parathyroid

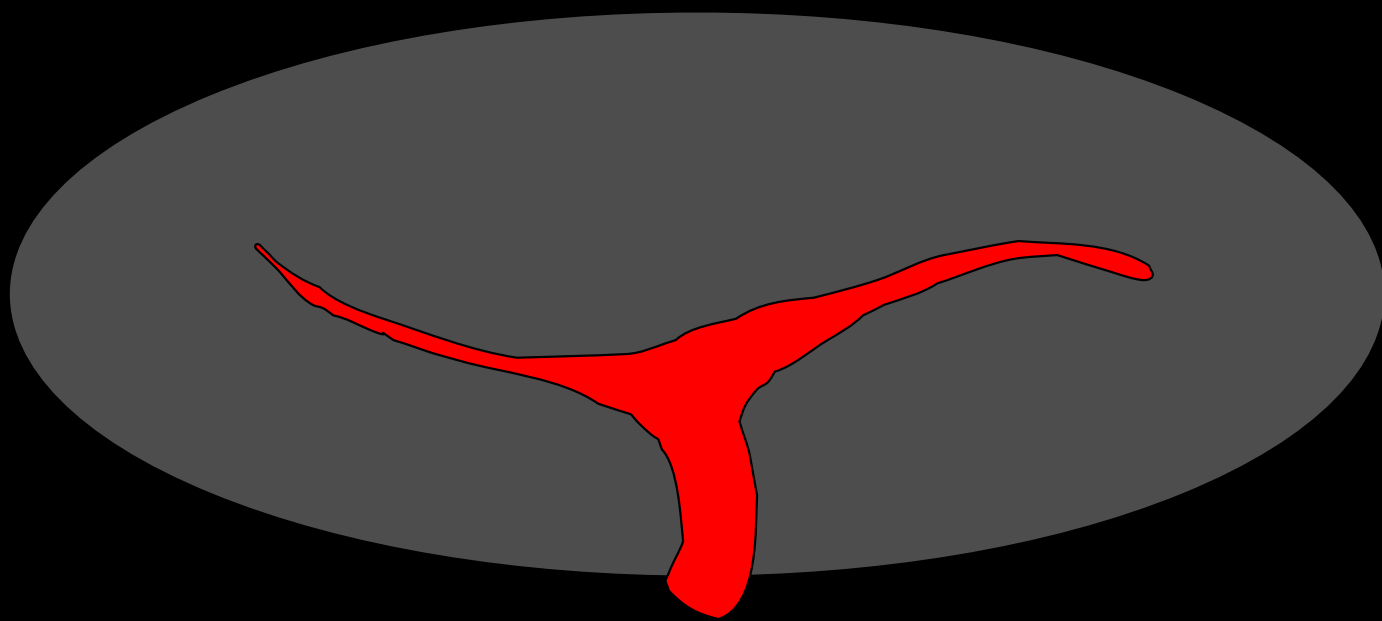
- Conventional grey scale
- ? Adenoma : extra thyroidal feeding vessel
- : polar distribution
- : peripheral vascularity (“arc” ,”rim”)
- No adenoma? : assymetrical thyroid vascularity (80%)
- : review - enlarged extra thyroidal artery
- Graded compression : hidden areas (trachea-oesophageal groove, strap muscles, carotid sheath)

Sonography in primary hyperparathyroidism; review with emphasis scanning technique .S Reeder, T Desser, R Weigel, R B Jeffrey .J  
Ultrasound medicine 21:539 -552.2002

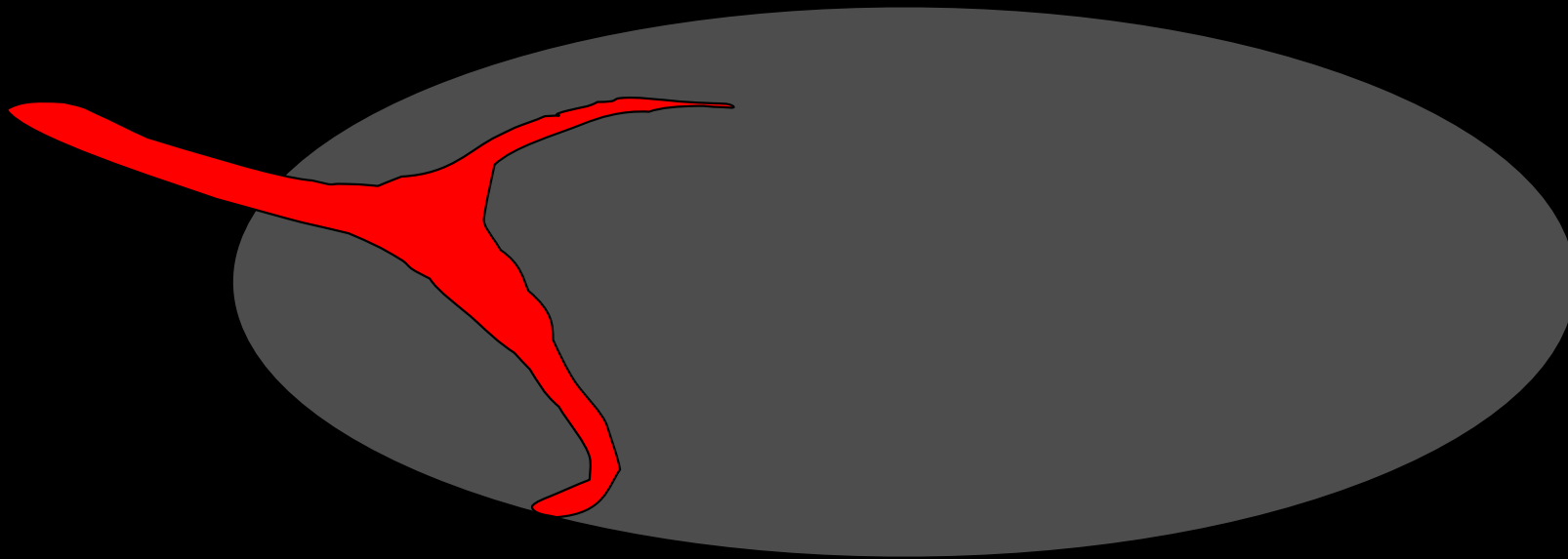
Hilar pattern : lymph node



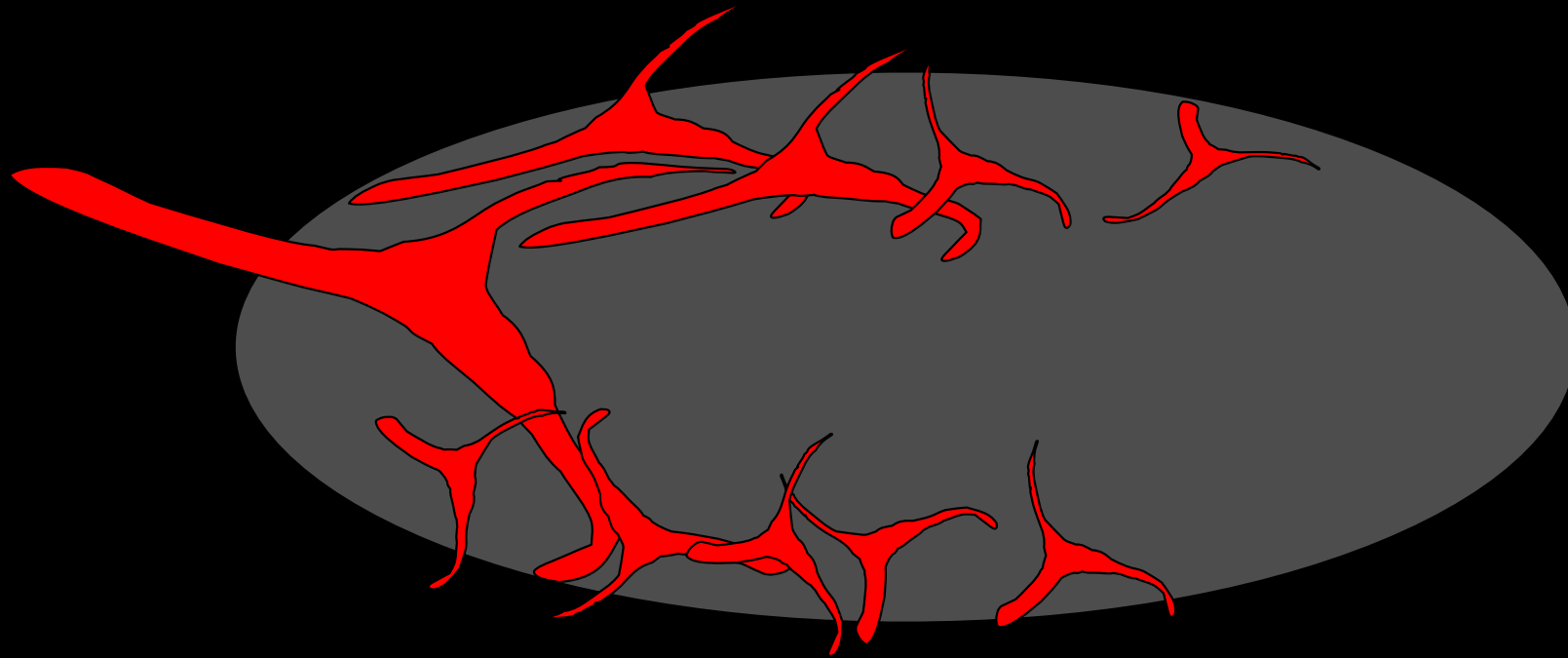


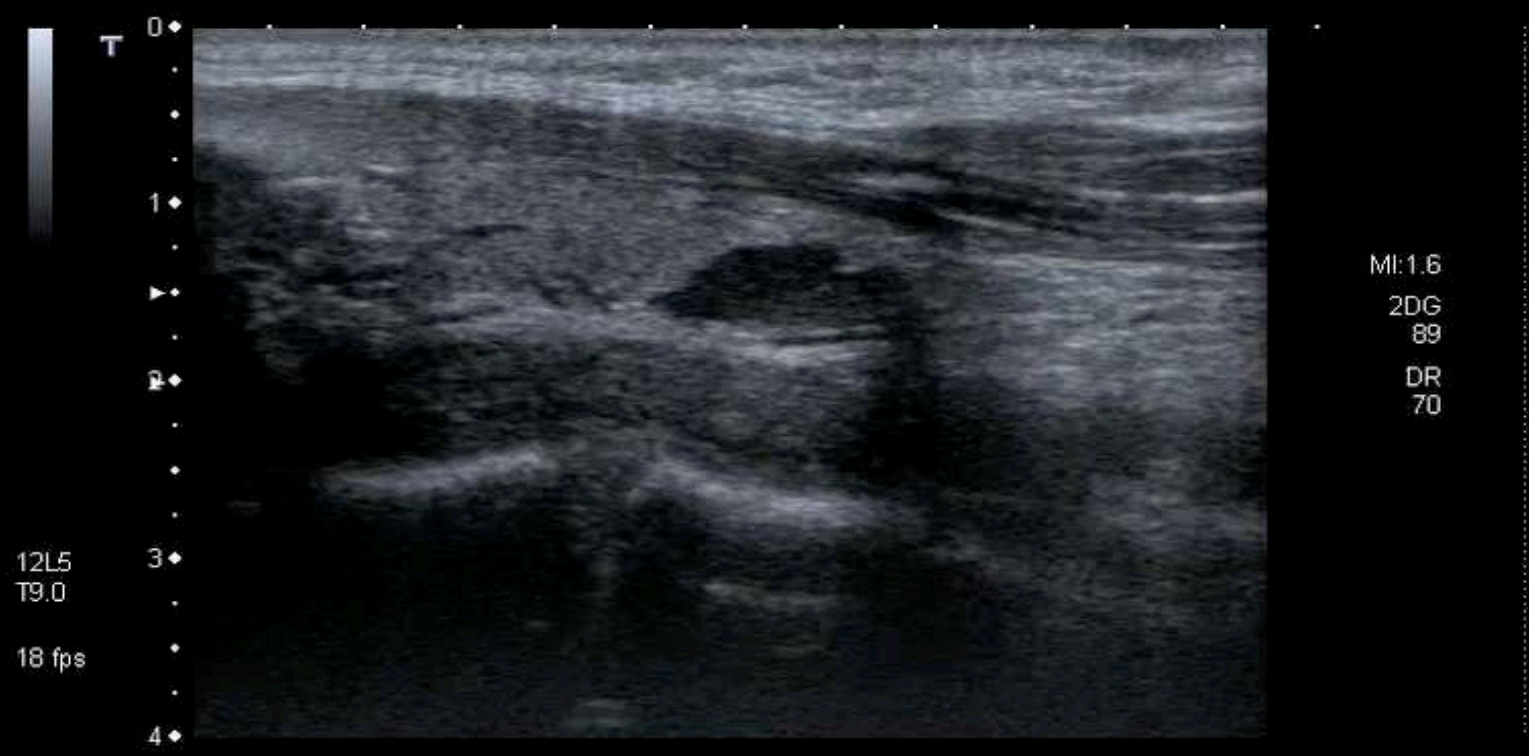


Parathyroid : polar pattern



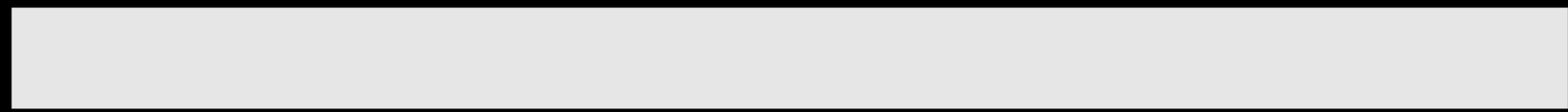
Parathyroid : “arc”, “rim” pattern





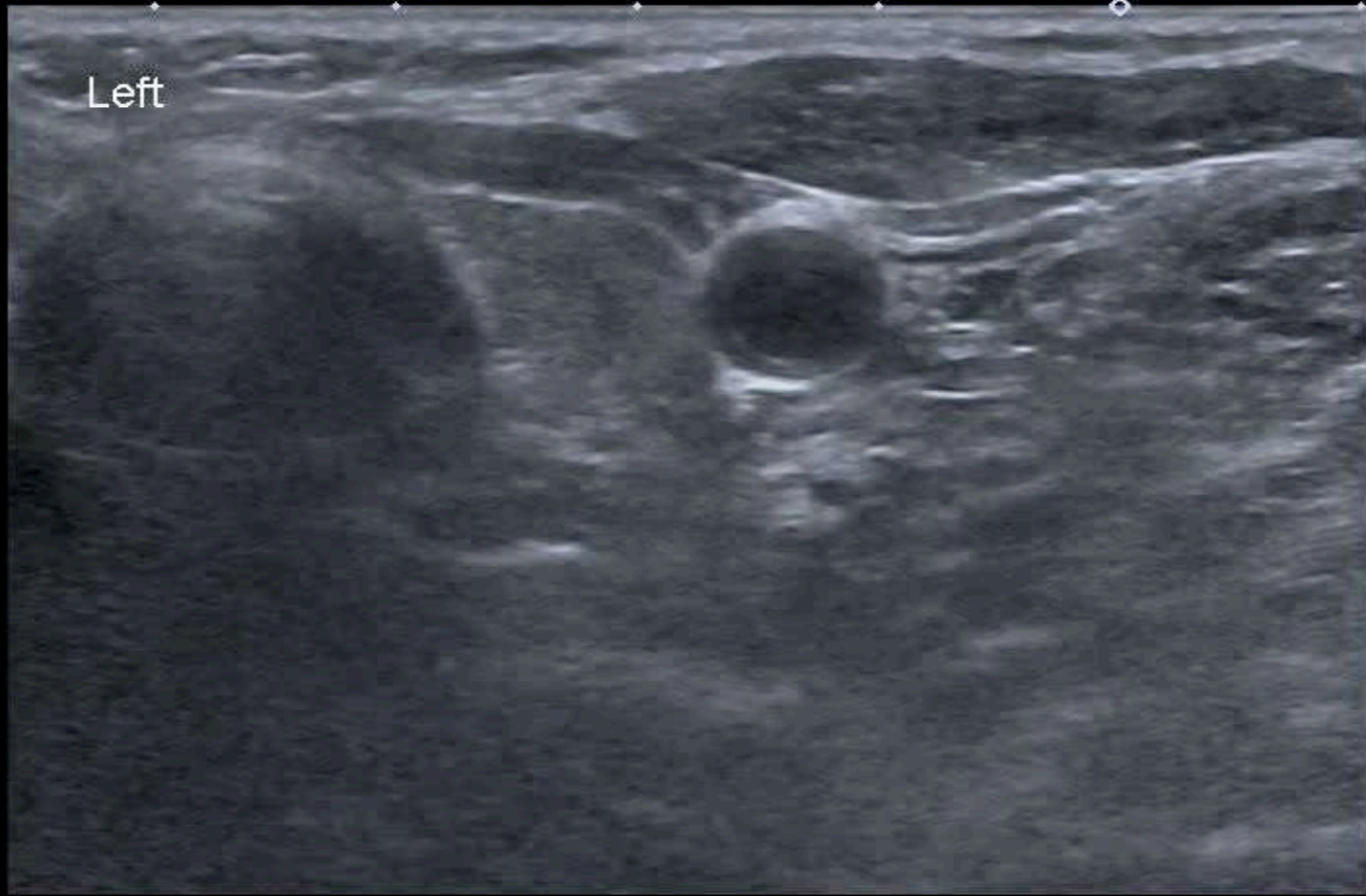
Archive job is not accepted. Please try again.

HDD:78% Free



Precision APure+ T

- ◊ 0
- +
- ◊
- +
- ◊ 1
- +
- ◊
- +
- ◊ 2
- +
- ◊
- +
- ◊ 3
- +
- ◊
- +
- ◊ 4



MI  
1.1  
12L5  
10.0  
56 fps  
G:85  
DR:65  
A:8  
P:4

TOSHIBA

883082:FRANCIS MARGARET

F 75

01/11/2016

Aplio 500

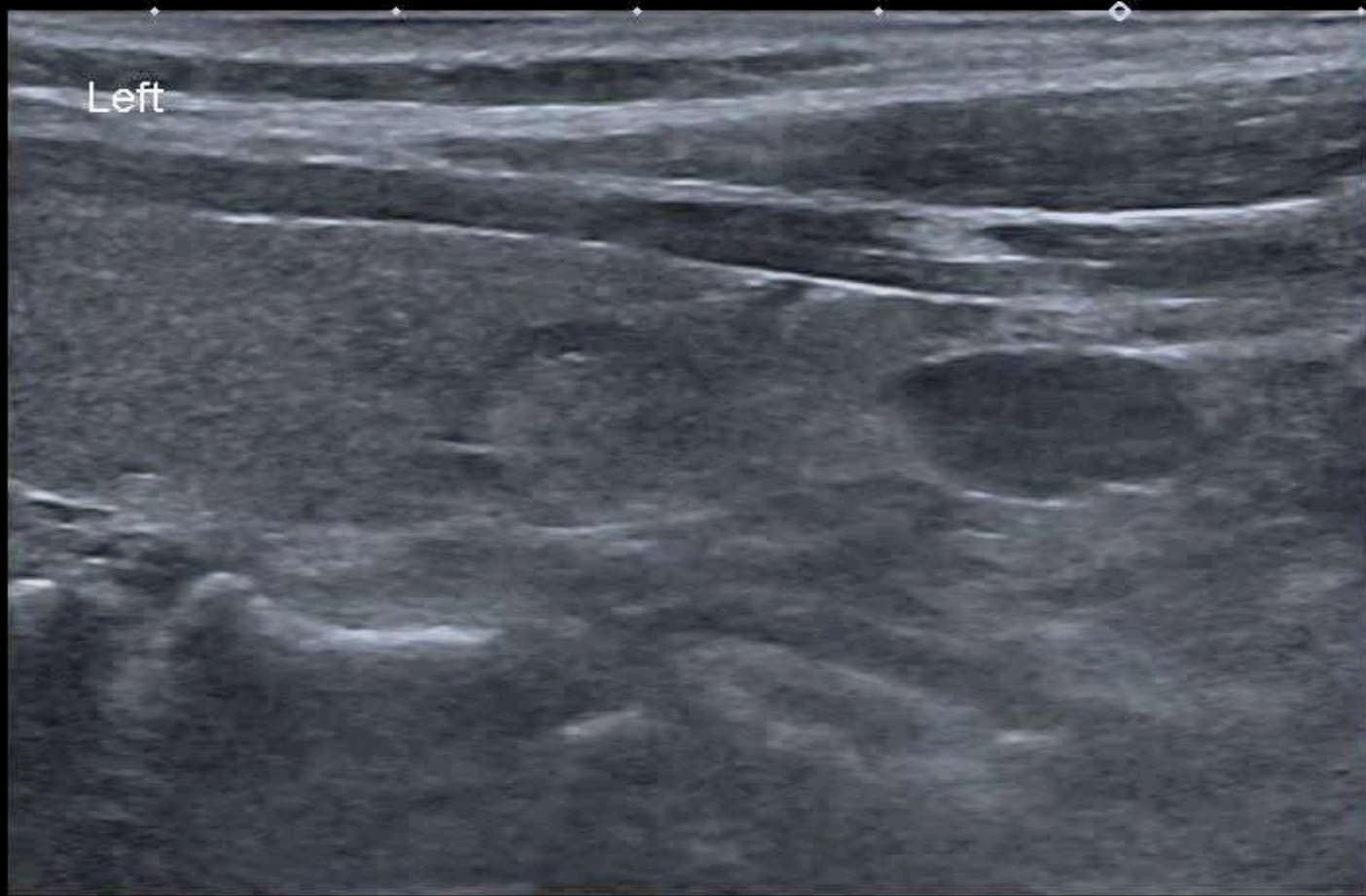
Morrison Hospital Rm5

Thyroid

11:46:03 AM

Precision APure+ T

- ◊ 0
- +
- ◊
- +
- ◊ 1
- +
- ◊
- +
- ◊ 2
- +
- ◊
- +
- ◊ 3
- +
- ◊
- +
- ◊ 4



MI  
1.1  
12L5  
10.0  
56 fps  
G:85  
DR:65  
A:8  
P:4

TOSHIBA

883082:FRANCIS MARGARET

F 75

01/11/2016

Aplio 500

Morrison Hospital Rm5

Thyroid

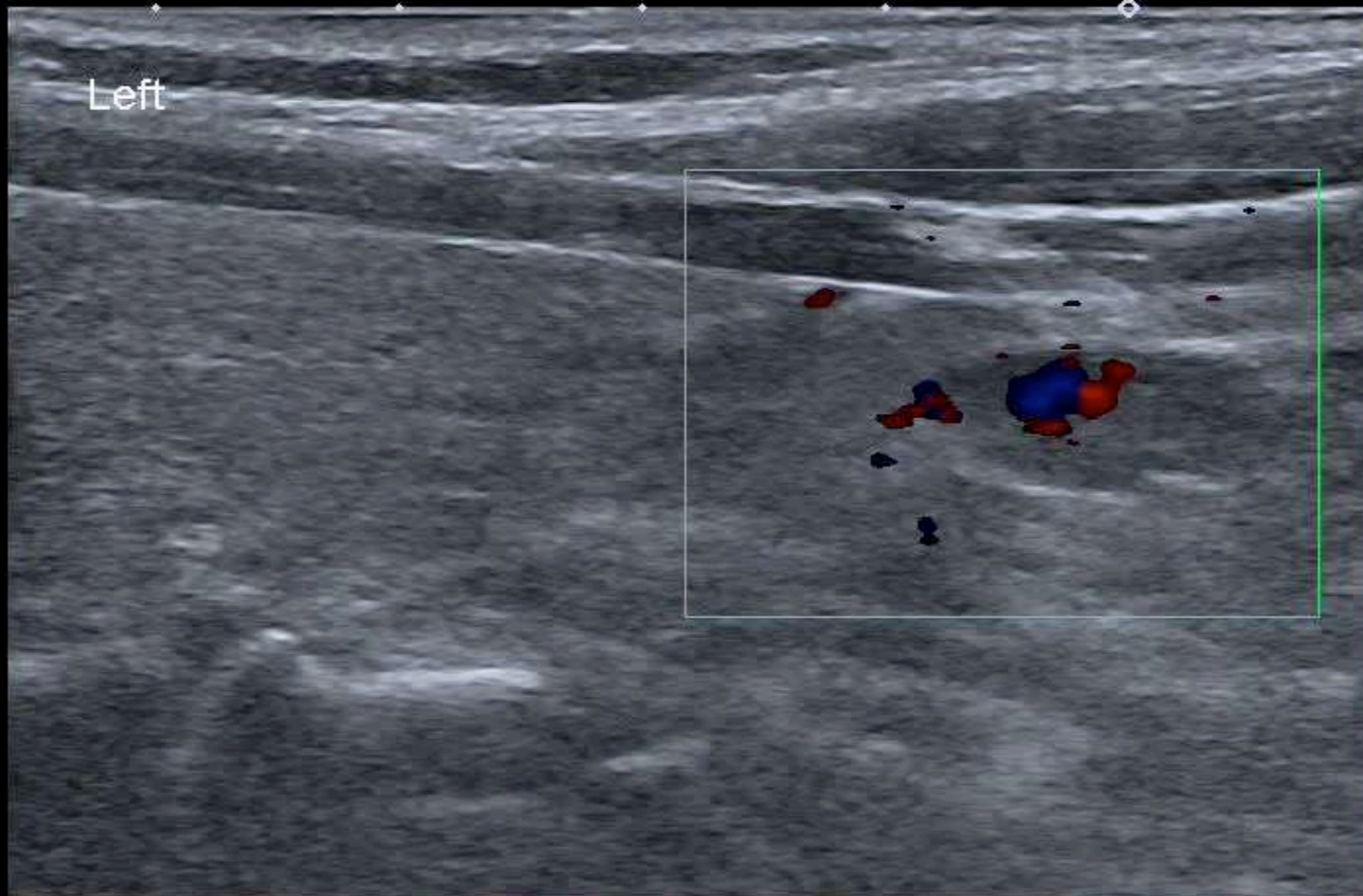
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Precision APure+ T

14.1



- ◇ 0
- ◇ 1
- ◇ 2
- ◇ 3
- ◇ 4



MI  
1.5  
12L5  
10.0  
12 fps  
G:85  
DR:65  
CF 5.3  
CG:38  
13.7k  
F:3

TOSHIBA

883082:FRANCIS MARGARET

F 75

01/11/2016

Aplio 500

Morrison Hospital Rm5

Thyroid

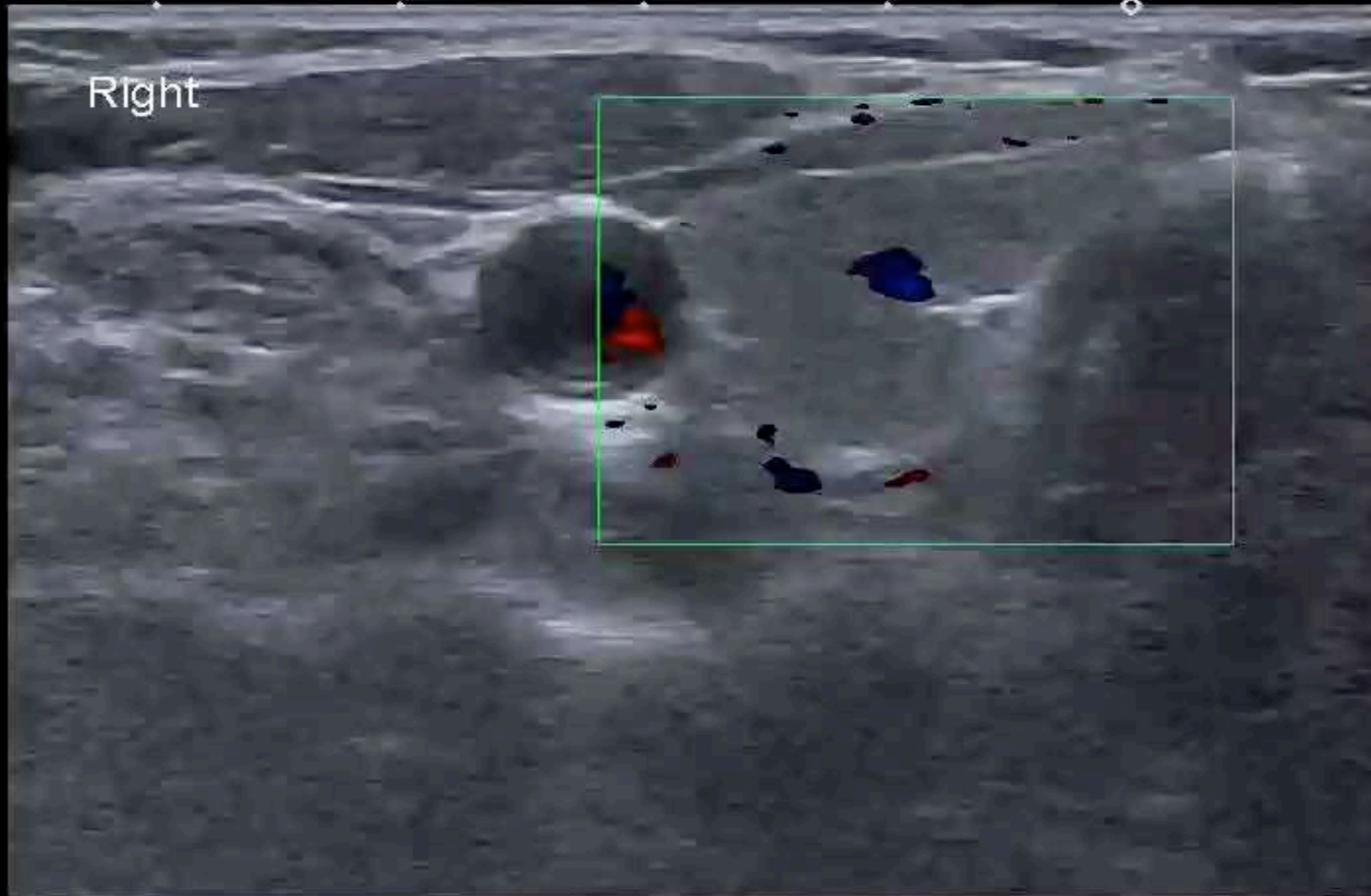
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14.1



- ◊ 0
- +
- ◊
- +
- ◊ 1
- +
- ◊
- +
- ◊ 2
- +
- ◊
- +
- ◊ 3
- +
- ◊
- +
- ◊ 4

Right



Precision APure+ T

MI  
1.5  
12L5  
10.0  
12 fps  
G:85  
DR:65  
CF 5.3  
CG:38  
13.7k  
F:3

TOSHIBA

883082: FRANCIS MARGARET

F 75

01/11/2016

Aplio 500

Morrison Hospital Rm5

Thyroid

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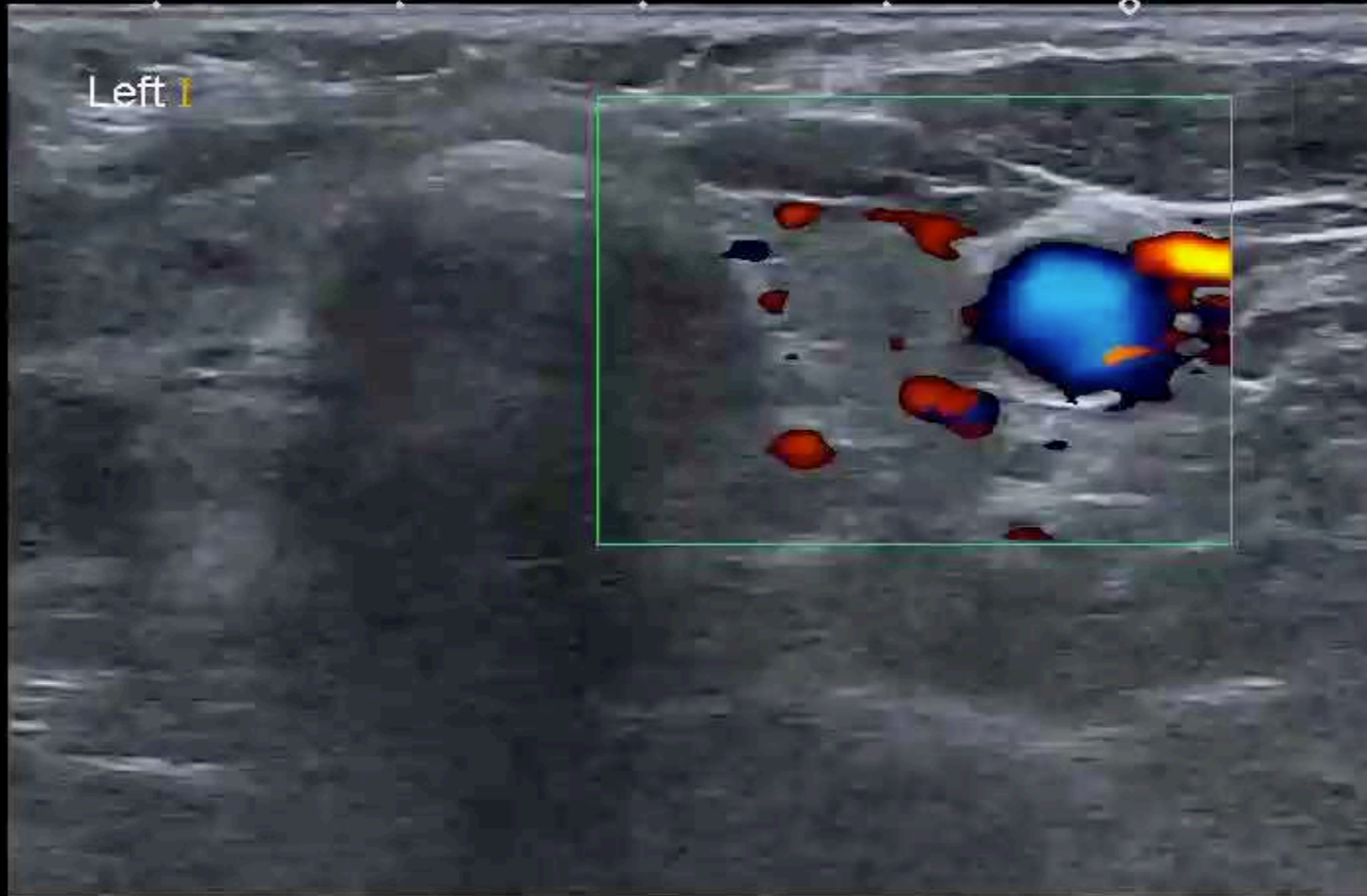
Precision APure+ T

14.1

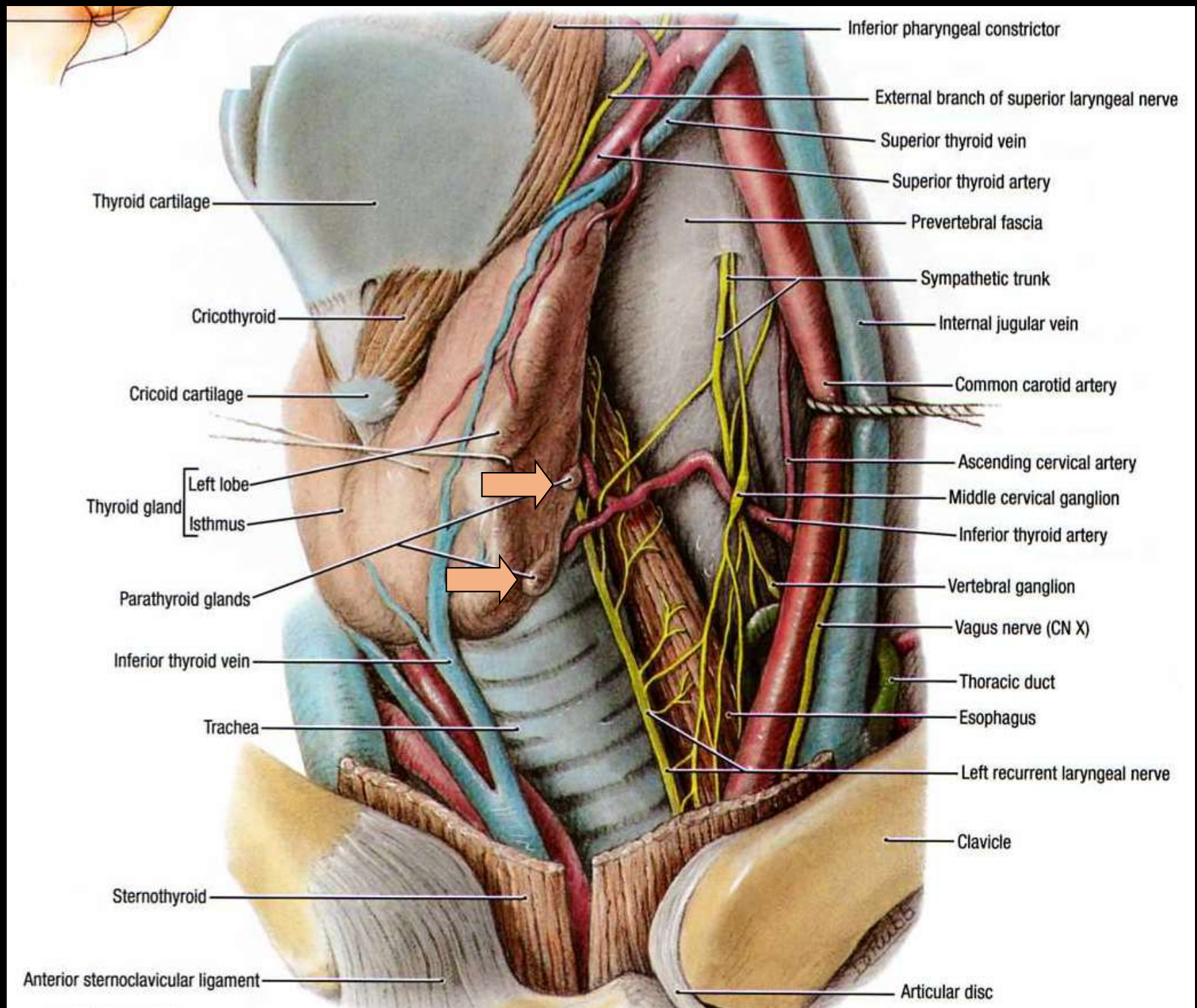


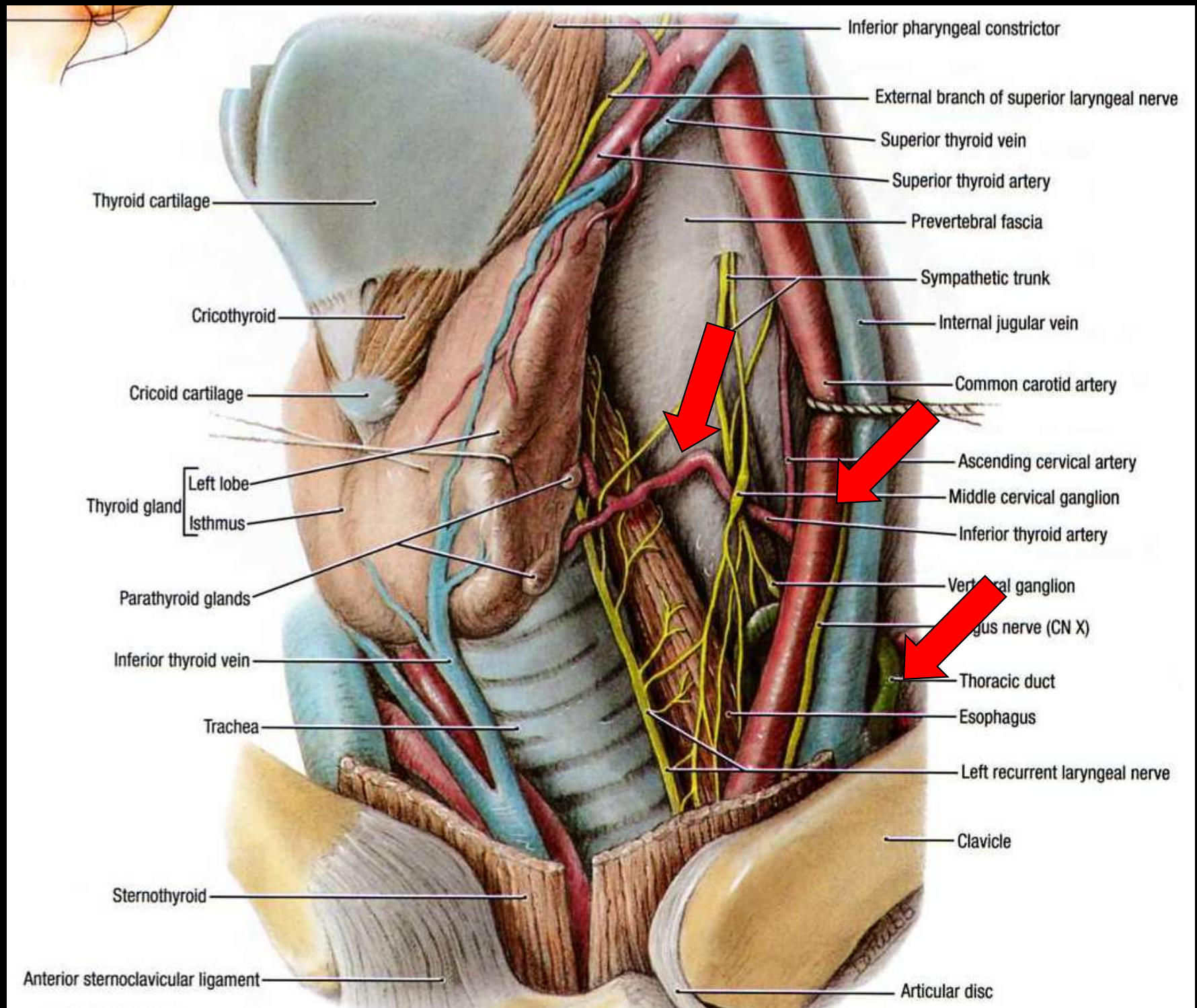
- ◊ 0
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- +
- ◊ 1
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- ◊ 2
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- +
- ◊ 3
- +
- ◊
- +
- ◊ 4

Left I



MI  
1.5  
12L5  
10.0  
12 fps  
G:85  
DR:65  
CF 5.3  
CG:38  
13.7k  
F:3

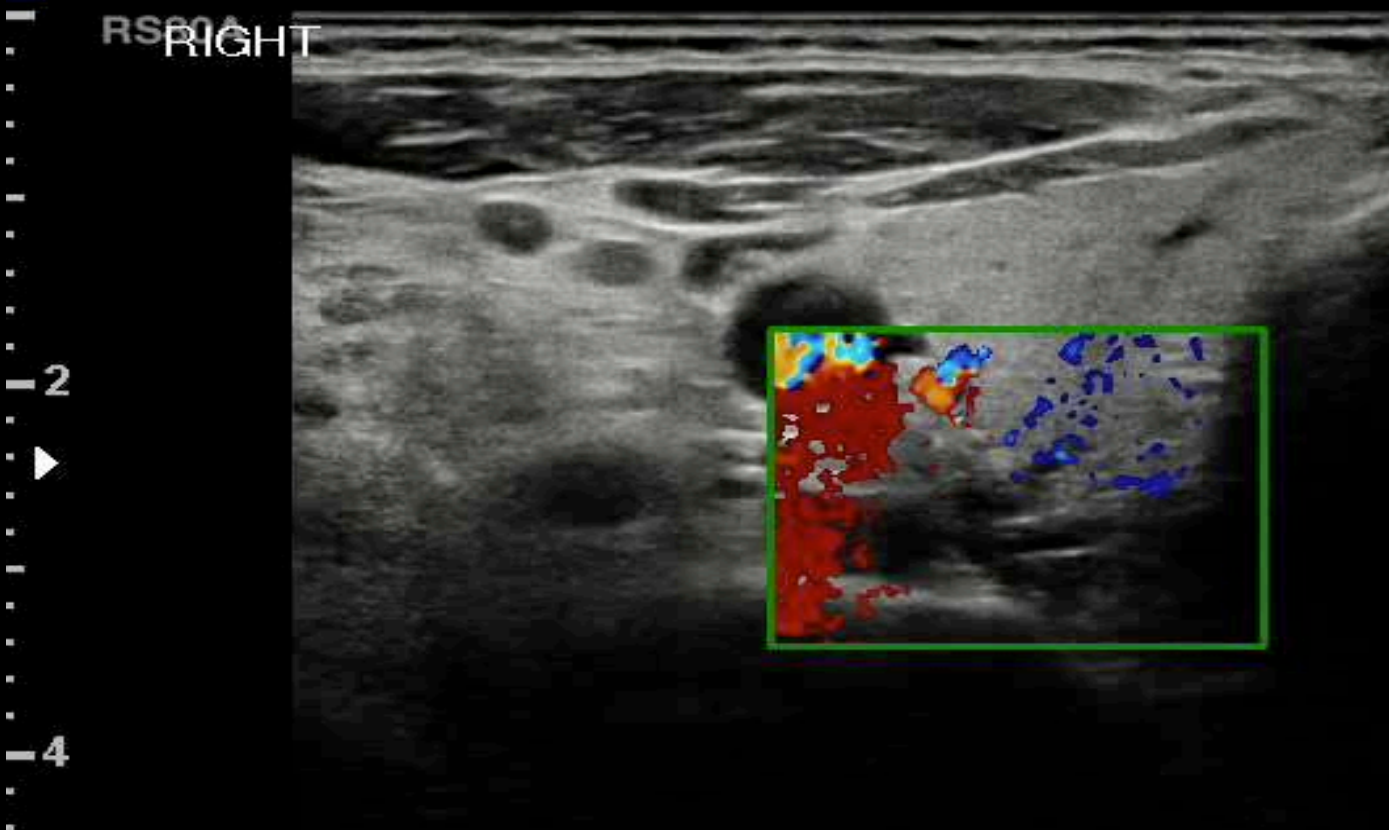


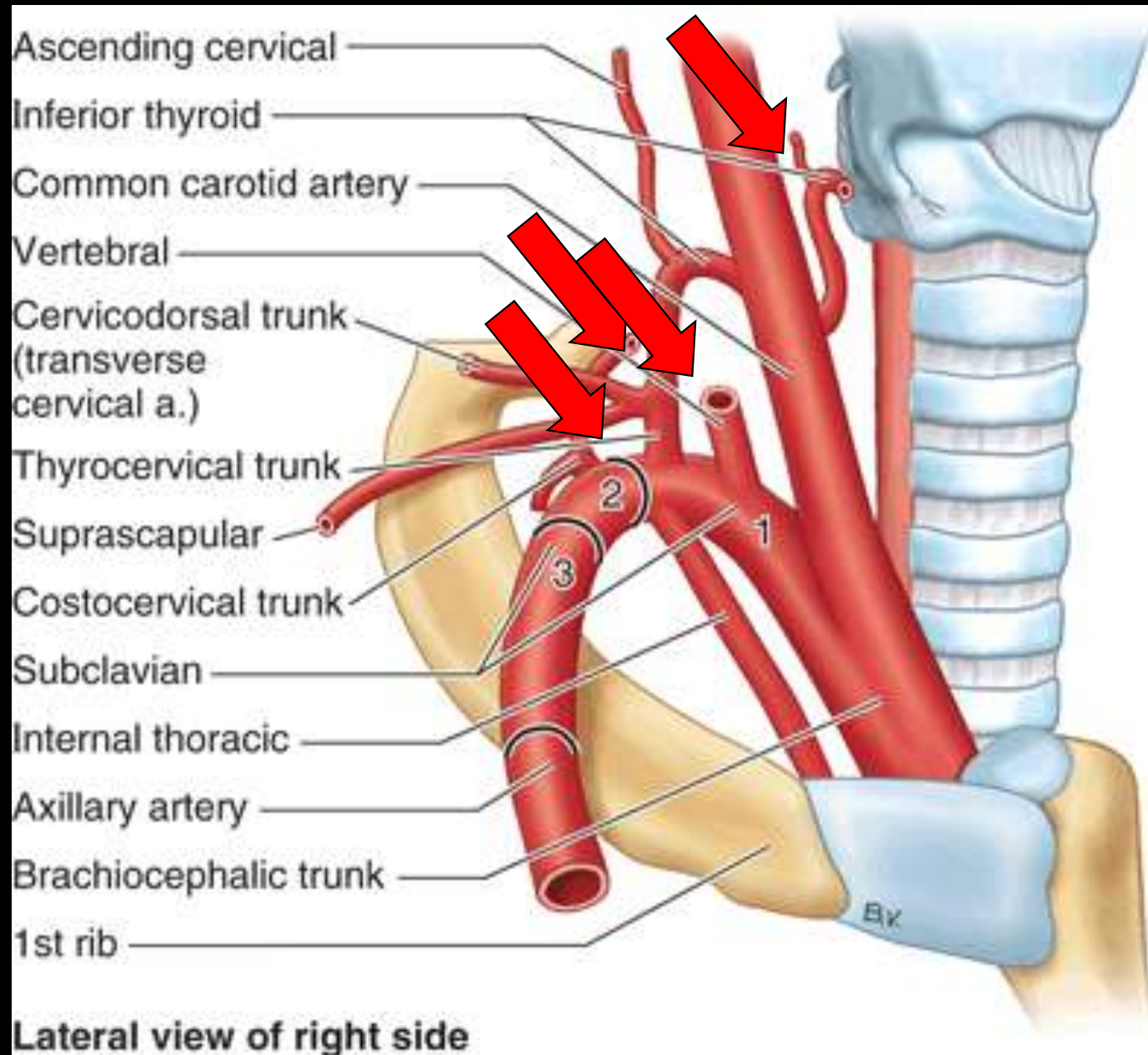


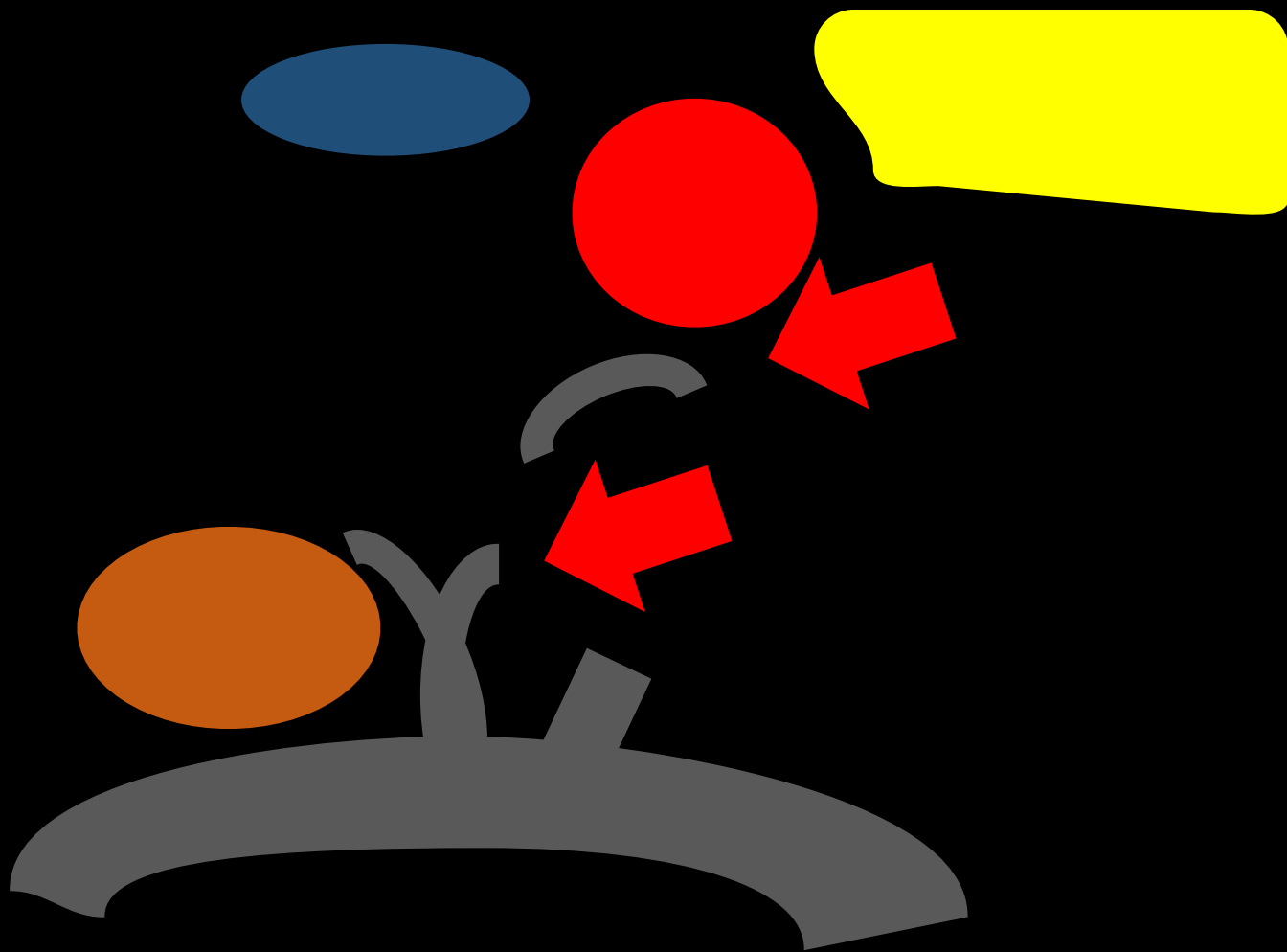
L3-12A / SmallParts / FPS11 / MI0.94 / TIs0.3 / 05-12-2017 12:16:57

2D G50/DR58/FA4/P90/Frq Pen./4.5cm

© G50/0.74kHz/F1/FA8







L3-12A / SmallParts / FPS37 / MI0.92 / TIs0.1 / 05-12-2017 12:23:13  
2D G50/DR58/FA4/P90/Frq Pen./4.5cm



Precision APure+

T

12L5

diffT9.0

32 fps

G:79

DR:75

0

1

2

3

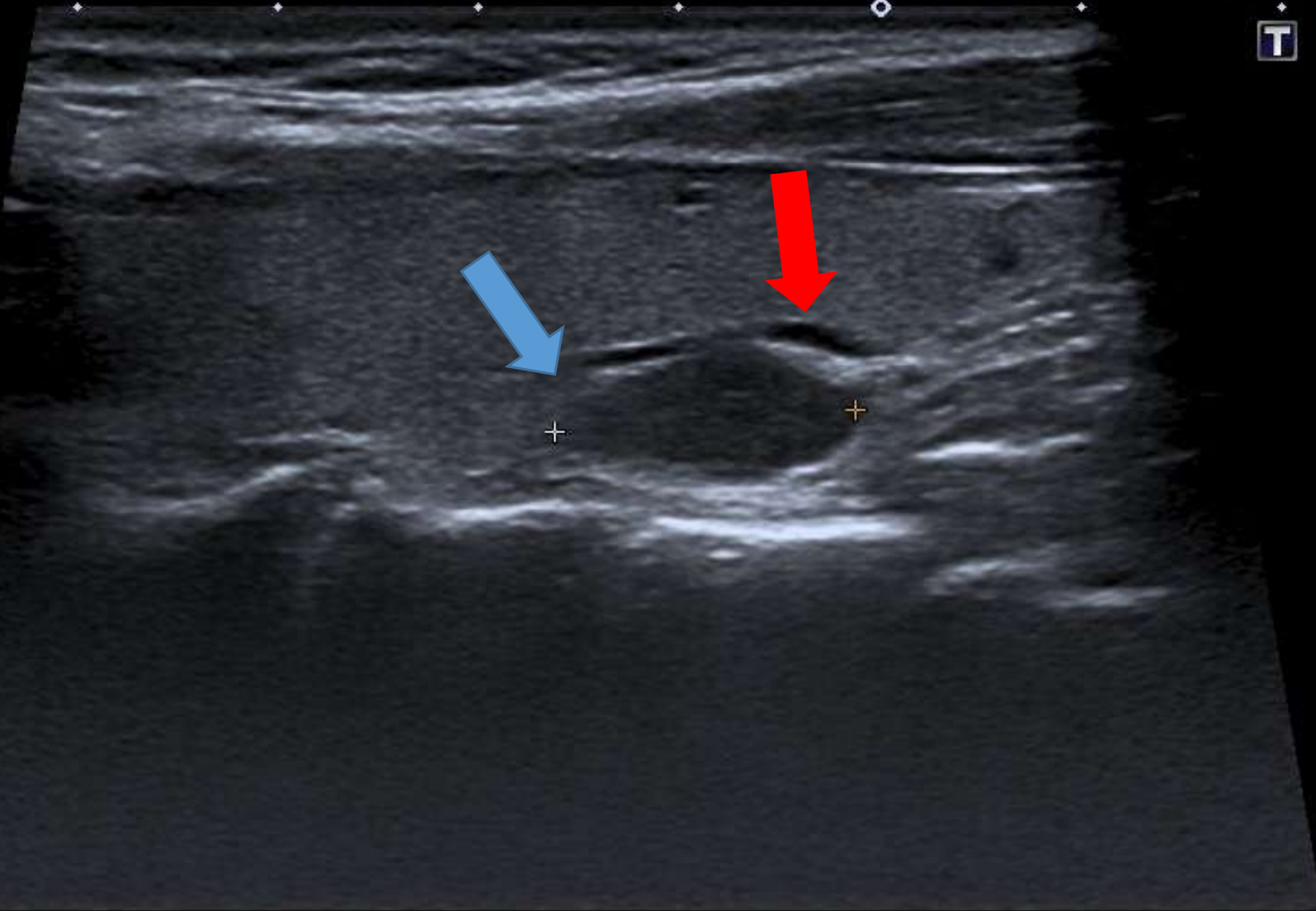
4

4.5

LT

Dist A

15.0 mm



TOSHIBA

2105134:YOUNAS KINZA

F 45

29.6.2017

Apilo 500

SINGLETON HOSPITAL

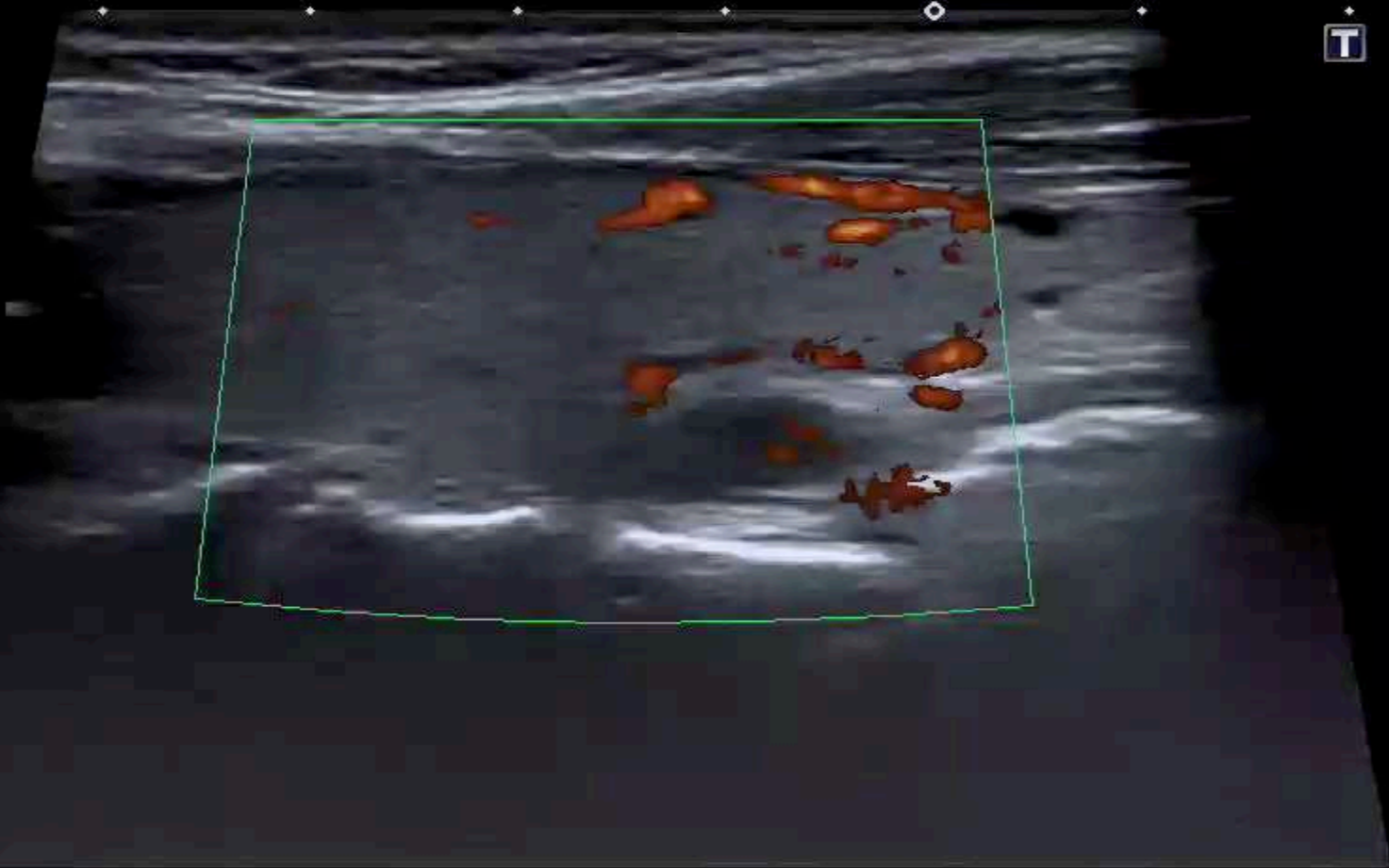
Thyroid 2

Precision APure+

T

6.9

- ◊ 0
- +
- ◊ 1
- +
- ◊ 2
- +
- ◊ 3
- +
- ◊ 4
- +
- ◊ 4.5



12L5  
diffT9.0  
8 fps  
G:79  
DR:75  
CF 6.1  
CG:32  
12.1k  
F:5

RT

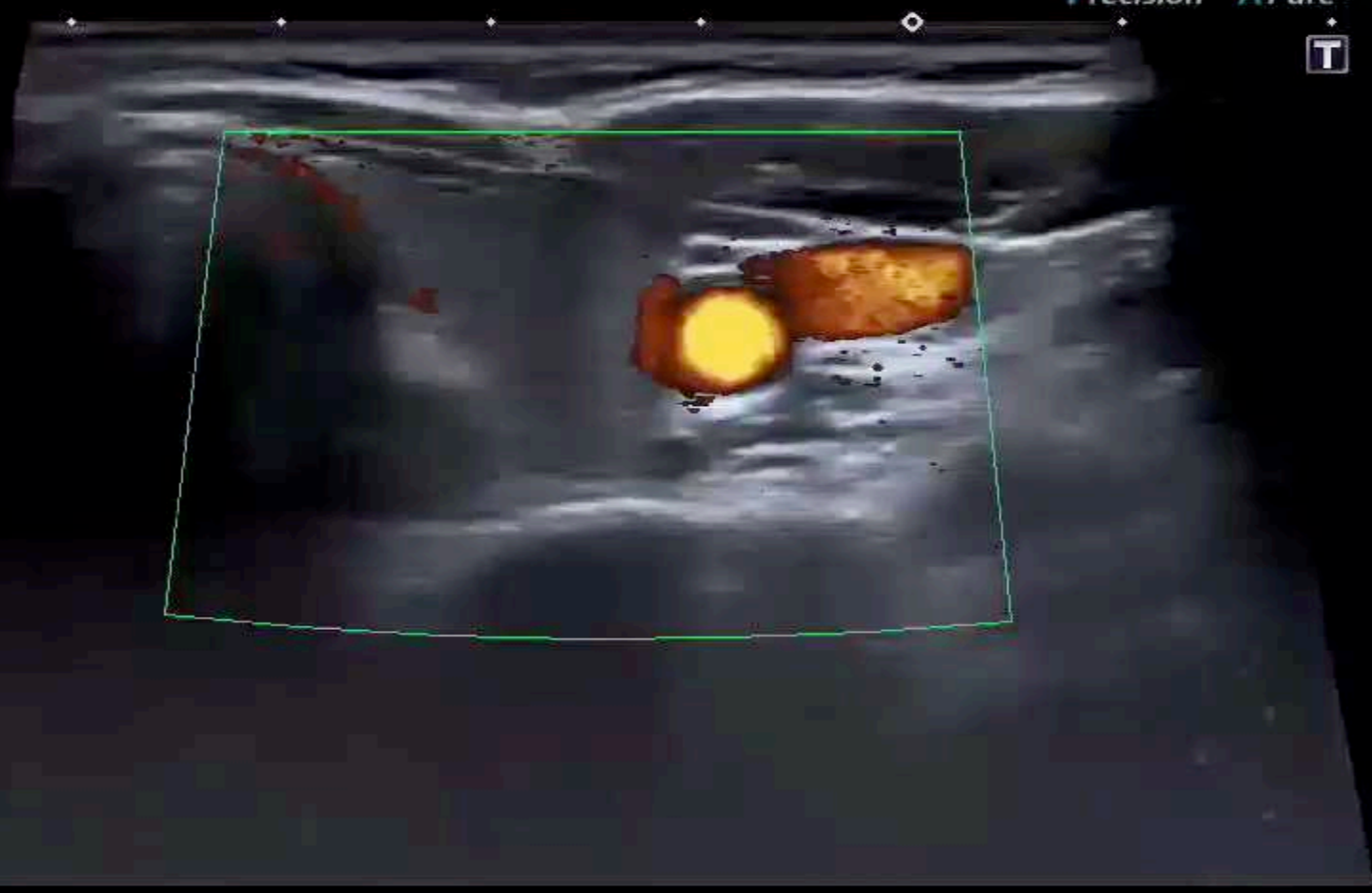
Thyroid 2

Precision APure+

T

6.9

- ◊ 0
- +
- ◊ 1
- +
- ◊ 2
- +
- ◊ 3
- +
- ◊ 4
- +
- ◊ 4.5

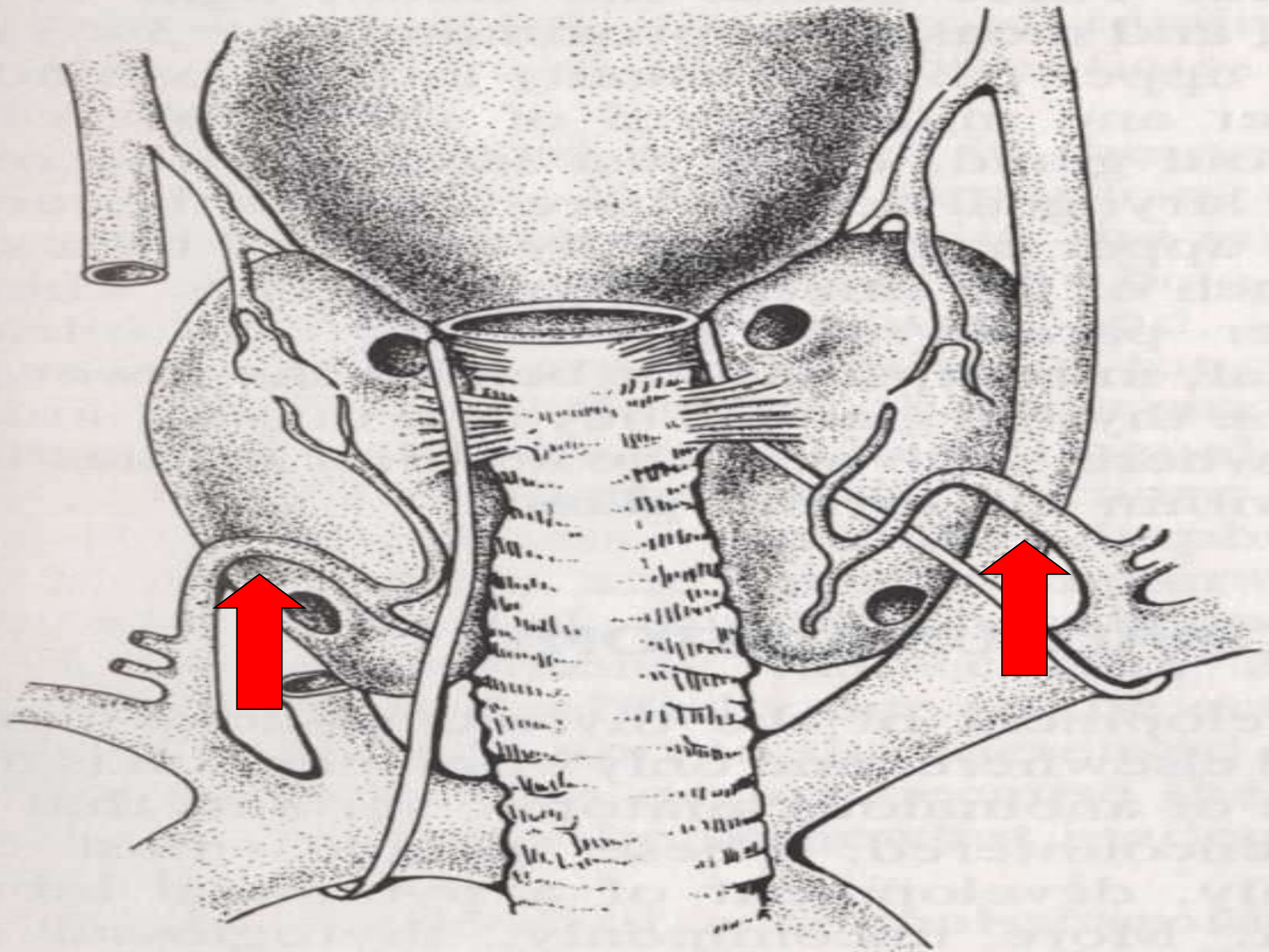


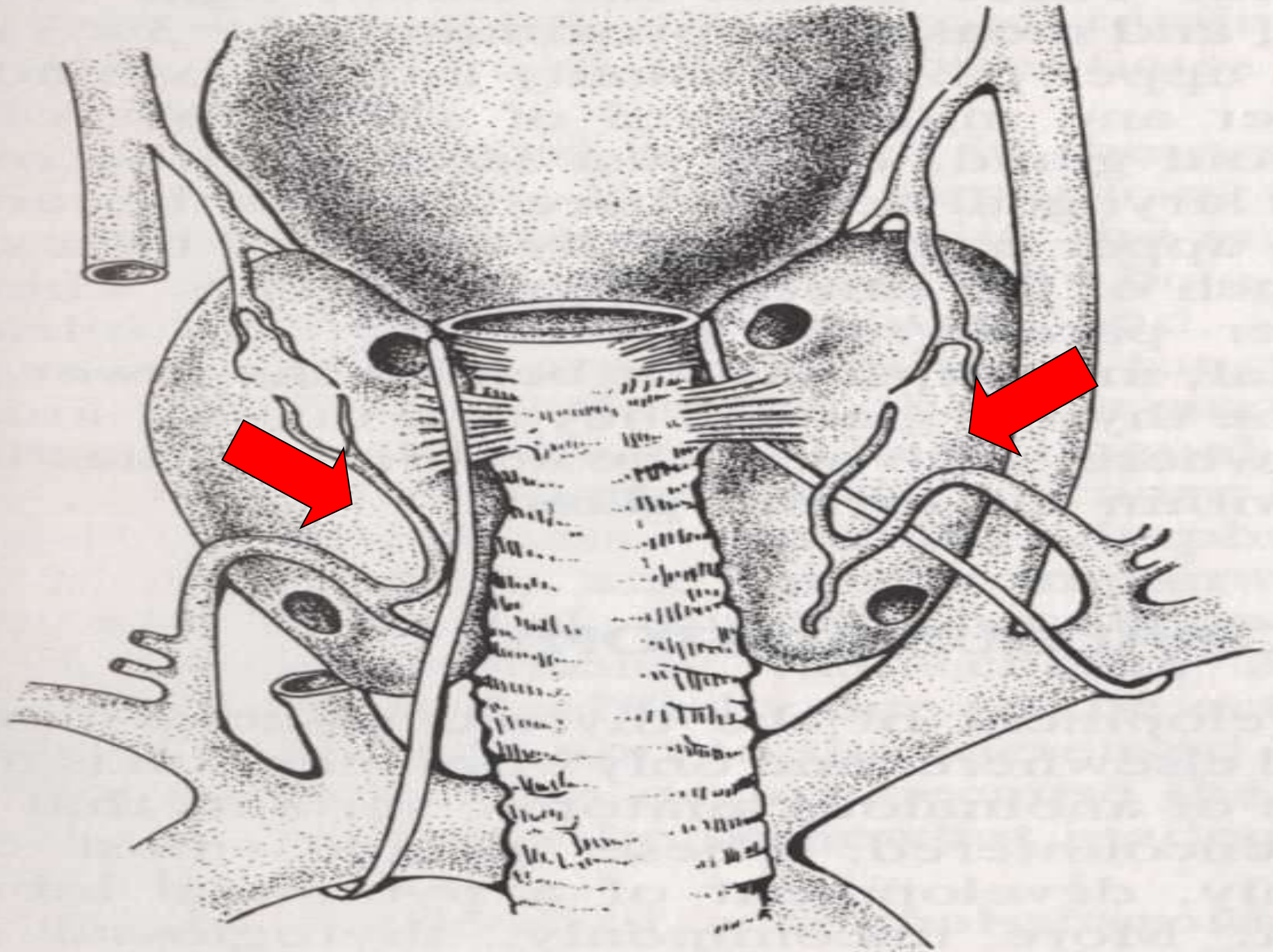
12L5  
diffT9.0  
8 fps  
G:79  
DR:75  
CF 6.1  
CG:32  
12.1k  
F:5

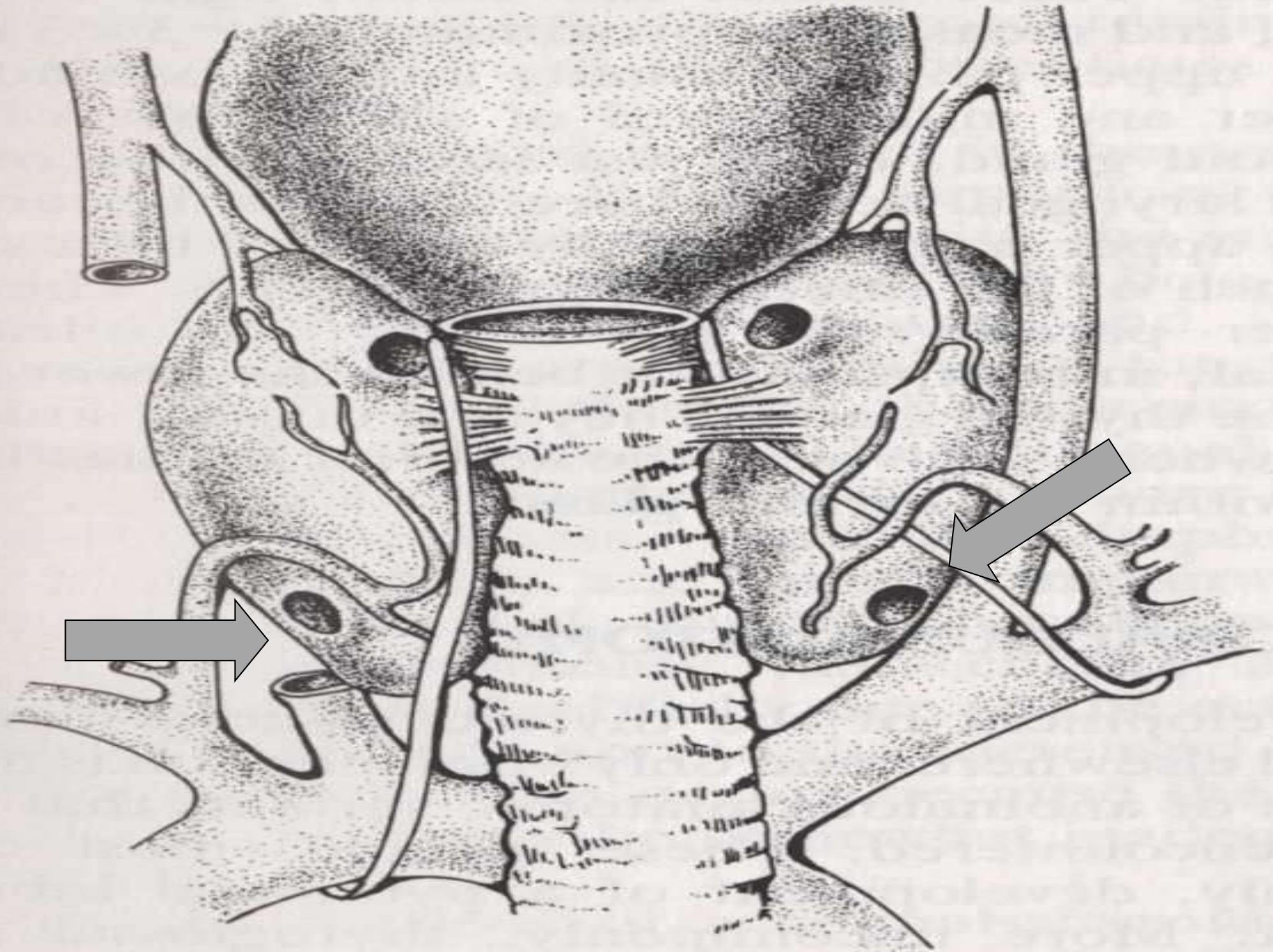
RT

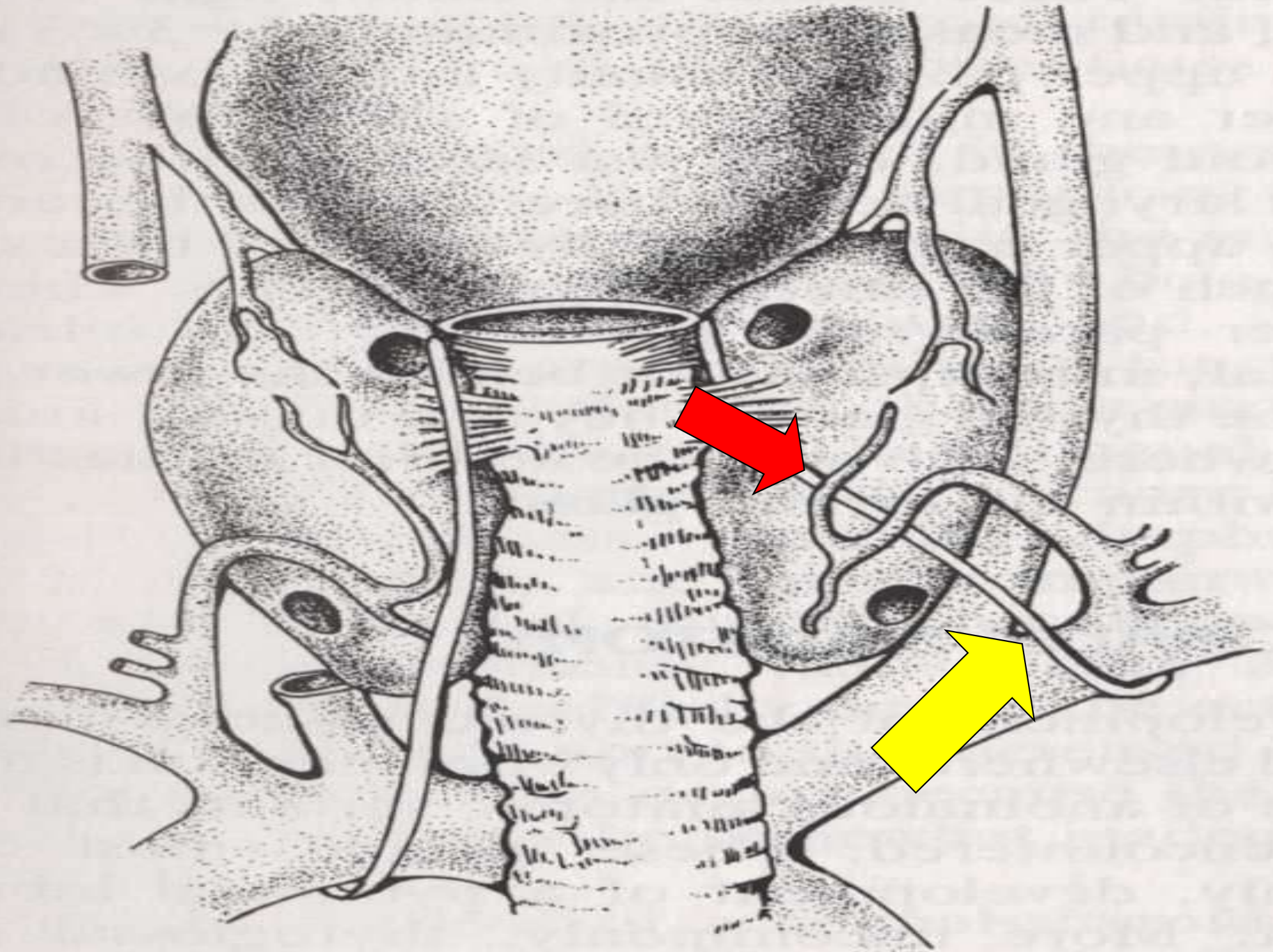


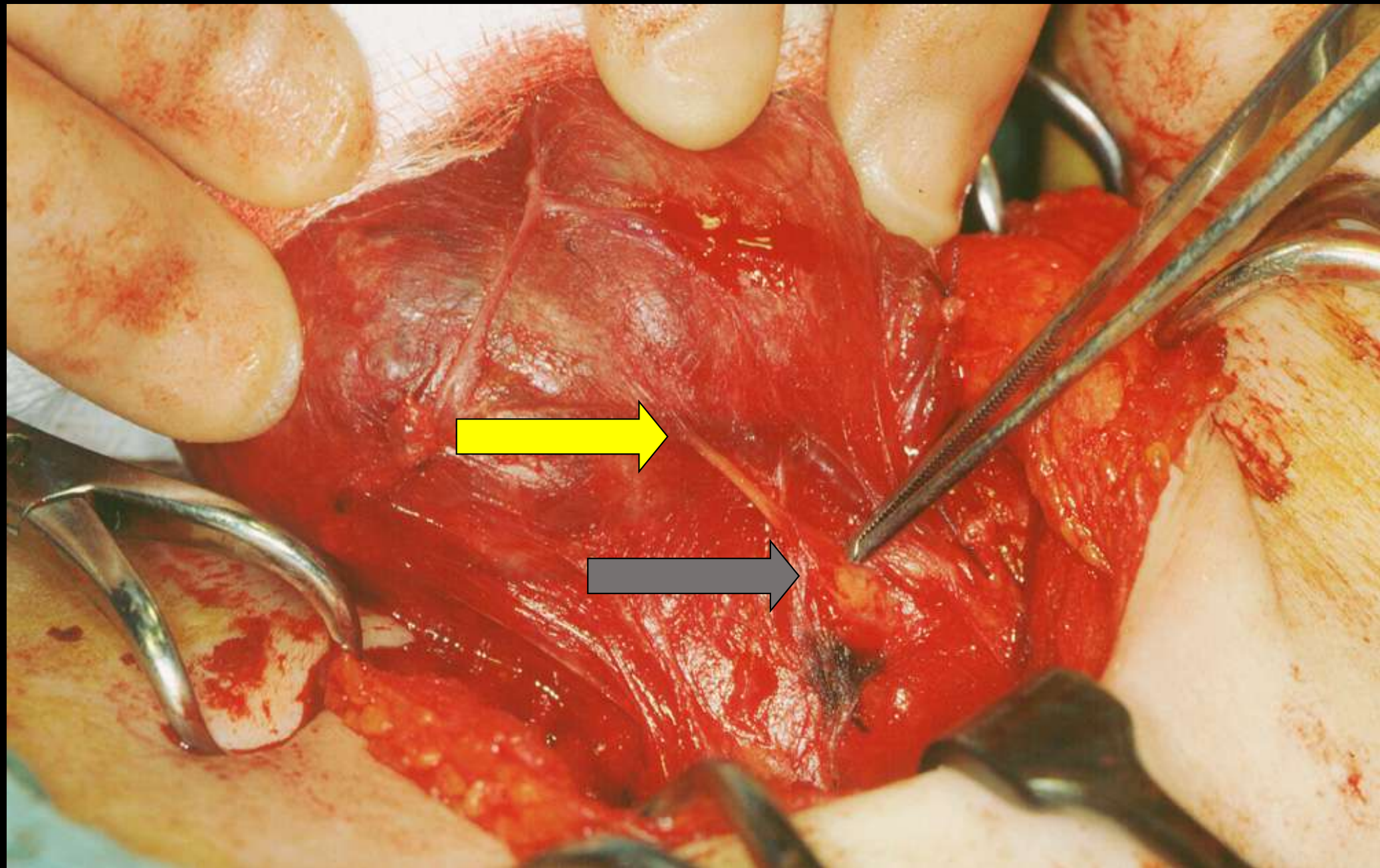
# 28











TOSHIBA

1237411:ISAAC HAYLEIGH

F 28

17.11.2016

Aplio 500

SINGLETON HOSPITAL

Thyroid 2

3:02:54 PM

Precision APure+ T



RT

MI  
1.5  
12L5  
diffT9.0  
35 fps  
G:84  
DR:75

TOSHIBA

1237411:ISAAC HAYLEIGH

F 28

17.11.2016

Aplio 500

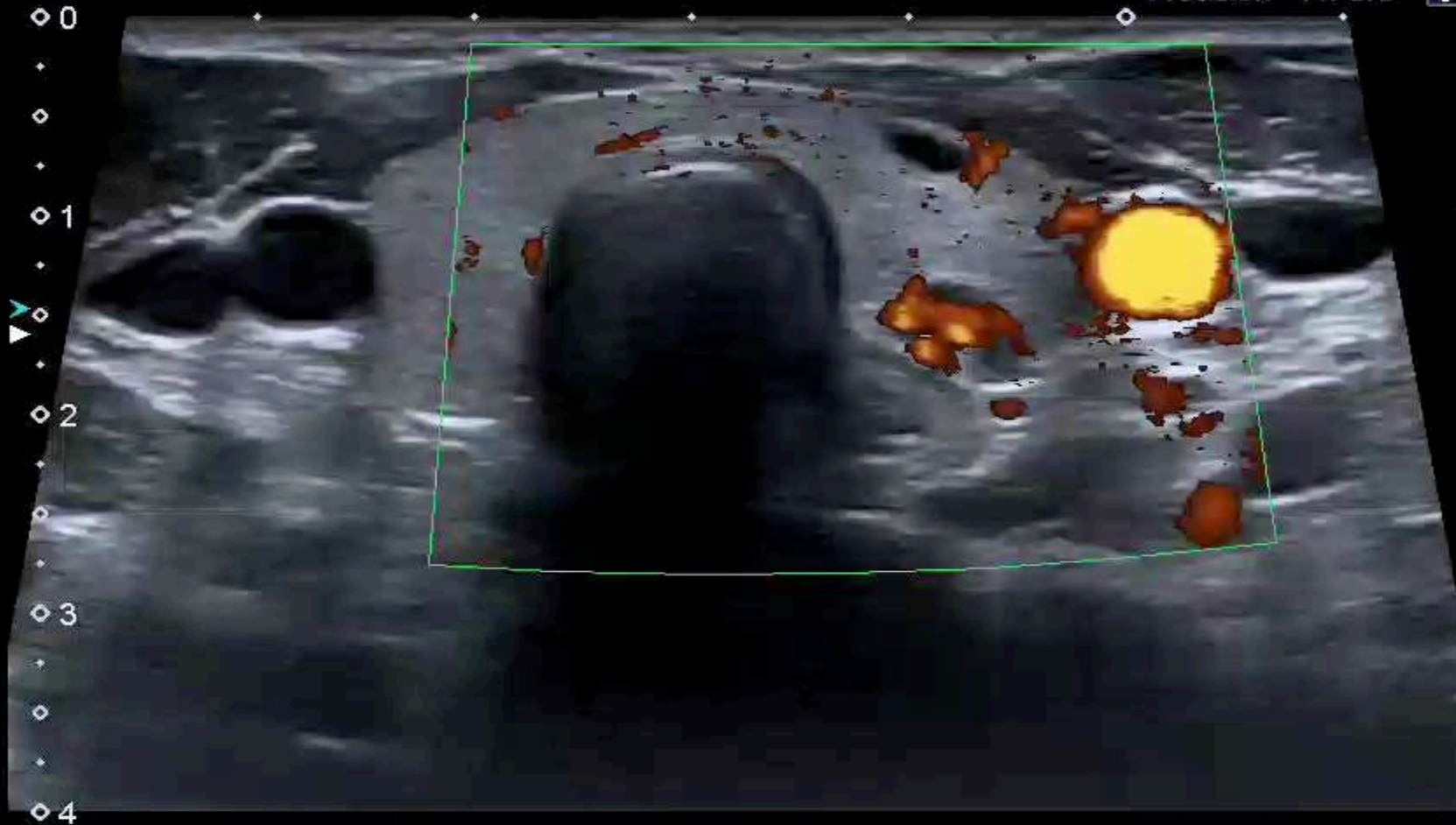
SINGLETON HOSPITAL

Thyroid 2

3:03:26 PM

6.9

Precision APure+ T



MI  
1.5  
12L5  
diffT9.0  
9 fps  
G:84  
DR:75  
CF 6.1  
CG:32  
13.2k  
F:5

RT

TOSHIBA

1237411:ISAAC HAYLEIGH

F 28

17.11.2016

AplHo 500

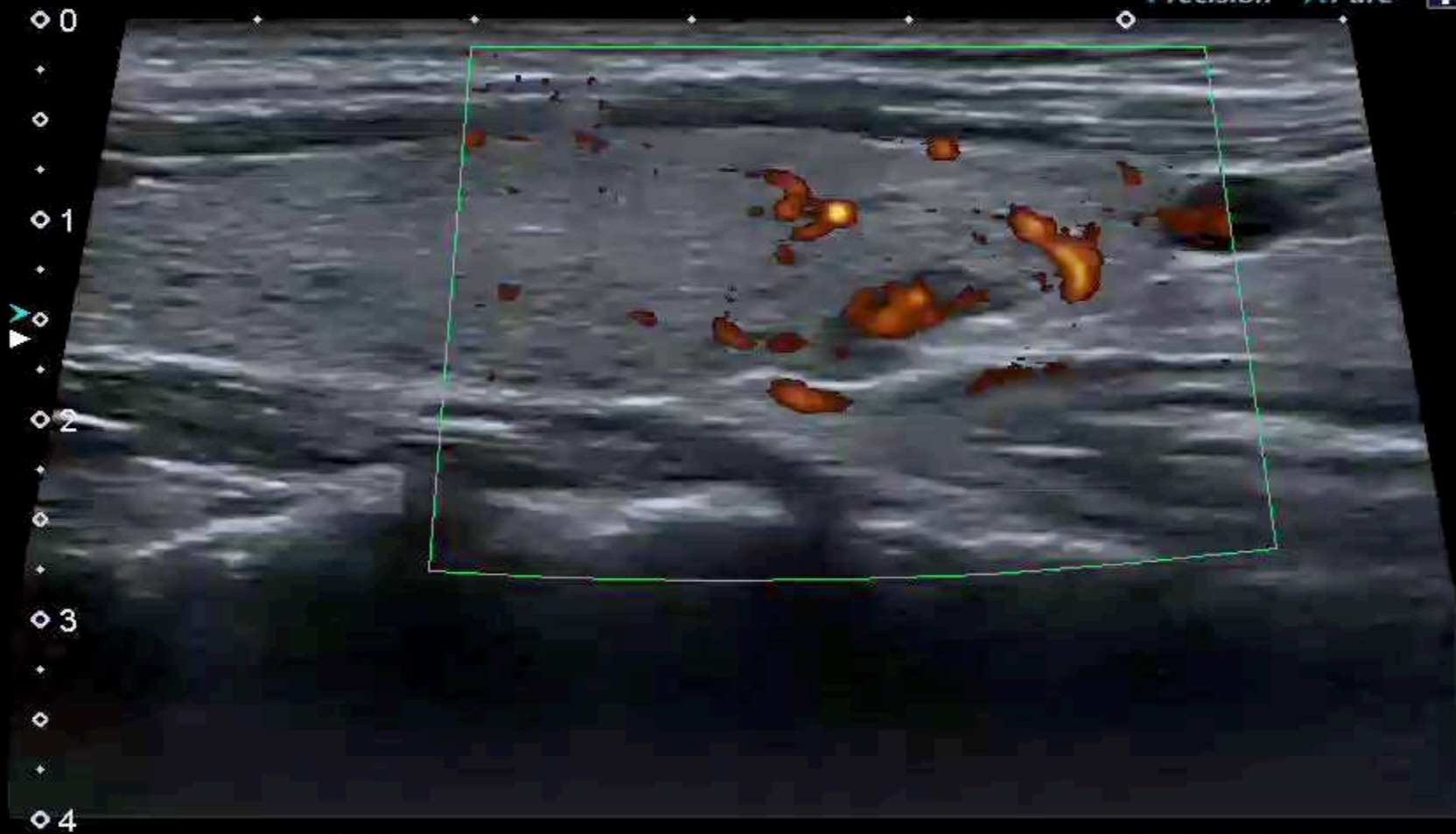
SINGLETON HOSPITAL

Thyroid 2

3:06:08 PM

Precision APure+ T

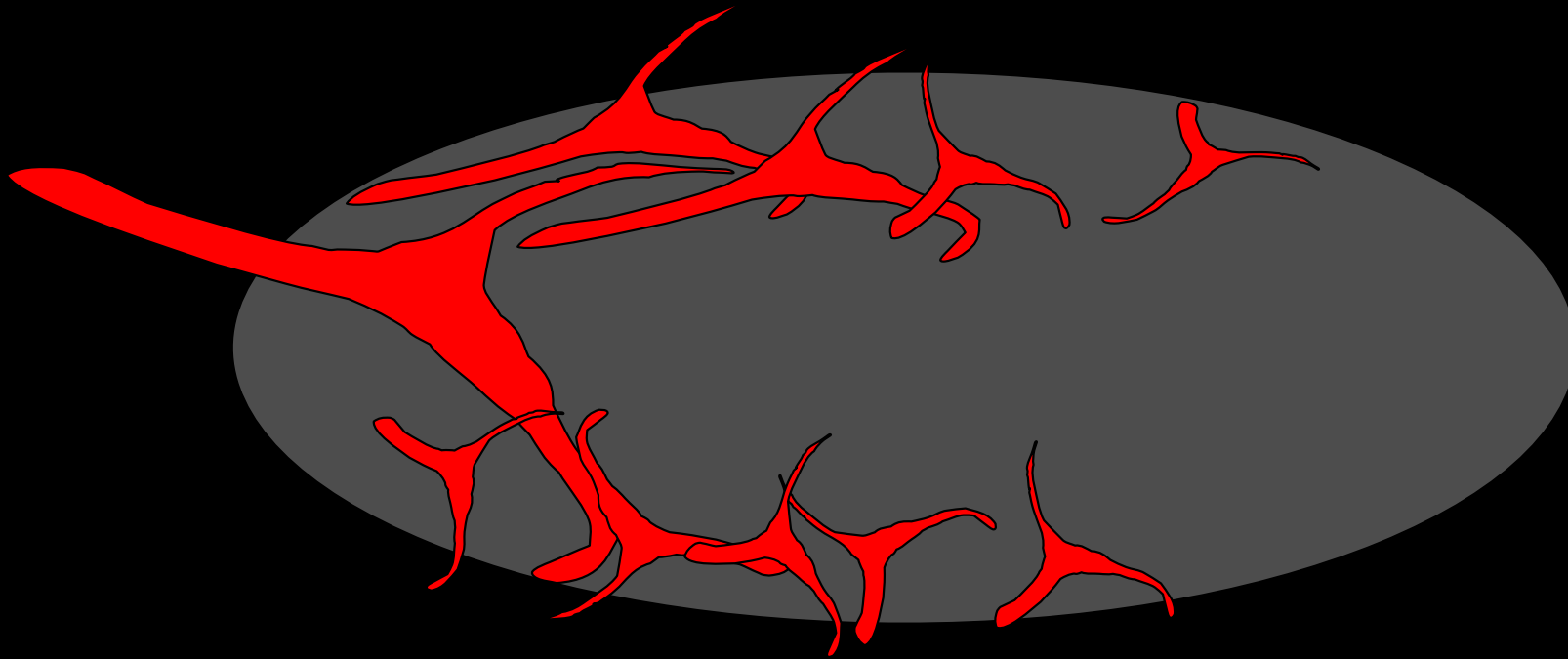
6.9



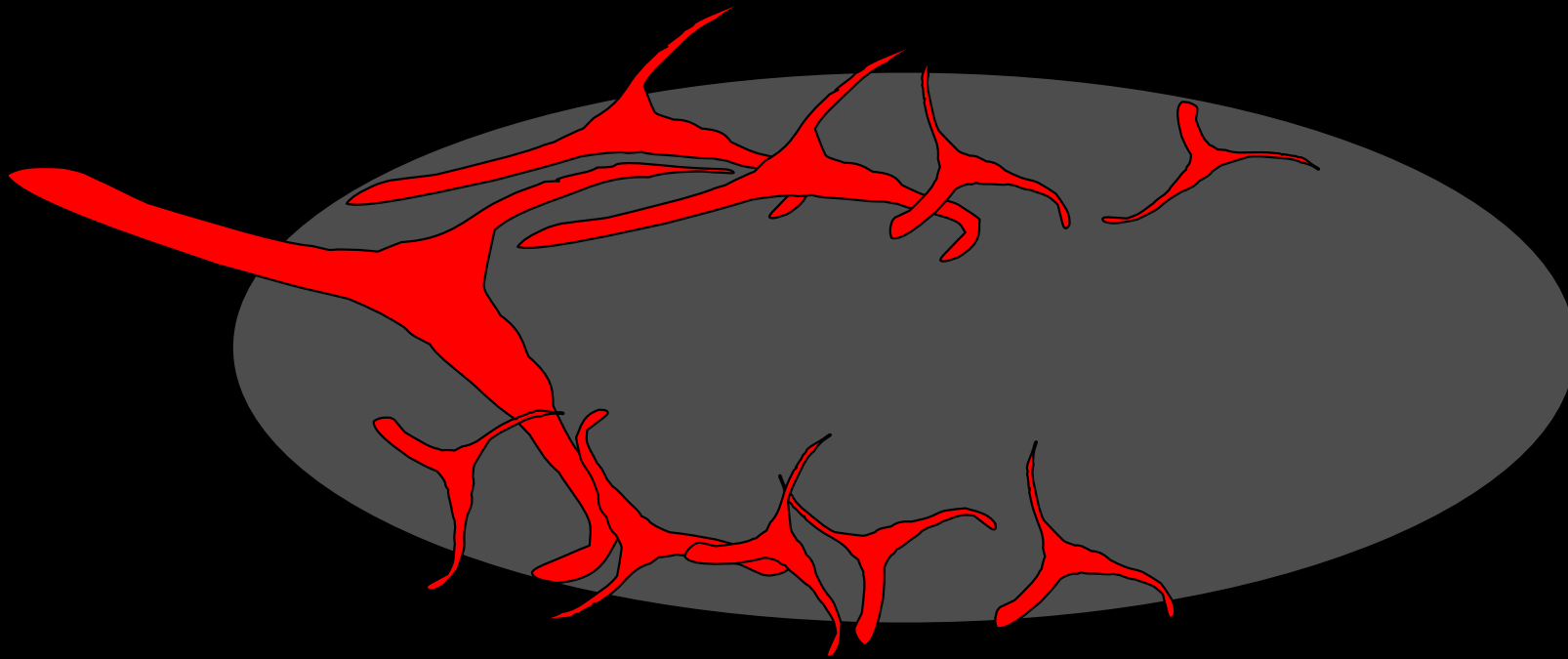
MI  
1.5  
12L5  
diffT9.0  
9 fps  
G:84  
DR:75  
CF 6.1  
CG:32  
13.2k  
F:5

LT

# Parathyroid : “arc” pattern



# Parathyroid : “rim” pattern





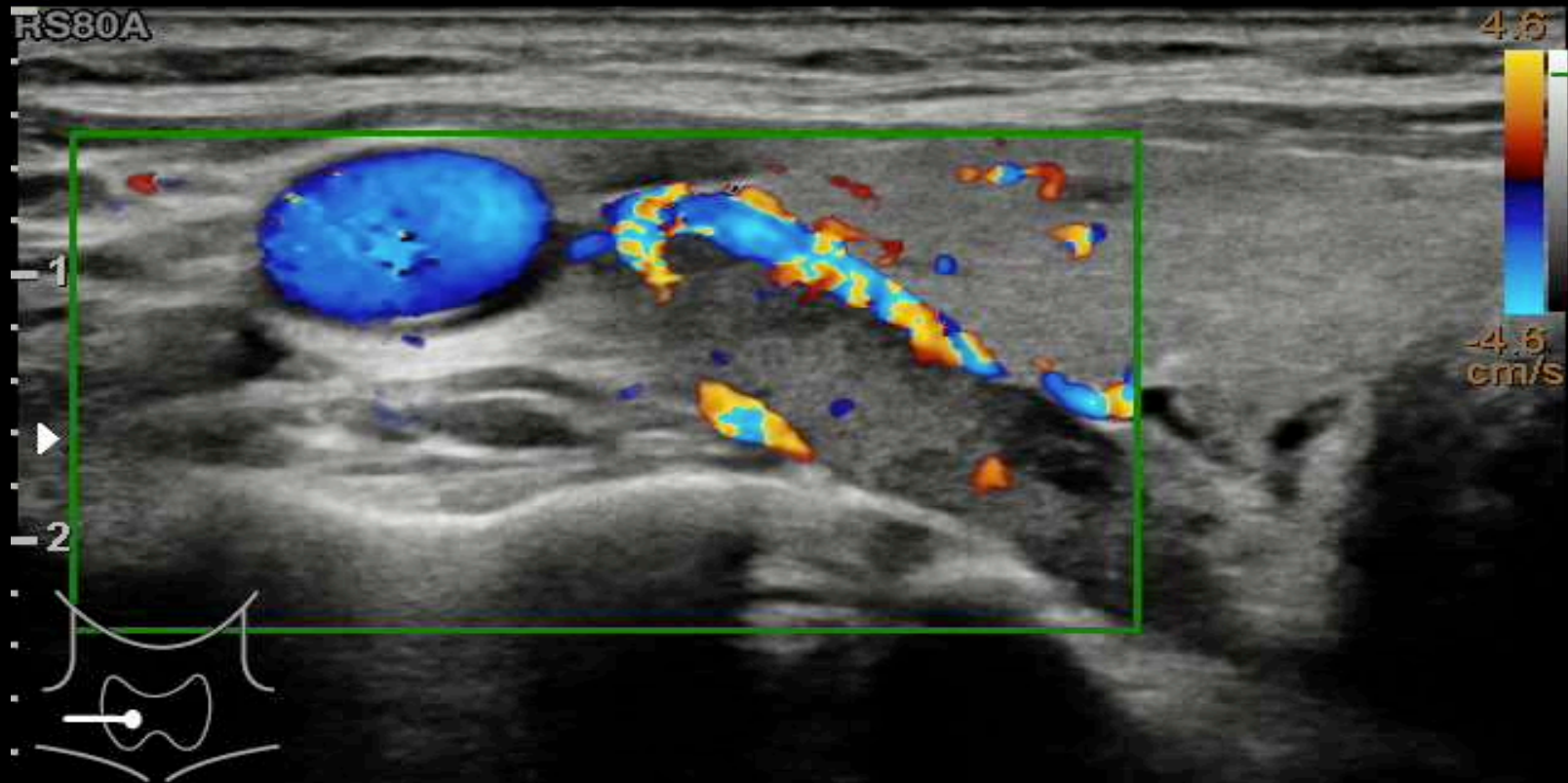
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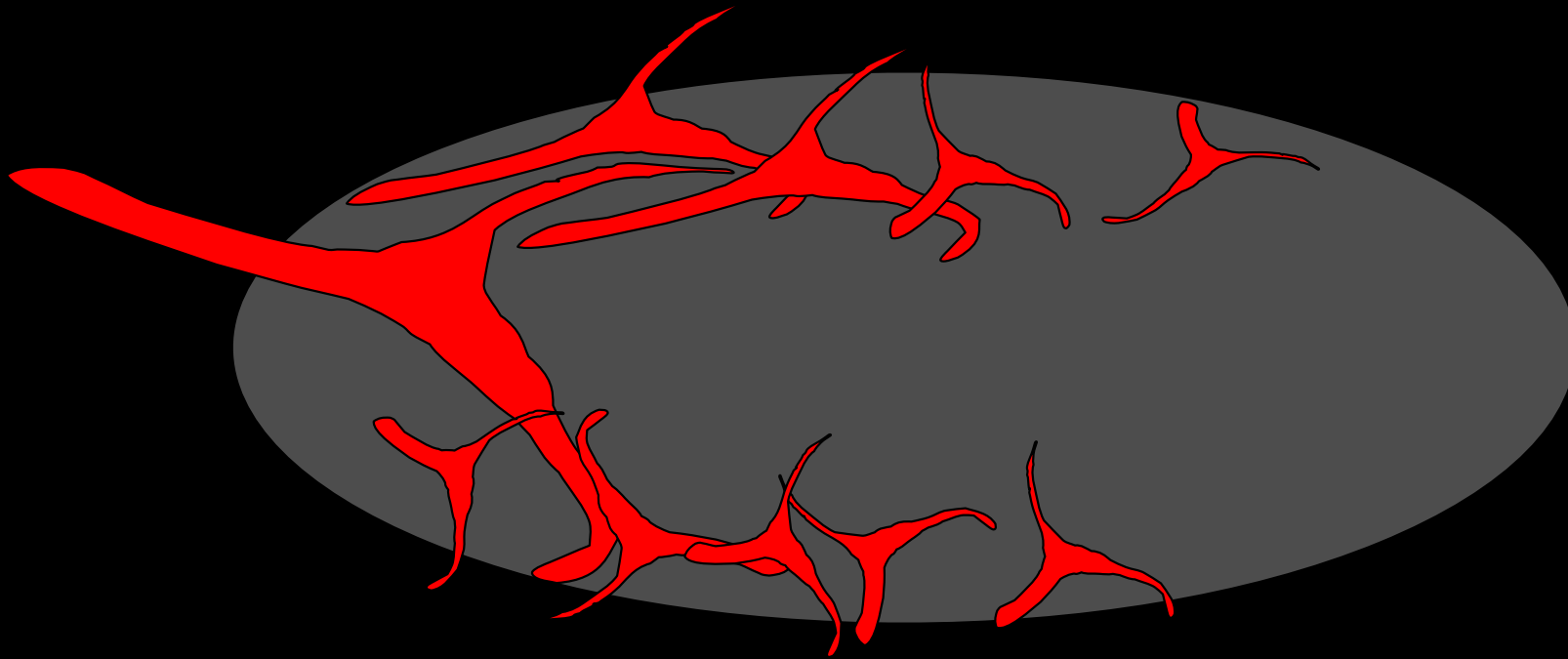
C G50/0.80kHz/F1/FA8

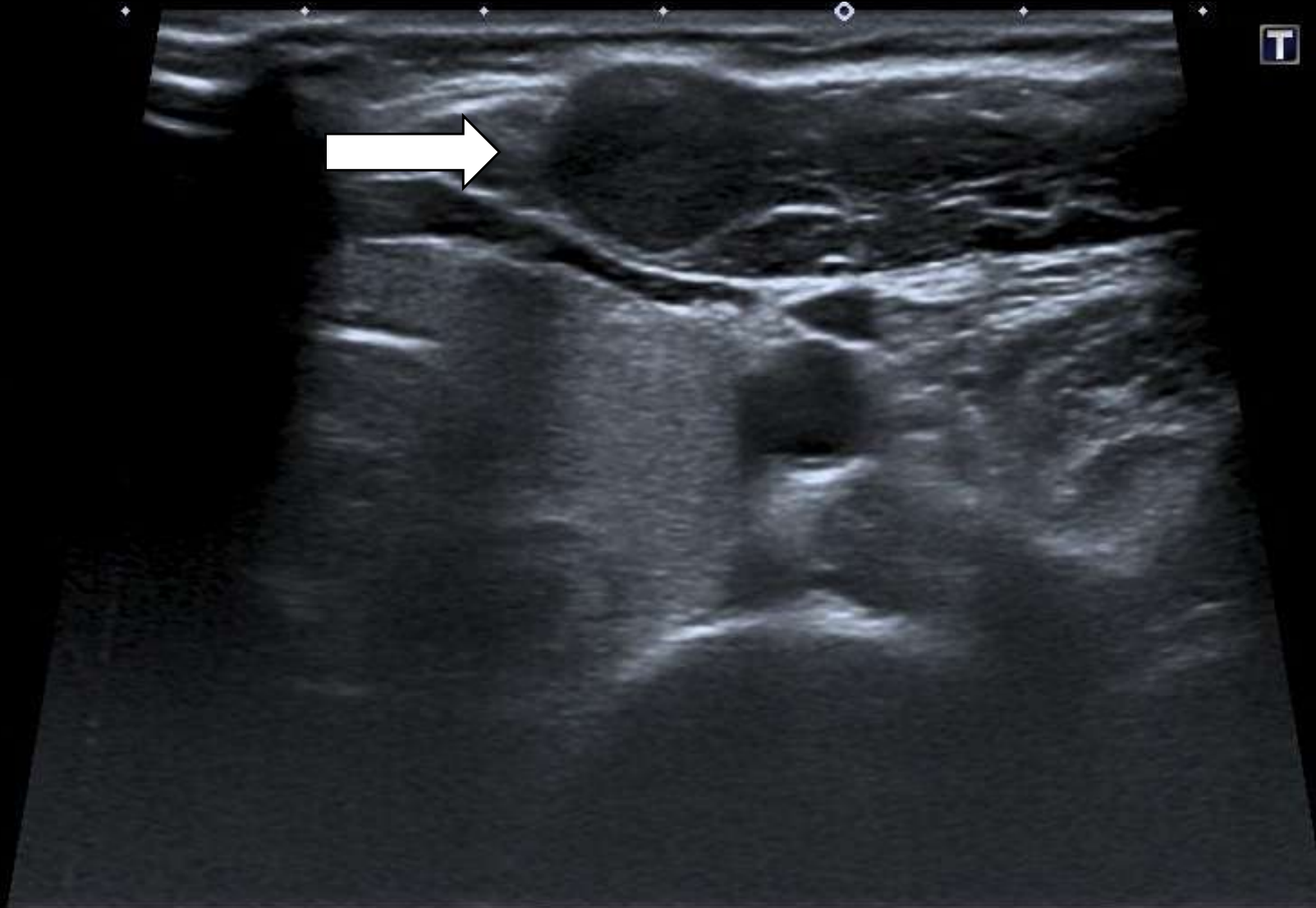


RS80A



Parathyroid : “arc ” pattern





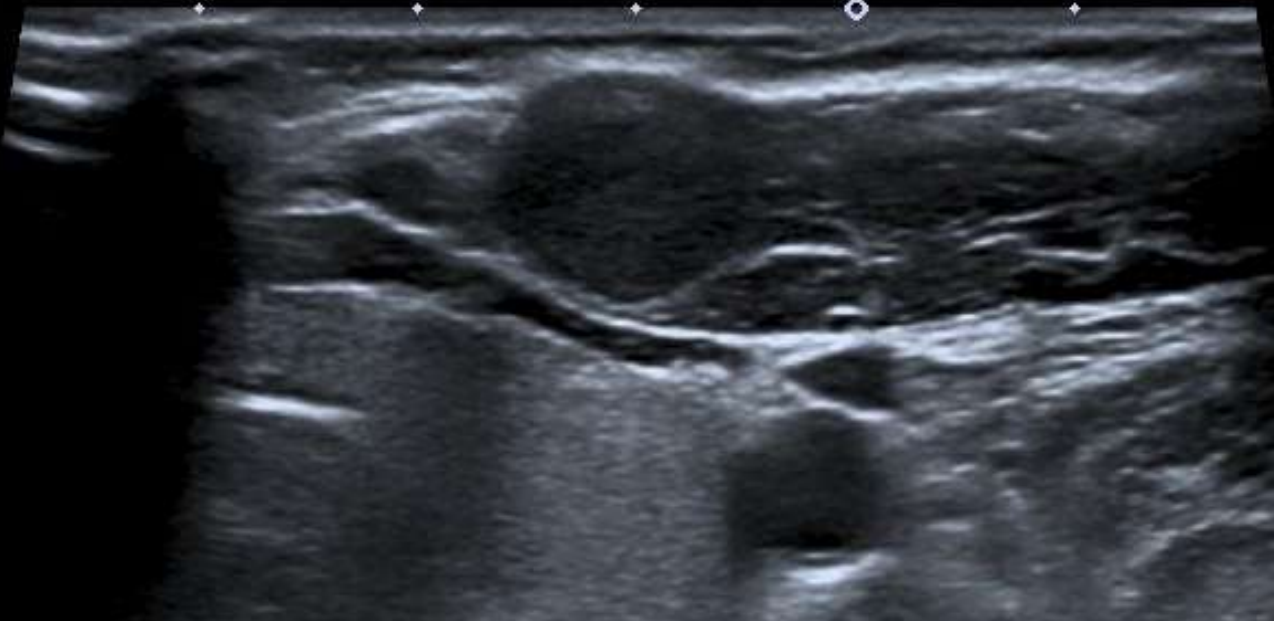
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TECHNICAL INFORMATION: 10/01/2019 10:00:00 AM, 10/01/2019 10:00:00 AM, 10/01/2019 10:00:00 AM, 10/01/2019 10:00:00 AM

0  
0.2  
0.4  
0.6  
0.8  
1.0  
1.2  
1.4  
1.6  
1.8  
2.0  
2.2  
2.4  
2.6  
2.8  
3.0  
3.2  
3.4  
3.6  
3.8  
4.0  
4.2  
4.4  
4.6



12.0  
10.0  
8.0  
6.0  
4.0  
2.0  
0.0

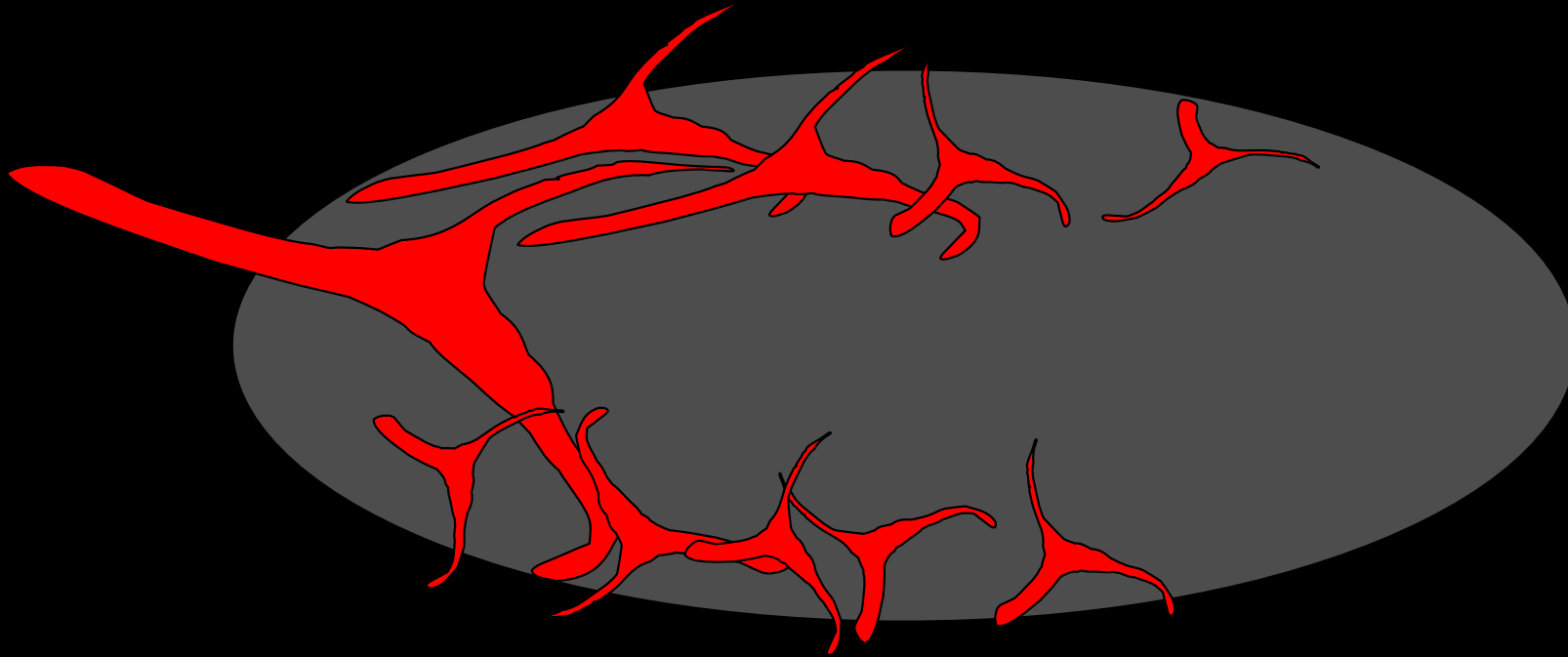


(RANK) RIS No:3821319  
SINGLETON HOSPITAL

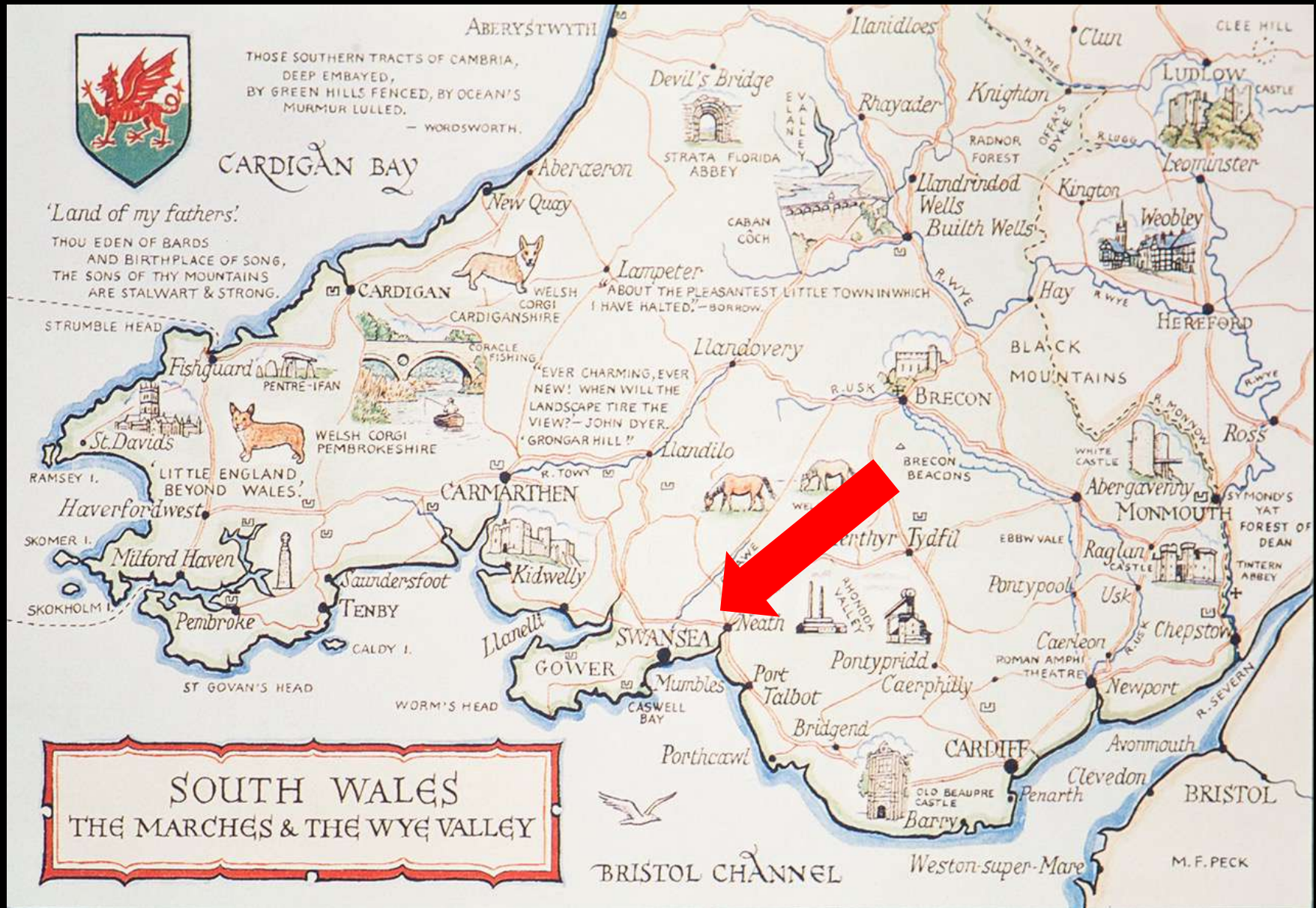
(RANK) Order No:3821319



Parathyroid : “rim/arc ”  
pattern

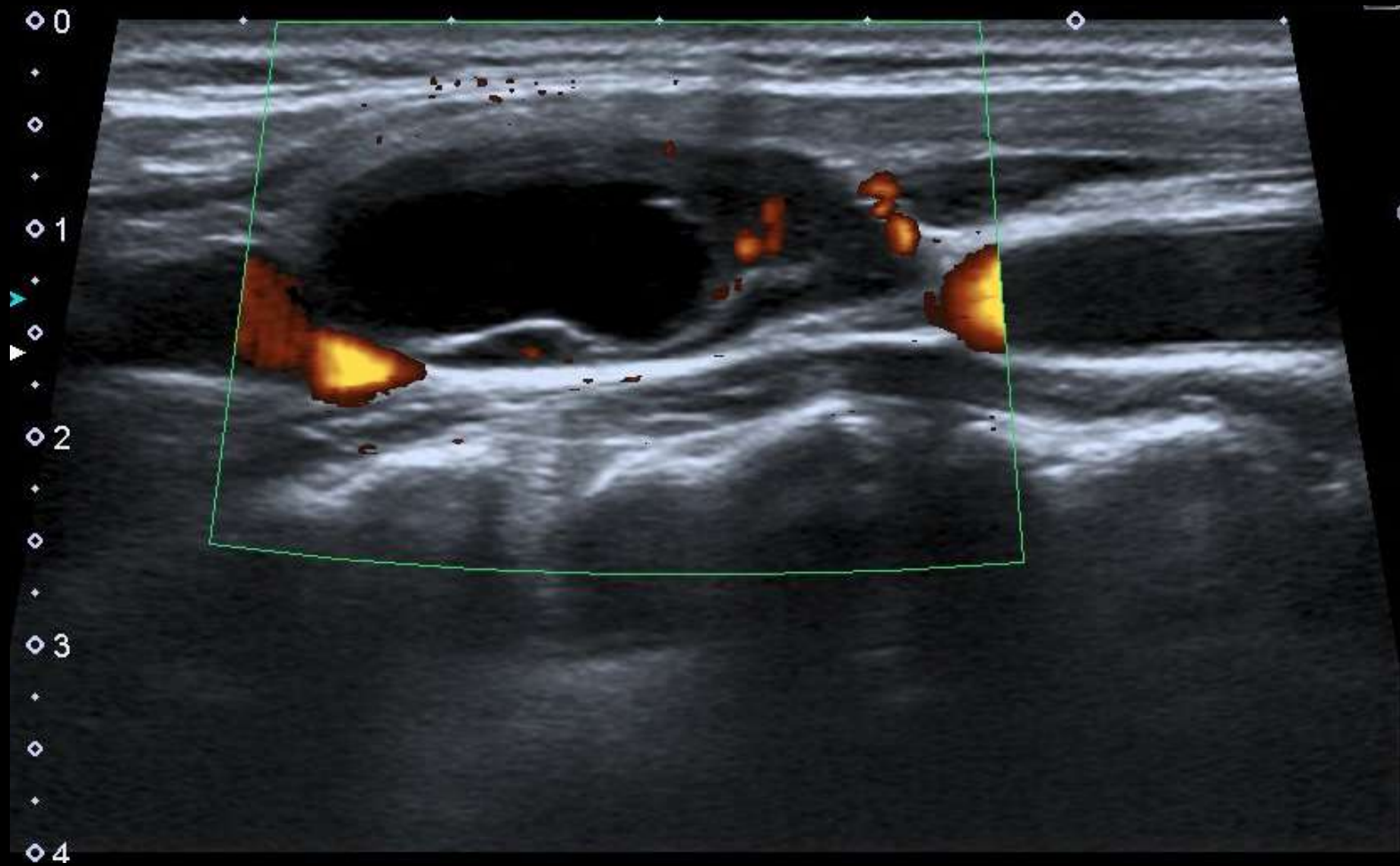


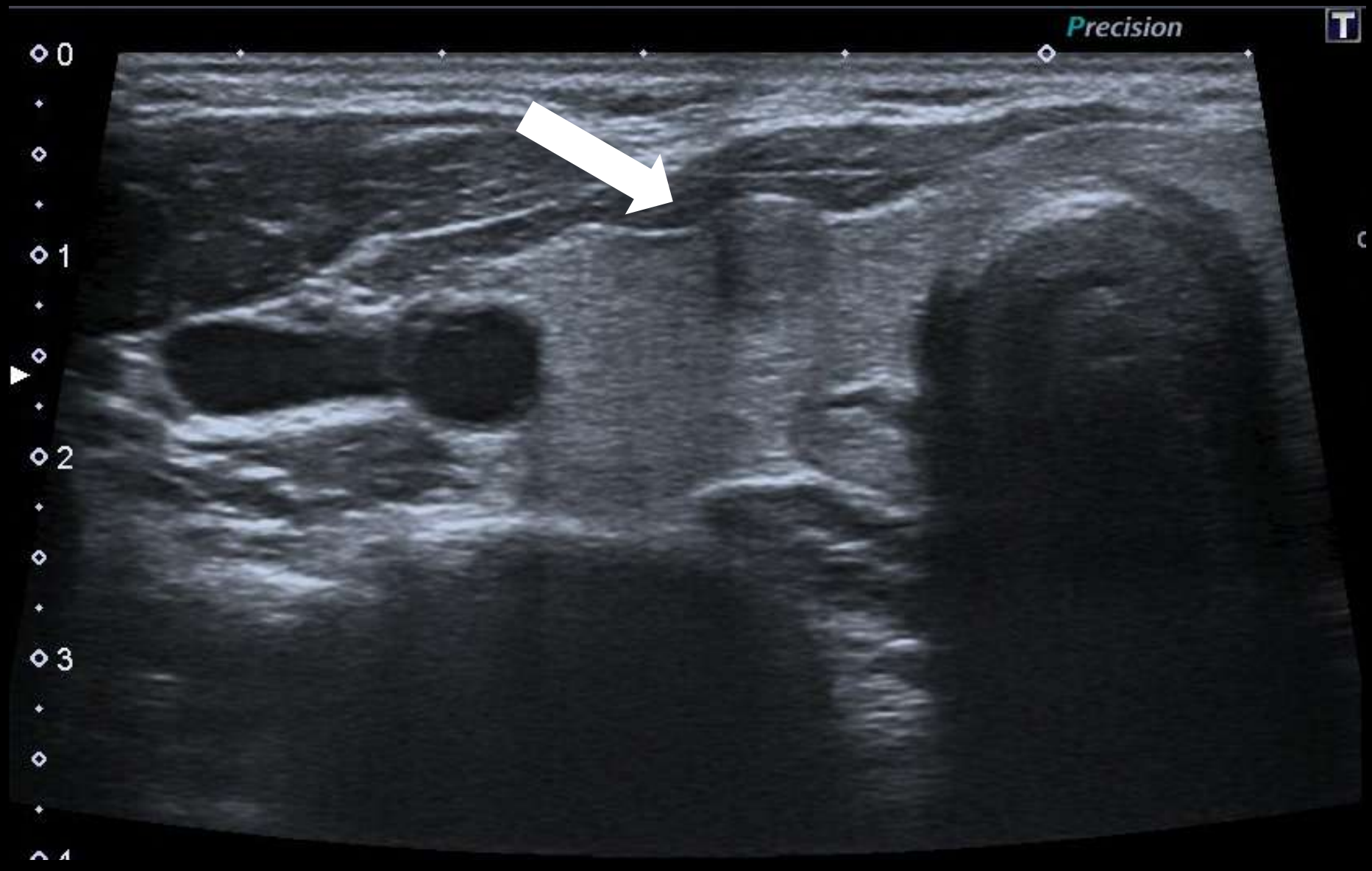
Polar & extra-thyroidal supply



Tatoos ?

# Case 1





Precision

T

C

0

1

2

3

4

Precision A Pure+

T

0

+

0

+

1

+

0

+

2

+

0

+

3

+

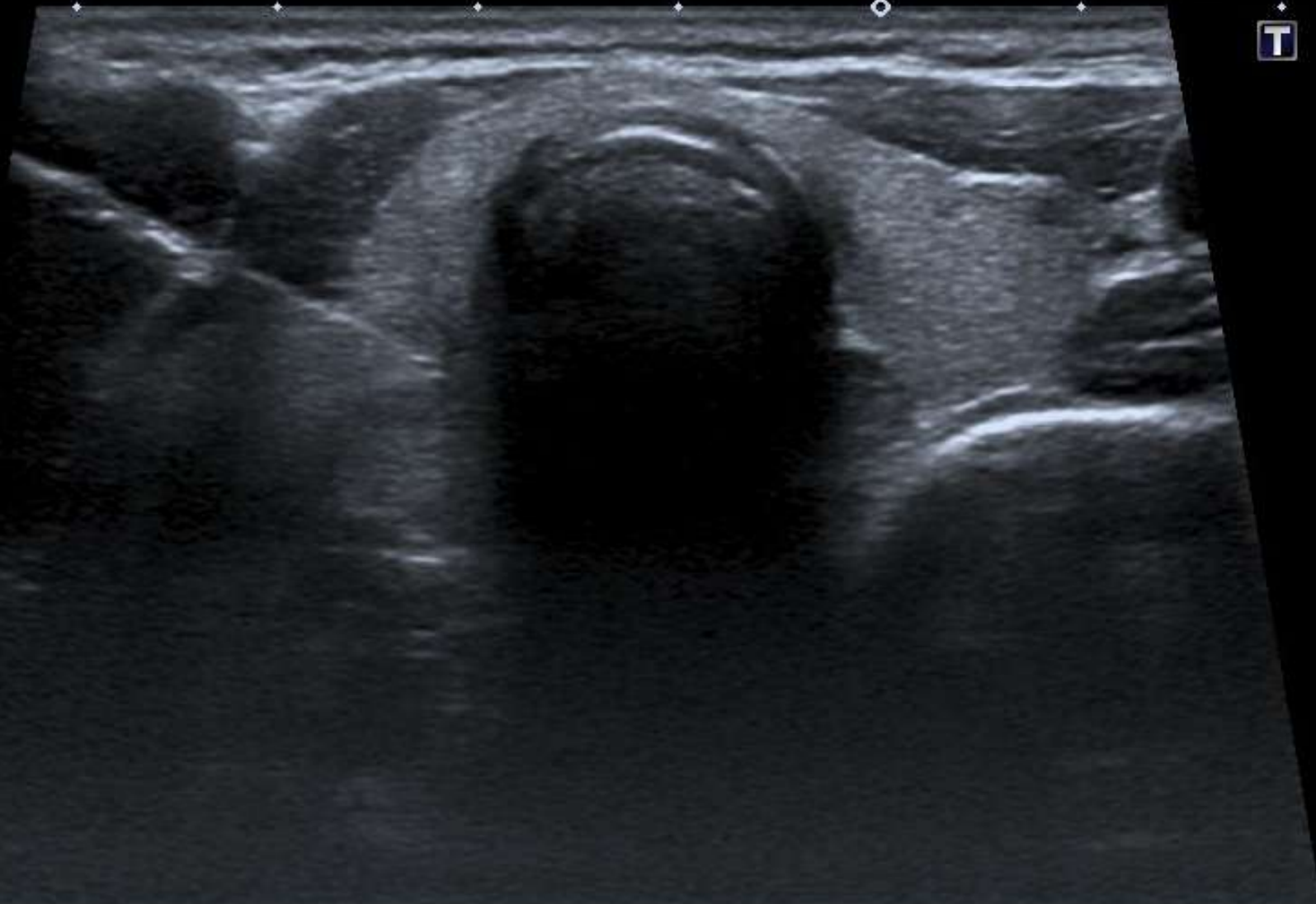
0

+

4

+

4.5



Two months post surgery

> 0

+

>

+

> 1

+

>

+

> 2

+

>

+

> 3

+

>

+

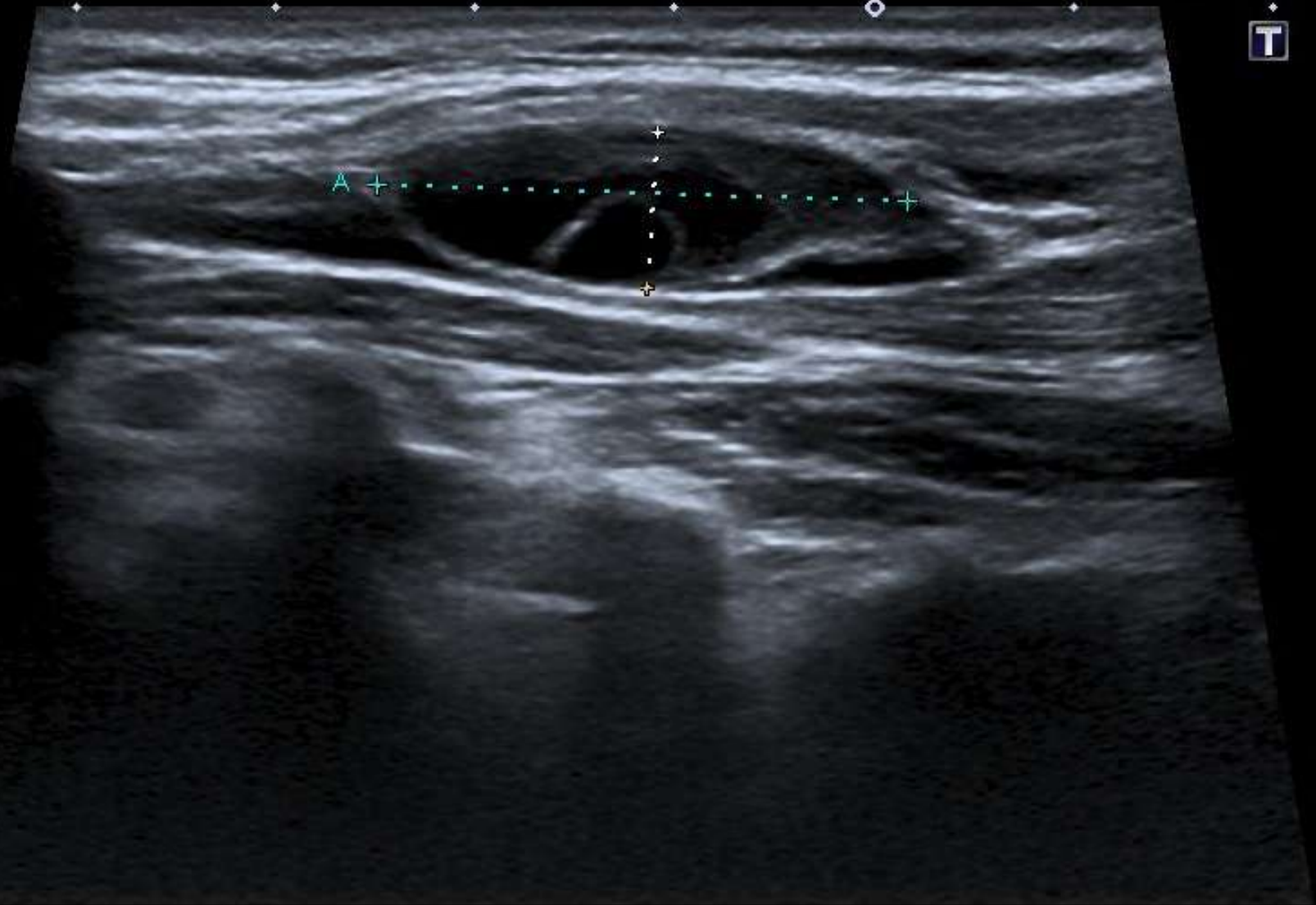
> 4

+

> 4.5

RT

T



0

T

1

NODE

THY LAMINATI

IJV

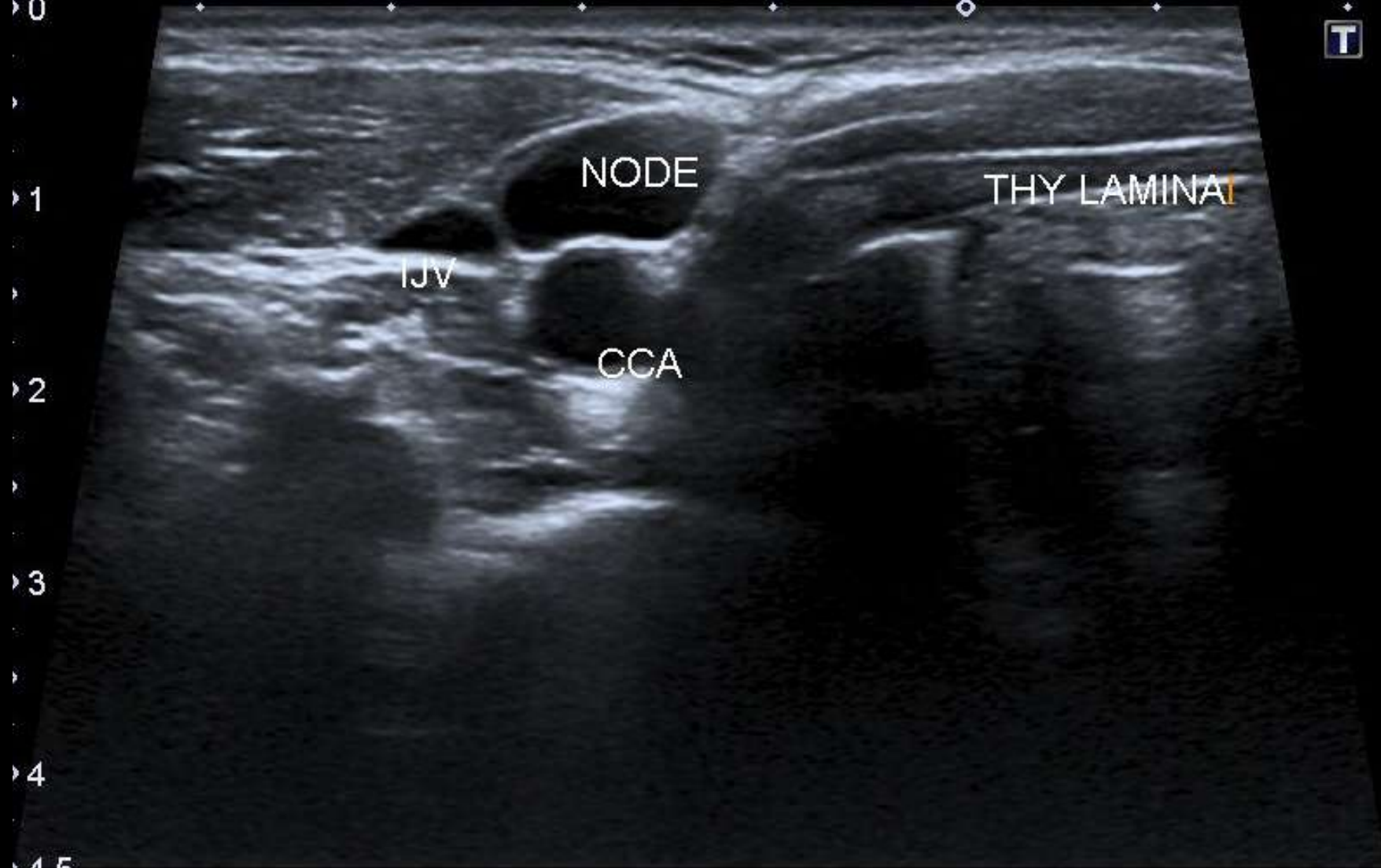
CCA

2

3

4

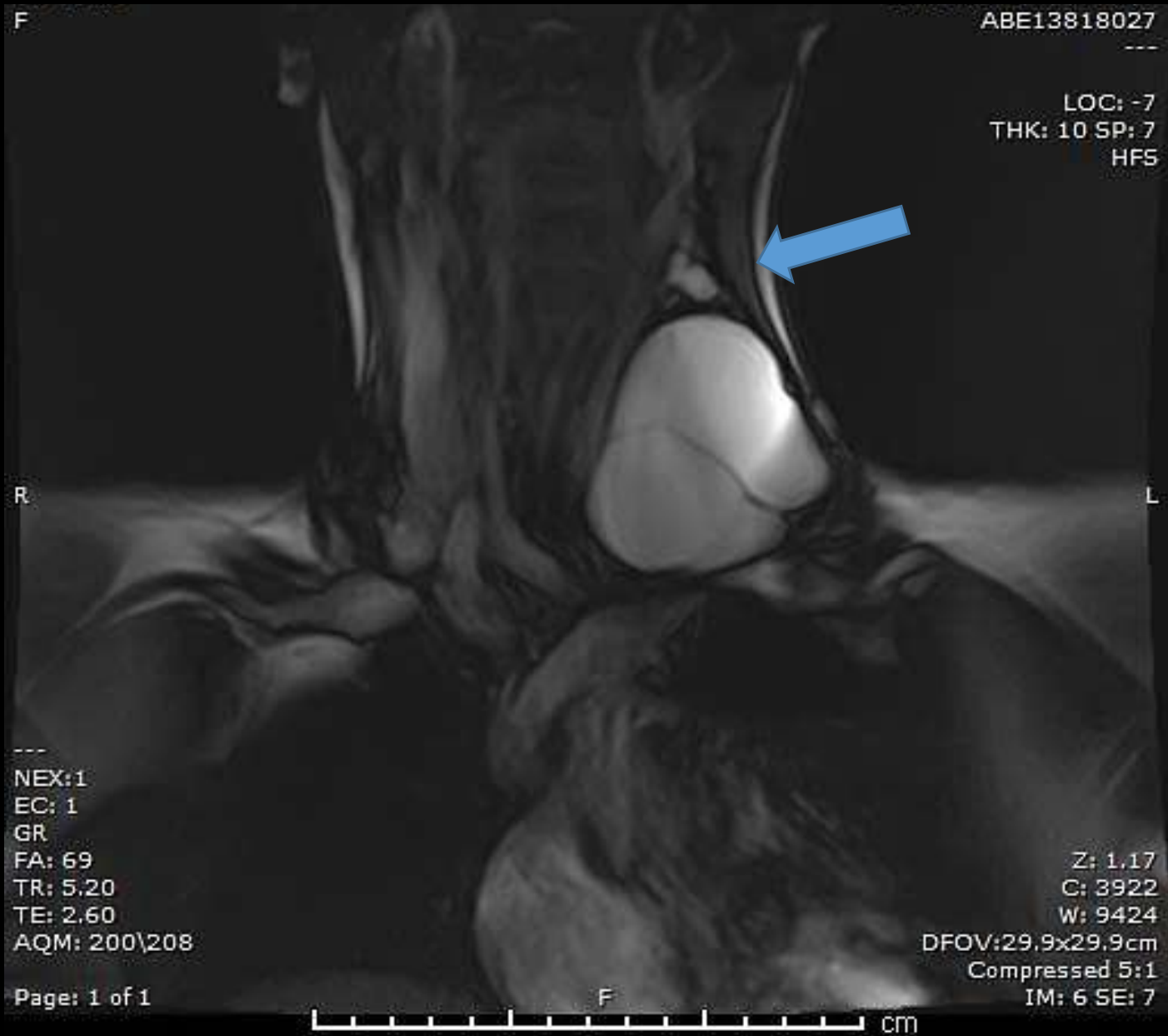
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# Case 2

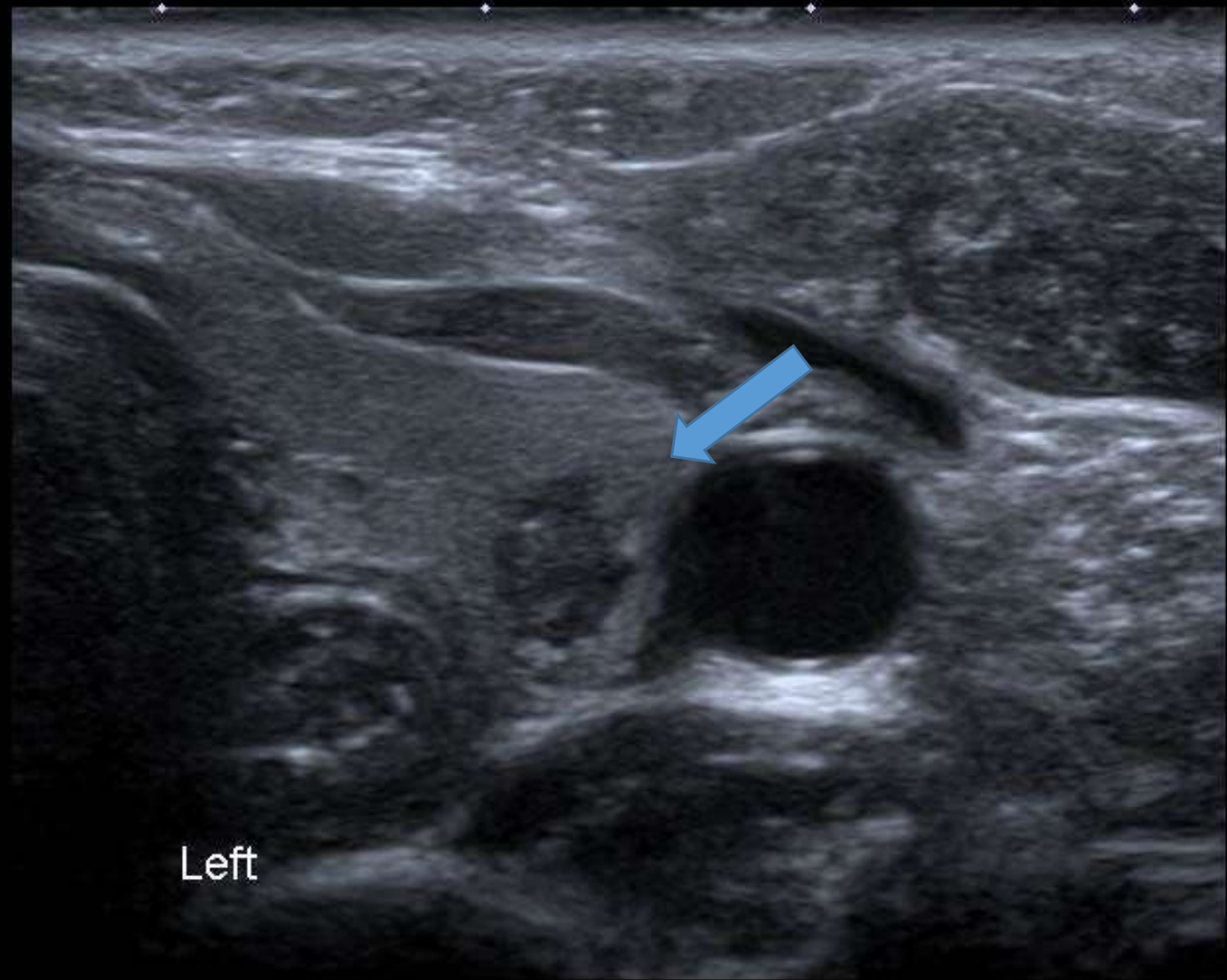


2013





18L7  
diff113.0  
38 fps  
G:90  
DR:70  
A:6  
P:7



Left

Jan 2016

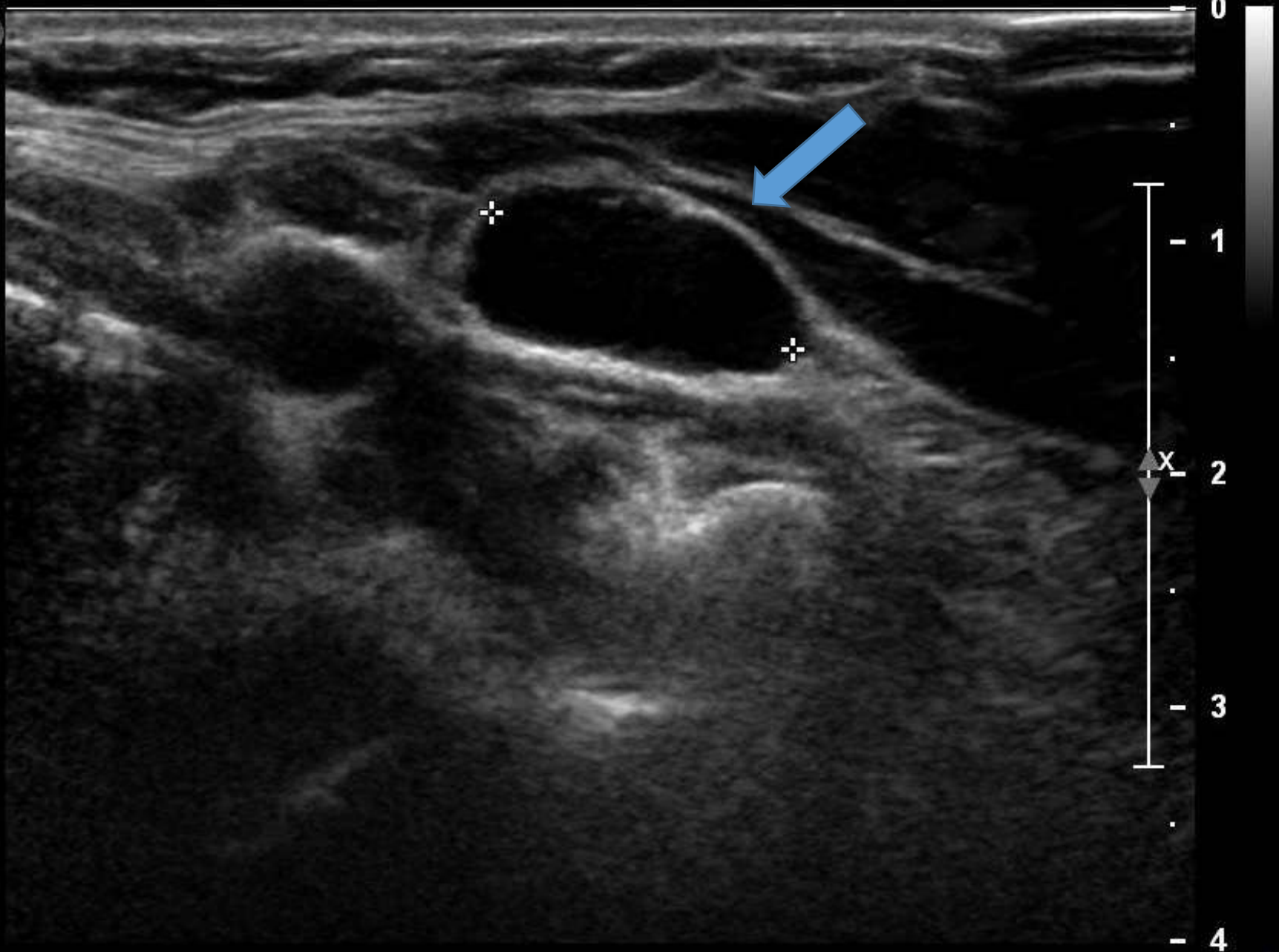
FR 27Hz  
RS

Nov 2016

M3

2D  
75%  
C 66  
P Low  
Res

P



Page 1 of 4  
Dist 1.42 cm

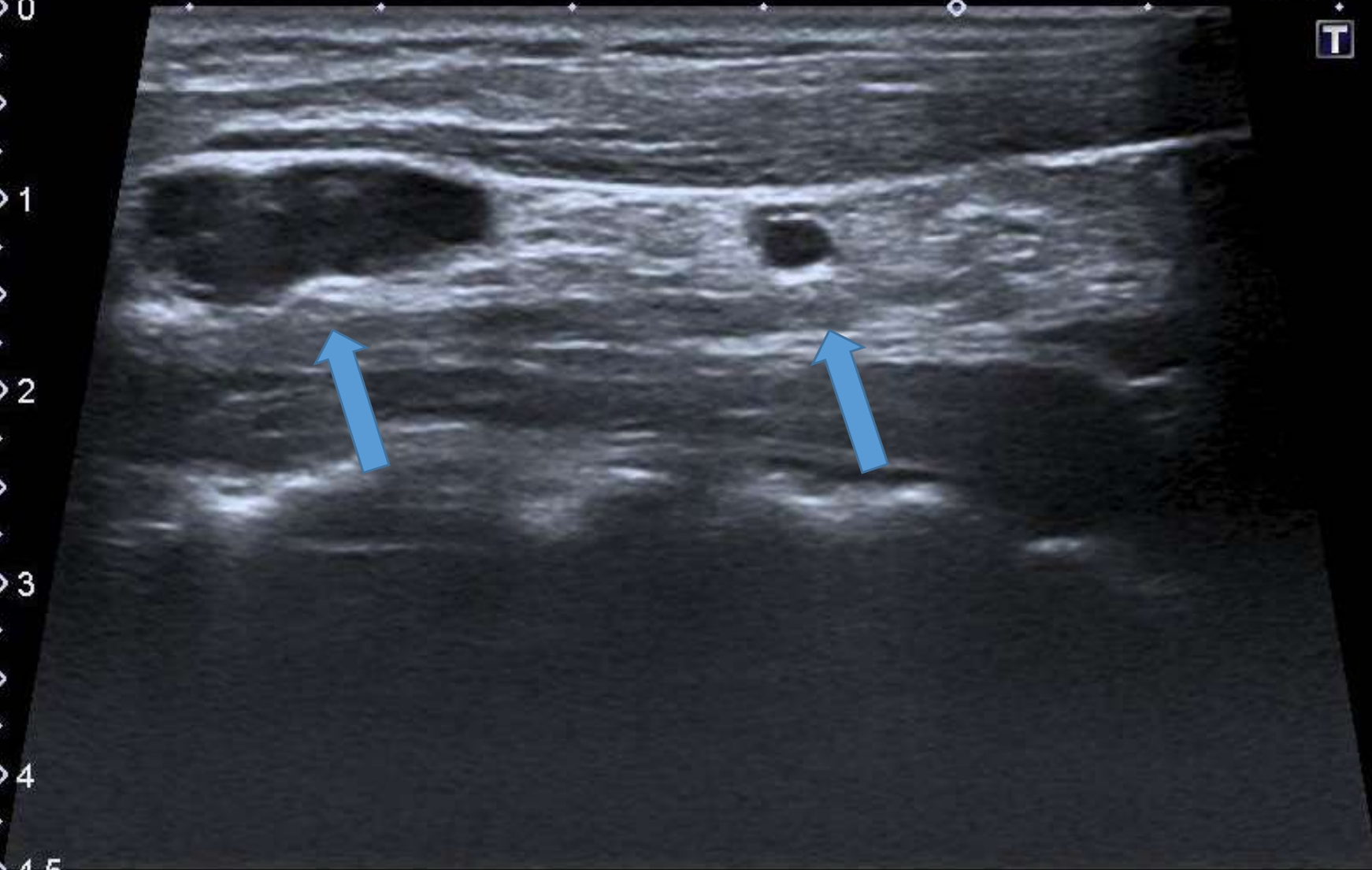
IM: 23

Precision A Pure+

T

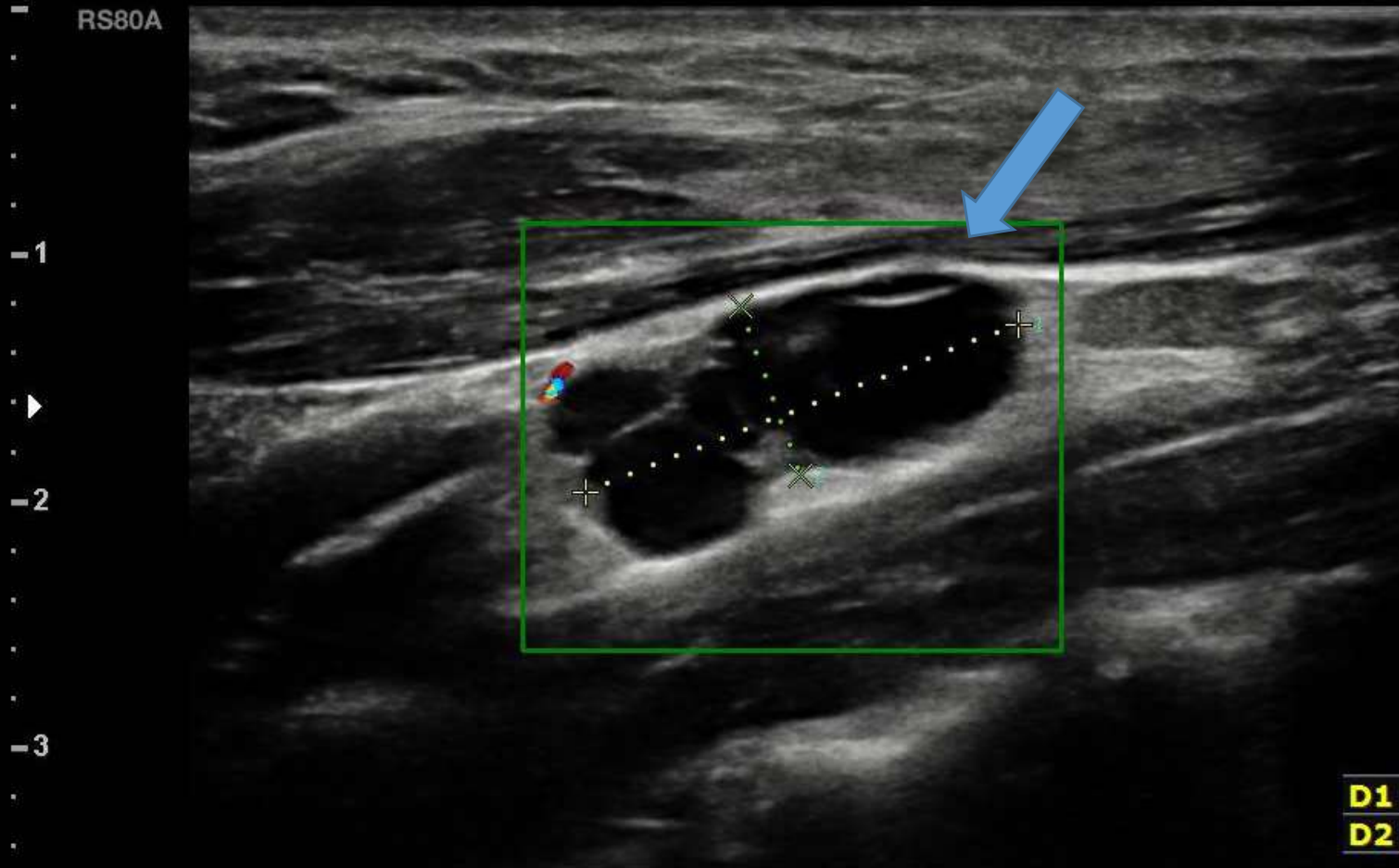
12L5  
diffT9.0  
32 fps  
G:79  
DR:75

0  
1  
2  
3  
4  
4.5



Pre -op Jan 2017

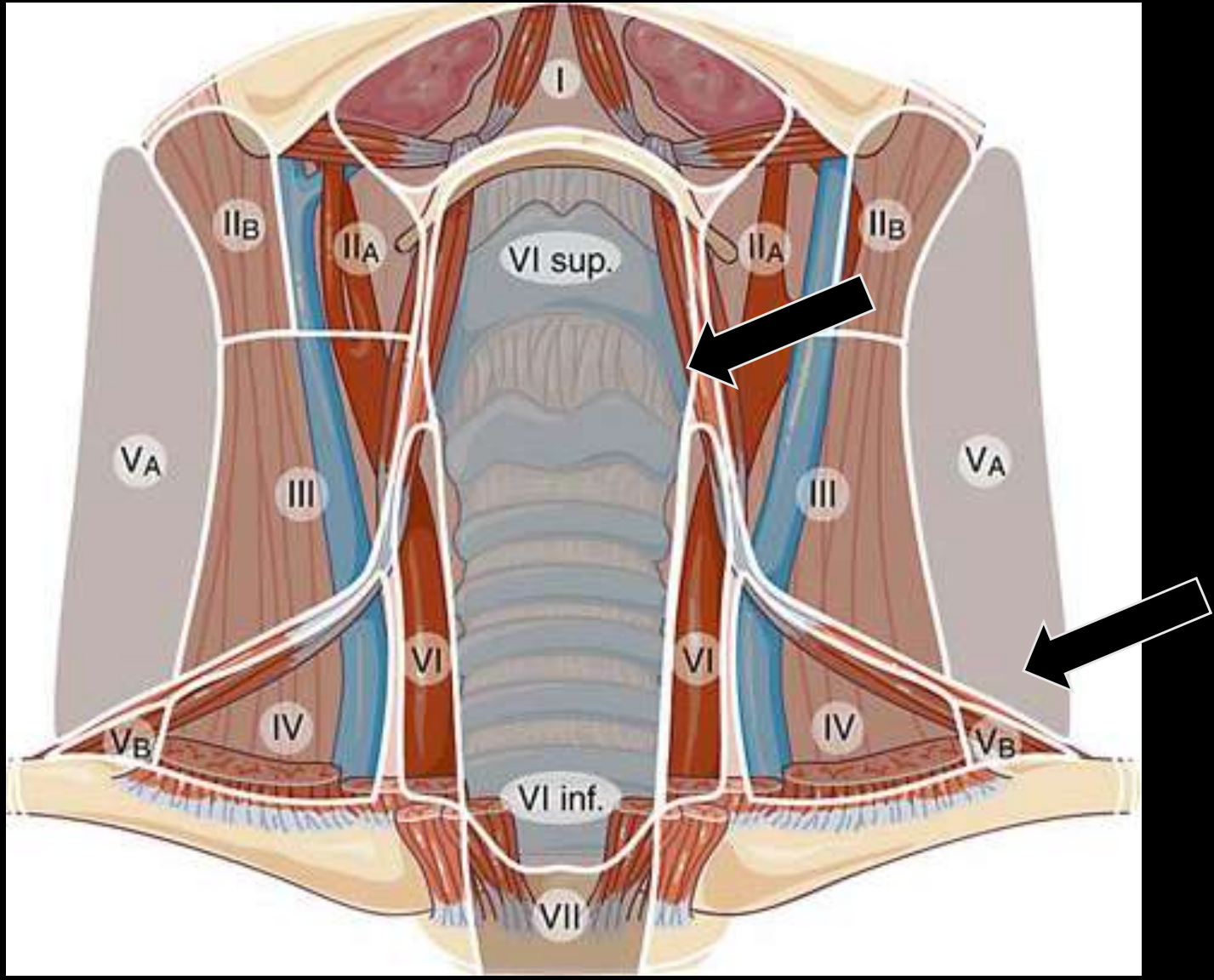
2D G50/DR58/FA4/P90/Frq Pen./3.5cm  
C G50/0.77kHz/F1/FA8

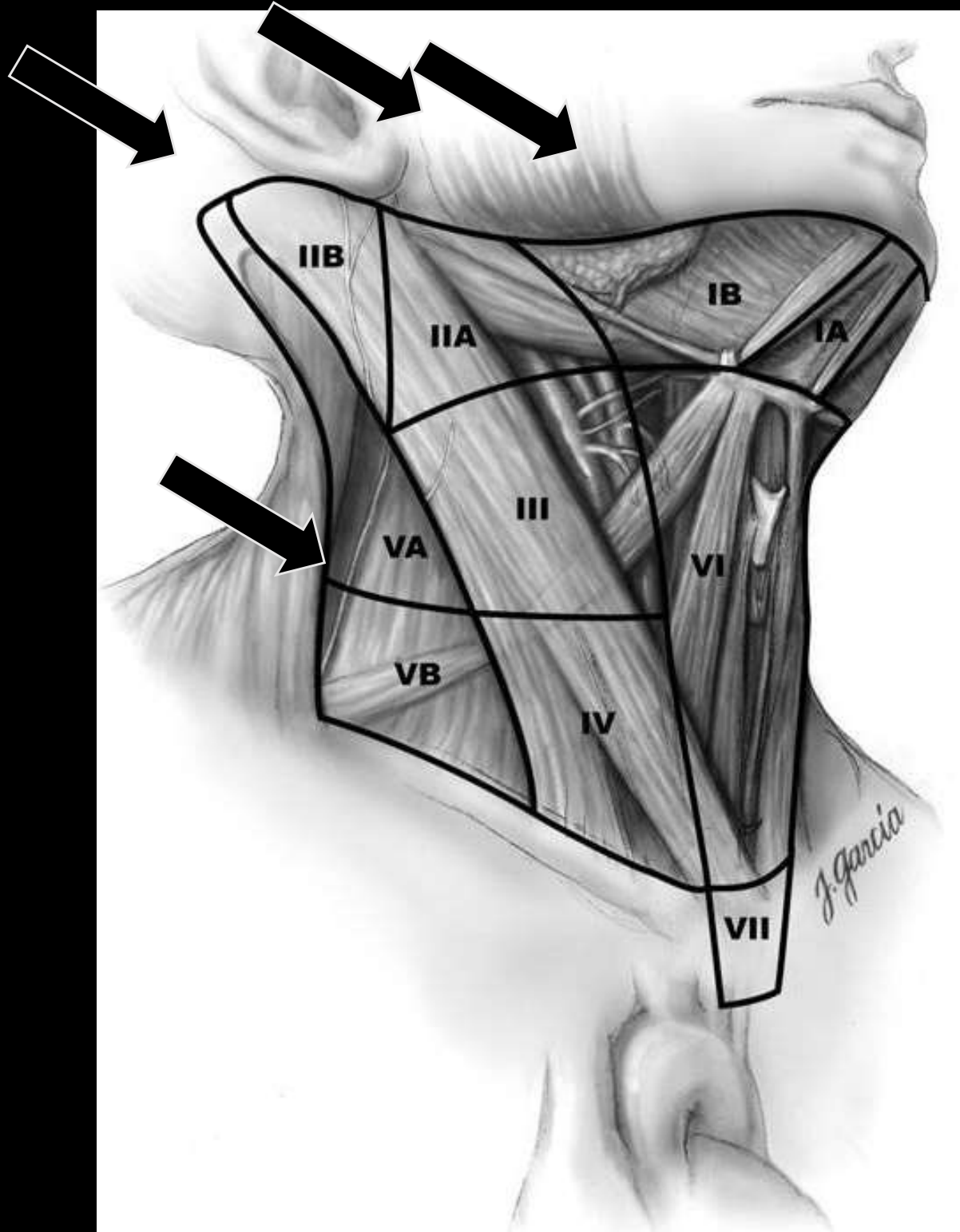


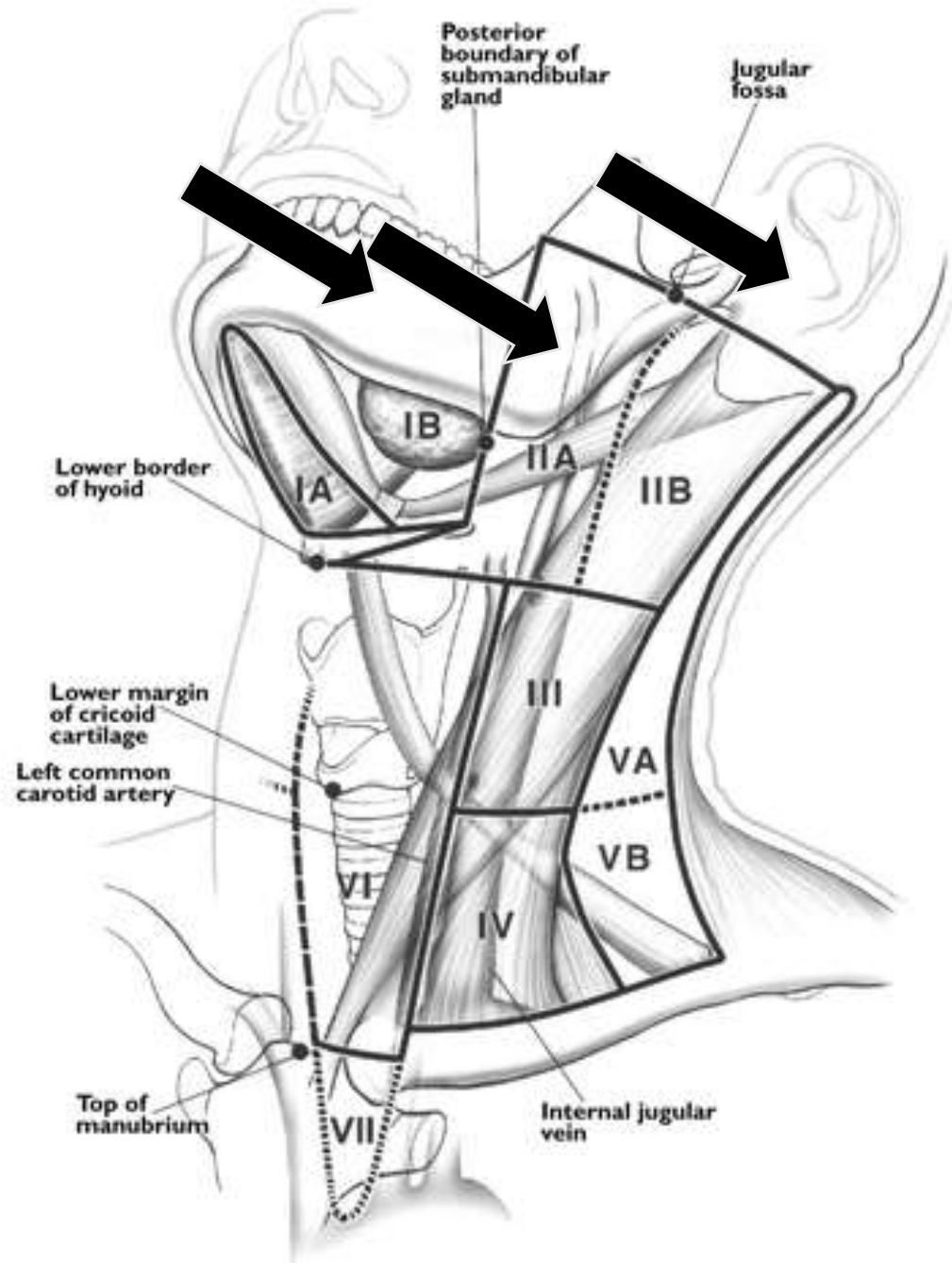
Feb 2017 - post op

# Reduce error

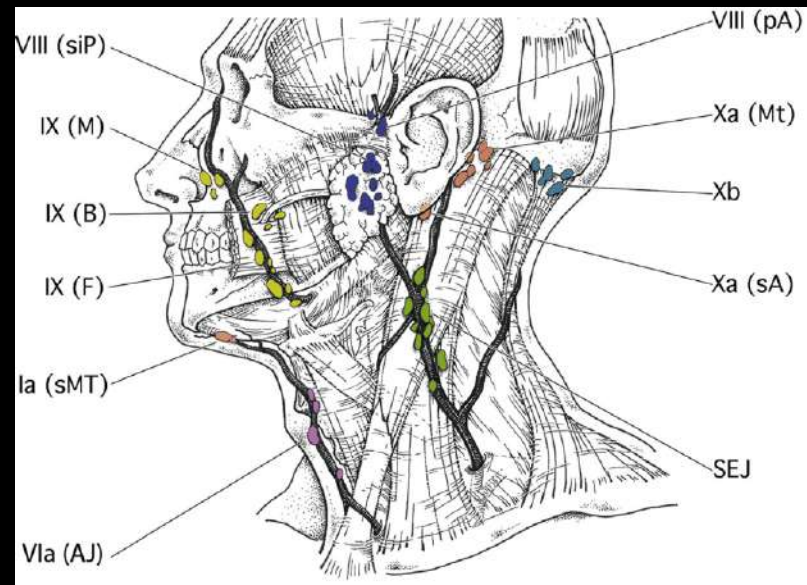
- Levels - speak the same language

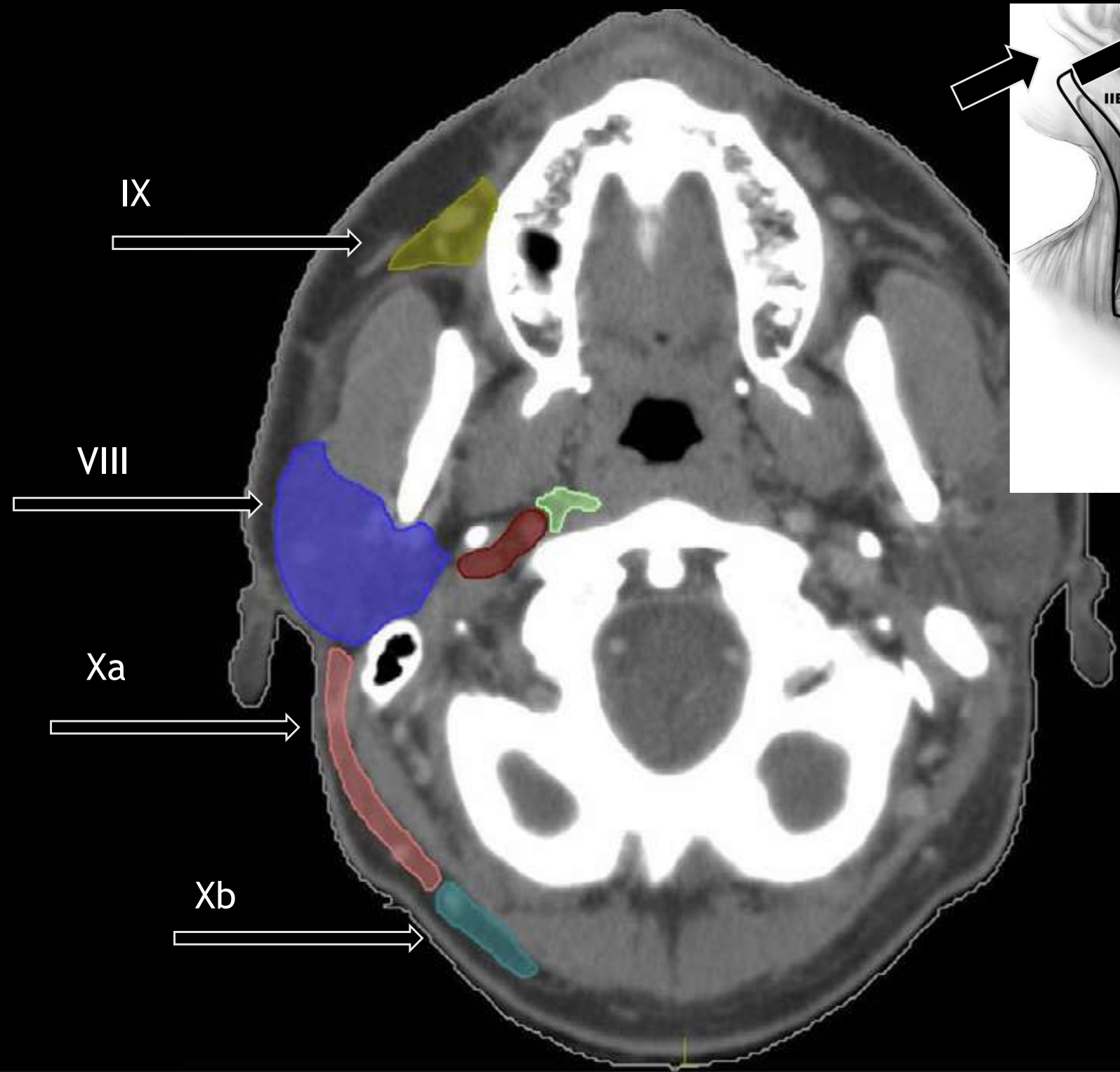
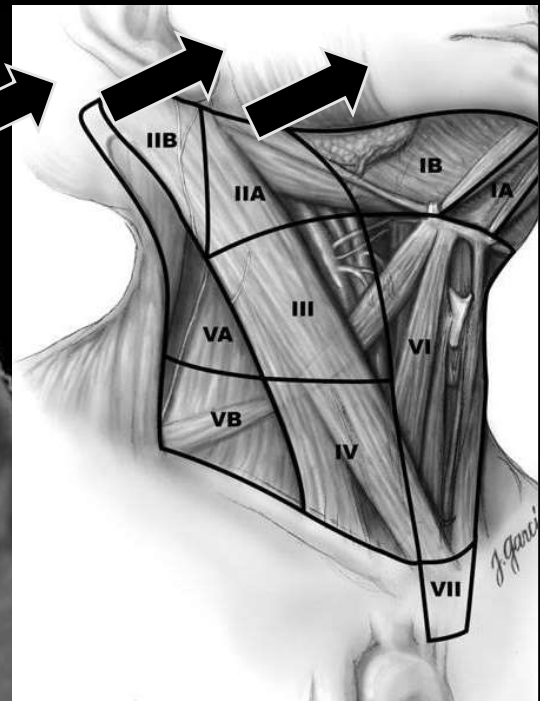






Guidelines : Delineation of the neck node levels for head and neck tumors: A 2013 update. DAHANCA, EORTC, HKNPCSG, NCIC CTG, NCRI, RTOG, TROG consensus guidelines





IX



VIII



Xa



Xb



# Reduce error

- Pre-operative Ultrasound
- Intra - operative Ultrasound?

# Intra operative Ultrasound

- Neck dissection - 25 patients
- Thyroid Ca
- Pre - op on table US
- Following dissection - fill neck with saline ,surgical glove on probe,scan (Surgeon)
- 16% cases further nodes found

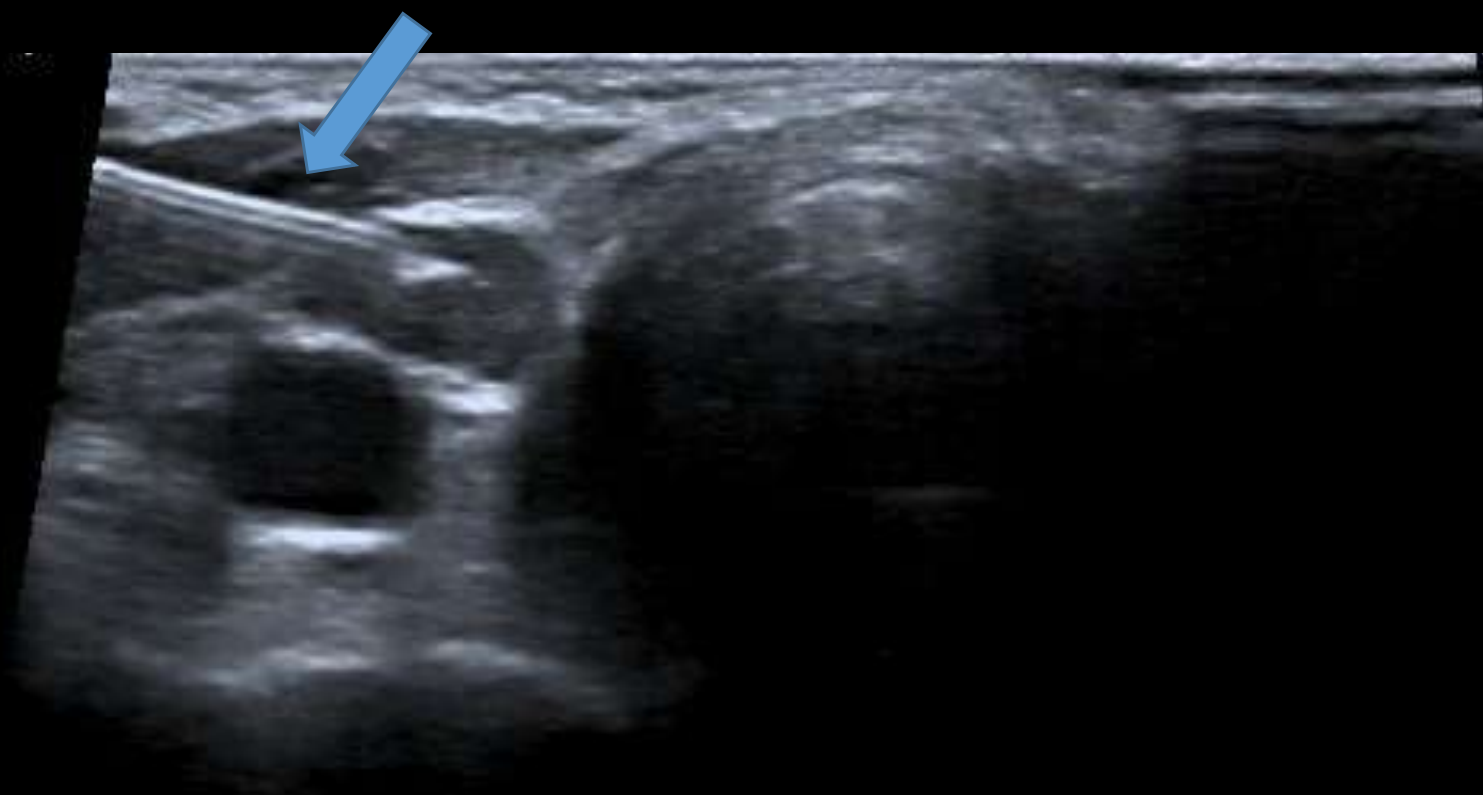
Utility of Intraoperative US in modified radical neck dissection .Surgical Innovation.2014

# Reduce error

- Charcoal tattooing.

# Tattooage: charcoal suspension

- Main advantage - persistence for 3 months
- Complication - cutaneous spot in tract (3.6%)
- Optimal vol :0.3-0.5 ml
- 27 gauge needle
- 4 - 18mm nodes reported
- Success : 84-96%
- Failure : posterior nodes to IJV
- Should be used to facilitate surgical procedures



# Alcohol?

- Editorial : “The coming of age .....
- Hay & Charbonneau : Mayo Clinic
- UPEA should replace berry picking surgery
- Excellent alternative to surgery in patients with limited no of nodal metastases from Papillary Thyroid carcinoma

# US Guided Alcohol Ablation (Oslo)

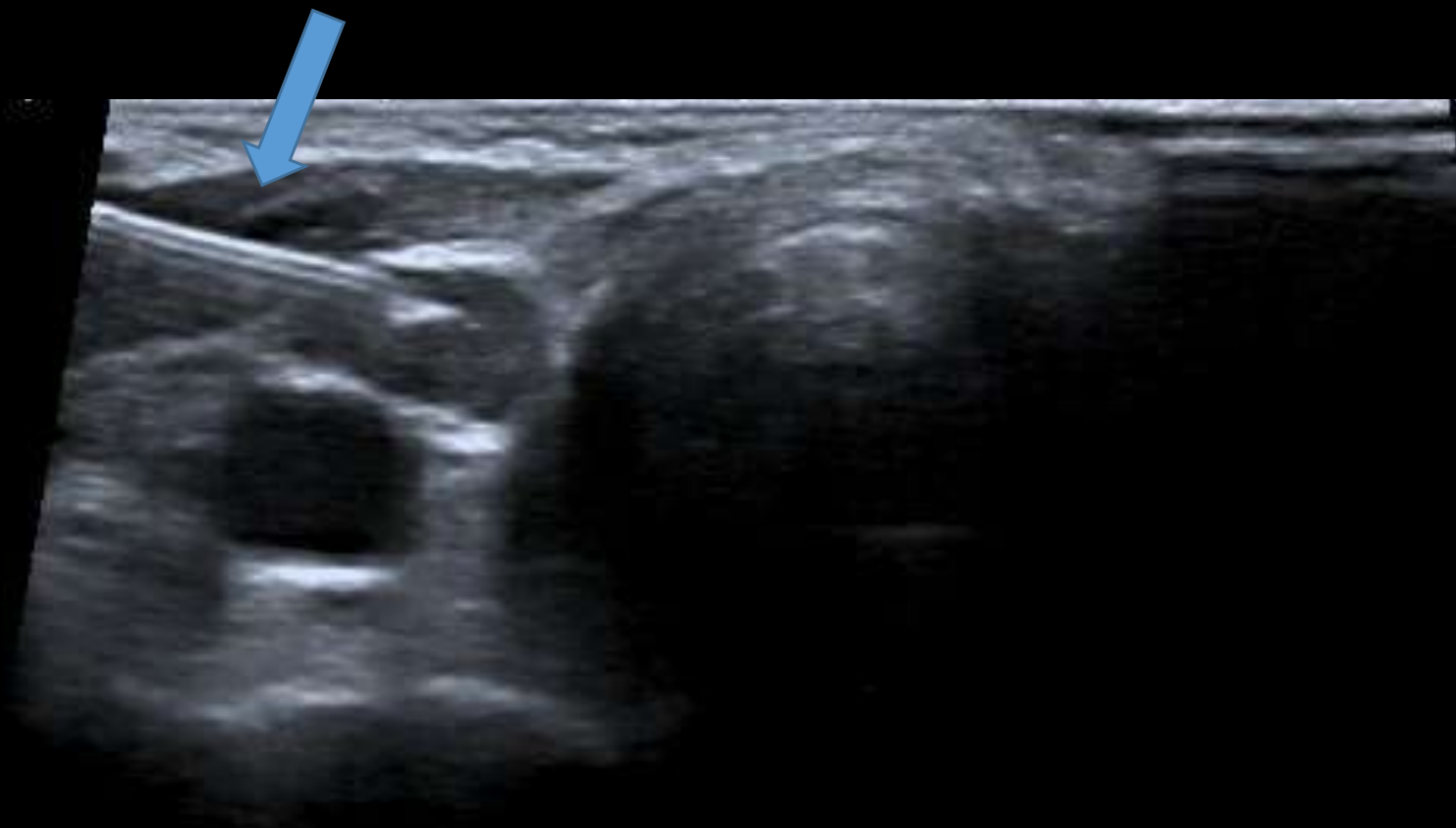
- 63 patients
- 101 of 109 nodes responded (90 completely)
- No significant side effects
- Occ short lived hoarseness, no permanent vocal cord damage
- Less than 10% experienced minor discomfort

Precision APure+



T

12L5  
diffT9.0  
32 fps  
G:79  
DR:75  
A:6  
P:3



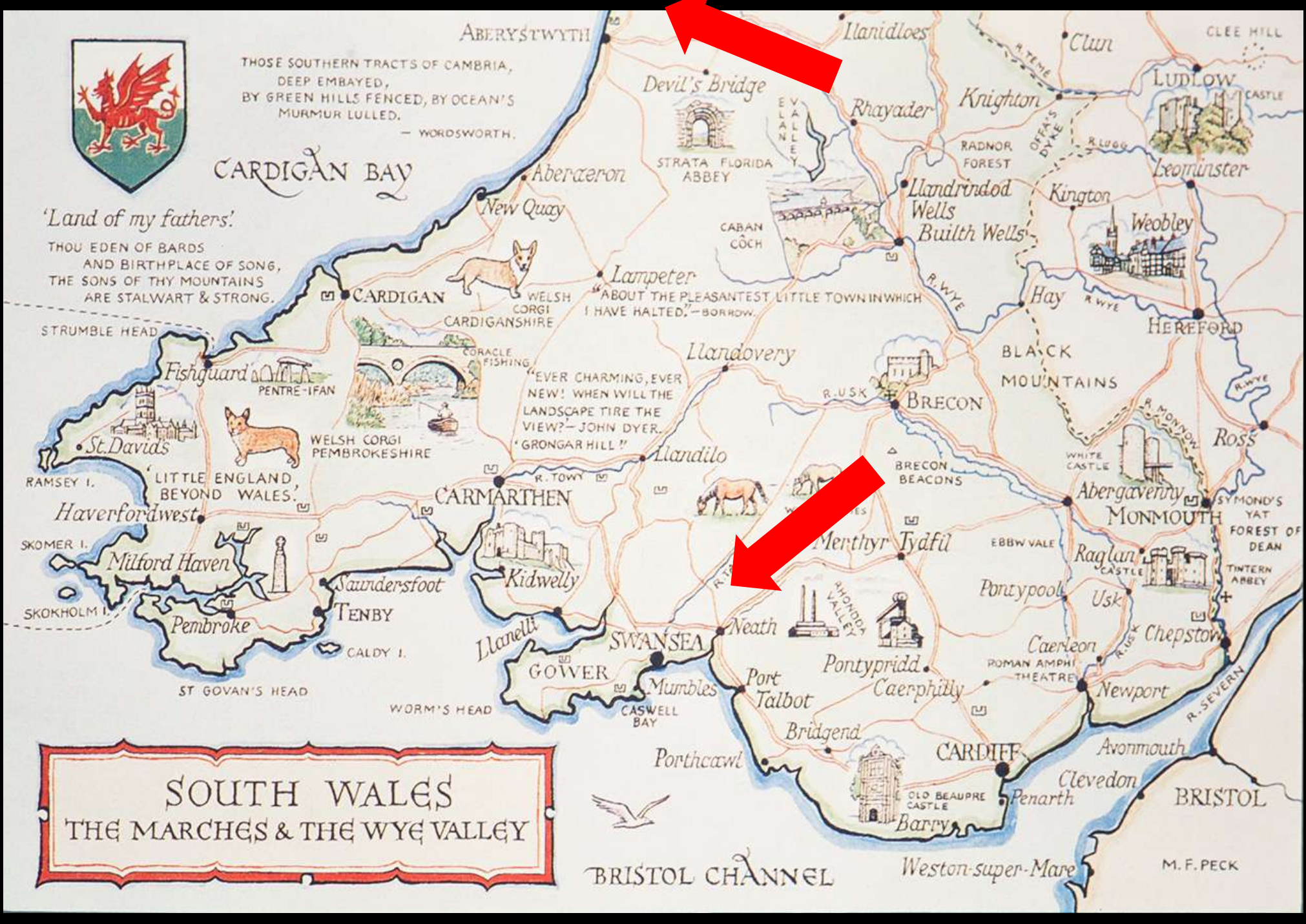


THOSE SOUTHERN TRACTS OF CAMBRIA,  
DEEP EMBAYED,  
BY GREEN HILLS FENCED, BY OCEAN'S  
MURMUR LULLED.  
— WORDSWORTH.

# CARDIGAN BAY

'Land of my fathers'

THOU EDEN OF BARDS  
AND BIRTHPLACE OF SONG,  
THE SONS OF THY MOUNTAINS  
ARE STALWART & STRONG.



# SOUTH WALES THE MARCHES & THE WYE VALLEY

BRISTOL CHANNEL Weston-super-Mare M. F. PECK

# Ethanol ablation

- MDT agreement
- 100% ethanol
- Ethyl chloride spray
- 21g needle
- Diabetic 1ml syringe & connecting tube
- Helper
- 40 mins : 5 nodes (largest 11mm)
- Stayed overnight ,follow up scan next morning

TOSHIBA  
Aplio 500

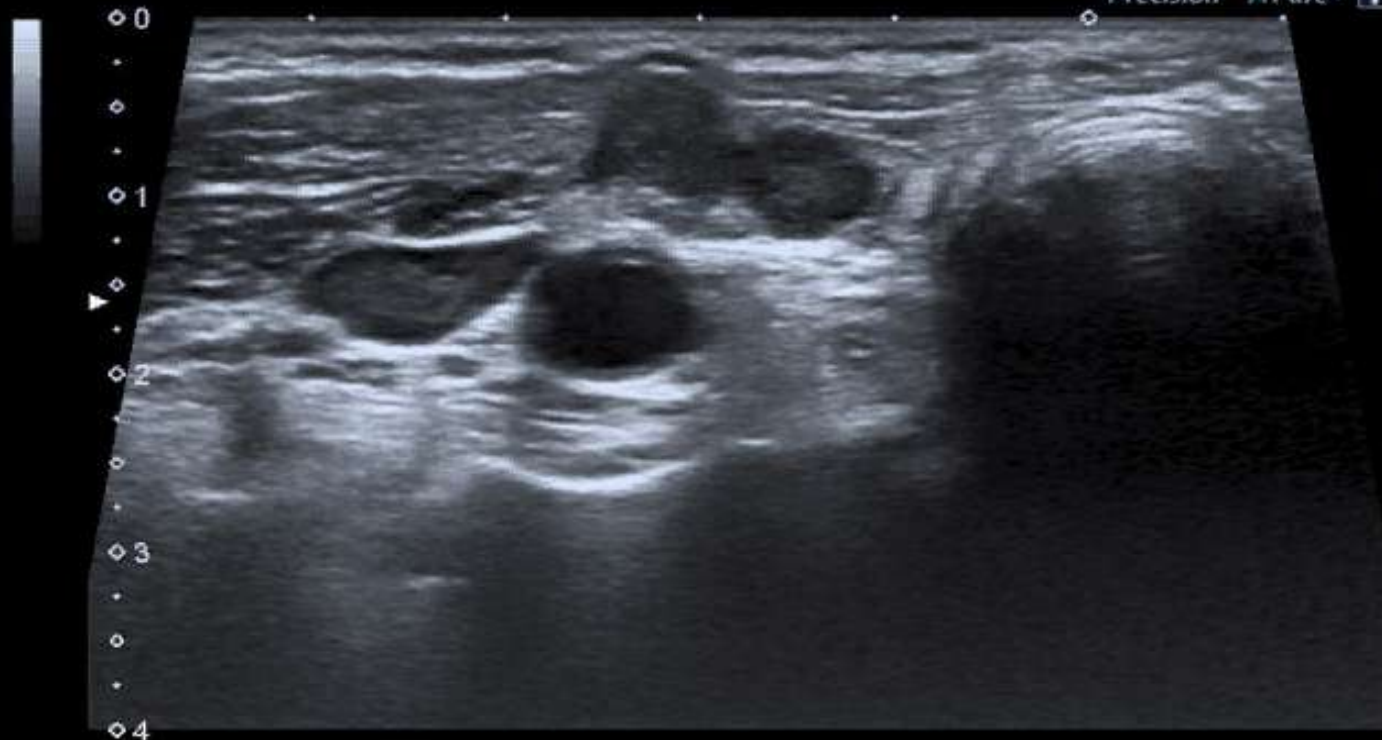
2422790:HAGGAR DOREEN  
SINGLETON HOSPITAL

F 78

19.4.2017

Thyroid 2

Precision A Pure+ T



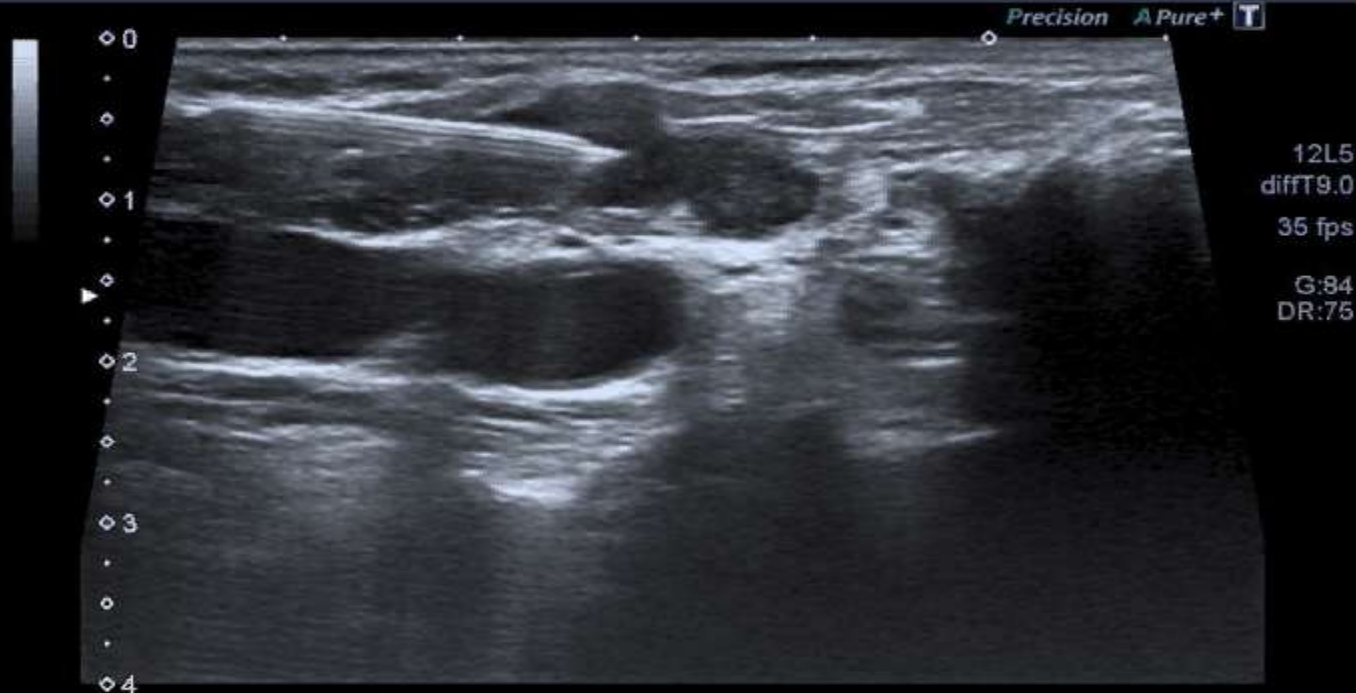
RT

12L5  
diffT9.0  
35 fps  
G:84  
DR:75



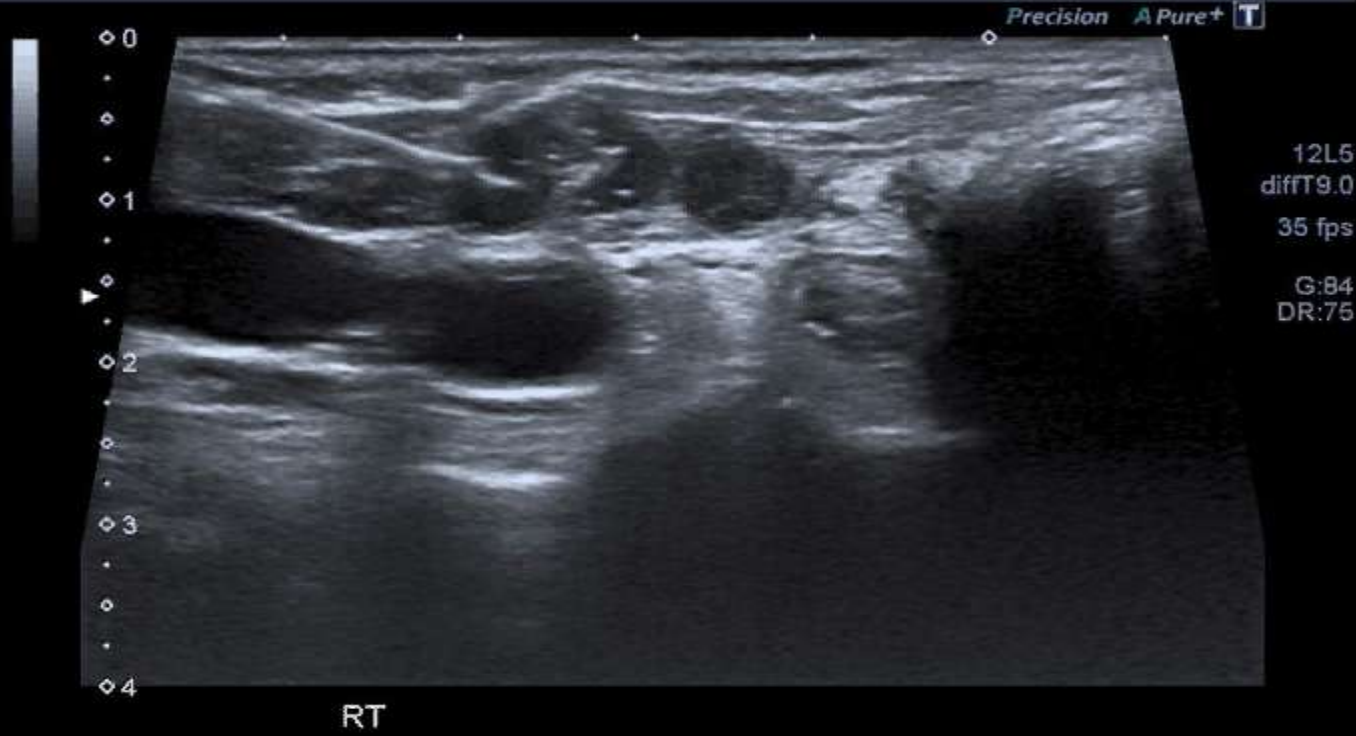
RT

# 793



RT







THOSE SOUTHERN TRACTS OF CAMBRIA,  
DEEP EMBAYED,  
BY GREEN HILLS FENCED, BY OCEAN'S  
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— WORDSWORTH.

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THOU EDEN OF BARDS  
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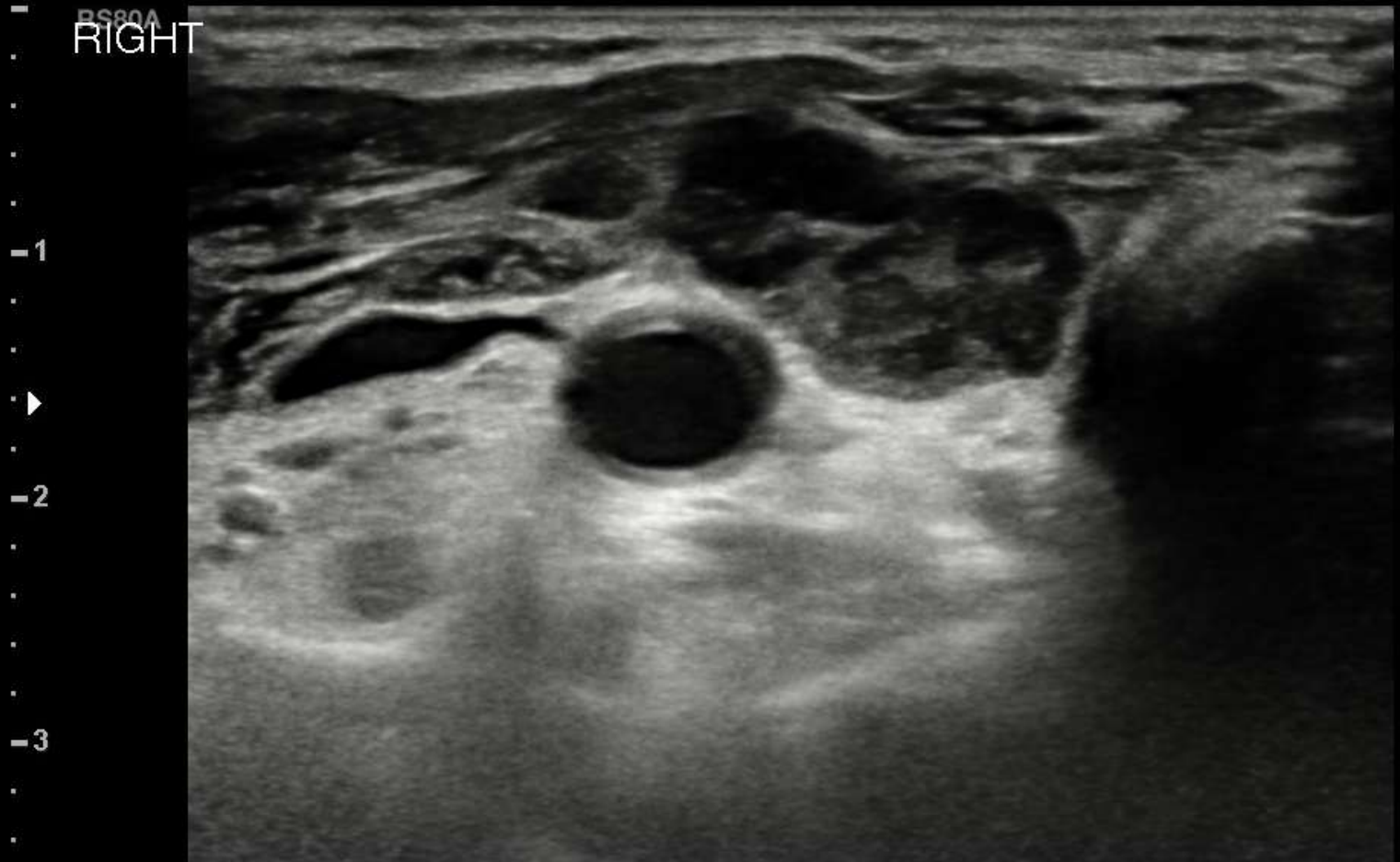
STRUMBLE HEAD



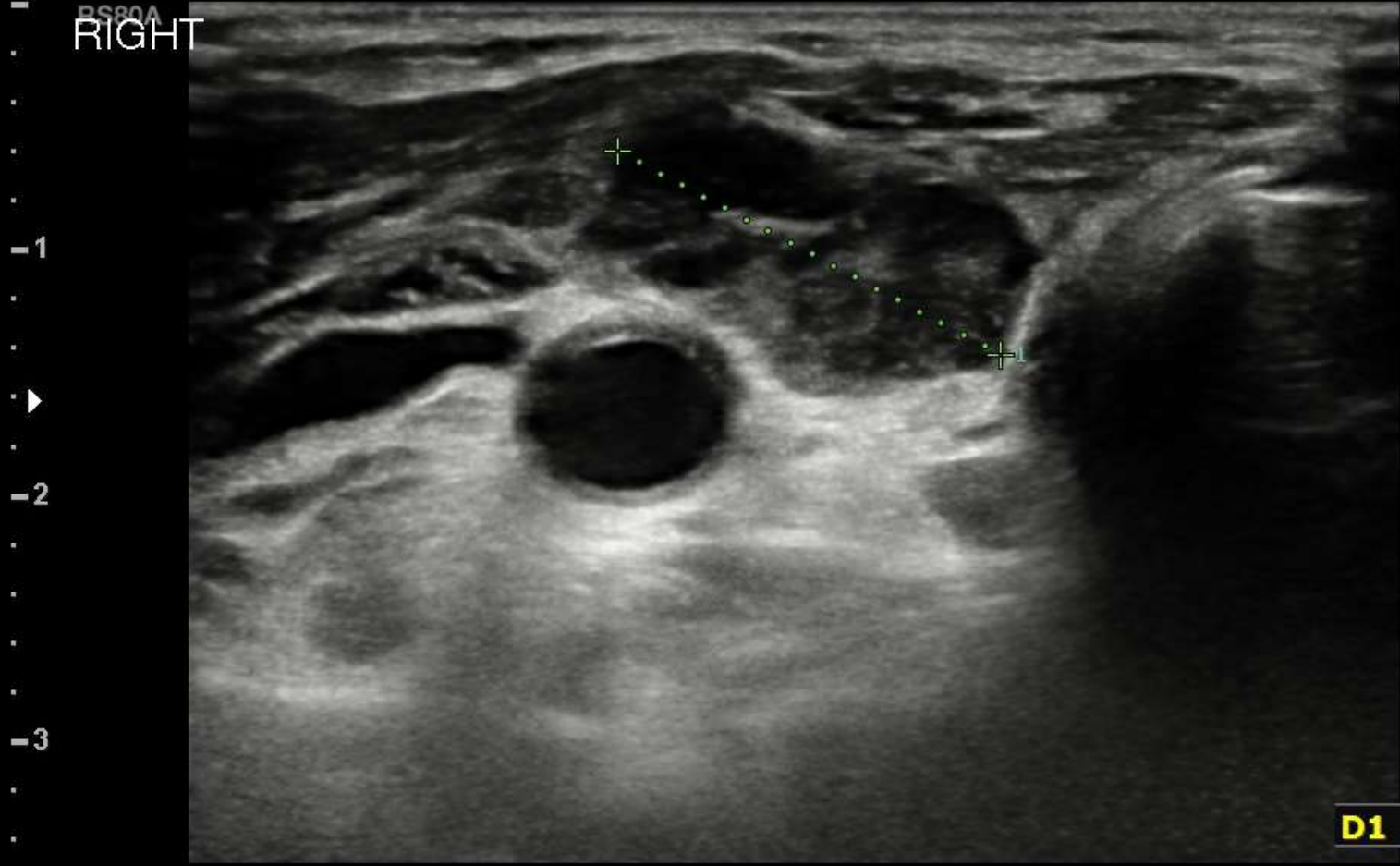
# SOUTH WALES THE MARCHES & THE WYE VALLEY

BRISTOL CHANNEL Weston-super-Mare M. F. PECK

BS80A  
RIGHT



BS80A  
RIGHT



-1

-2

-3

**D1 17.6 mm**

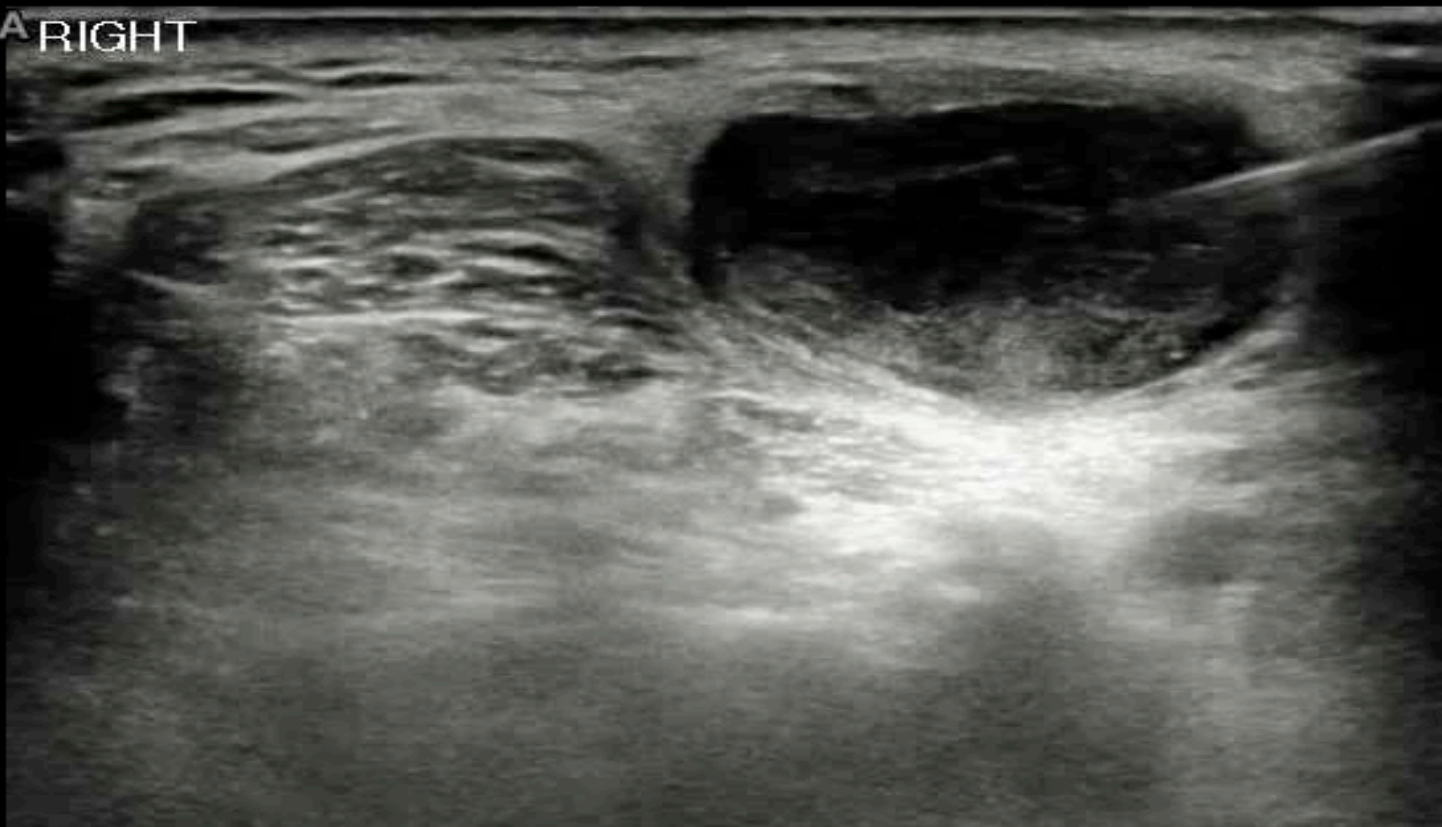


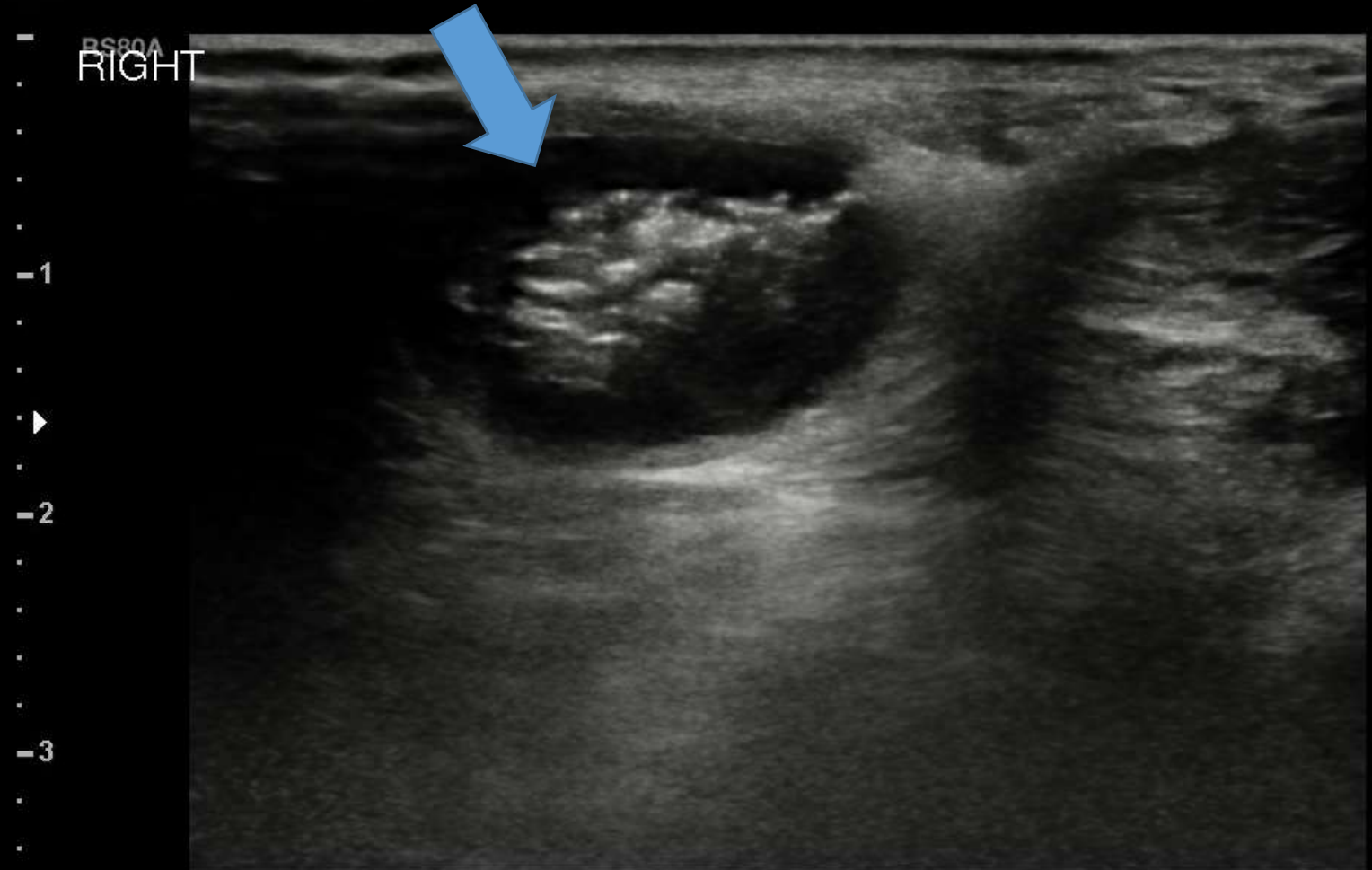
L3-12A / SmallParts / FPS40 / MI0.96 / TIs0.1 / 22-11-2017 11:56:07  
2D G50/DR58/FA4/P90/Frq Pen./3.5cm



RS80A RIGHT

·  
·  
-1  
·  
▶  
-2  
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·  
-3  
·  
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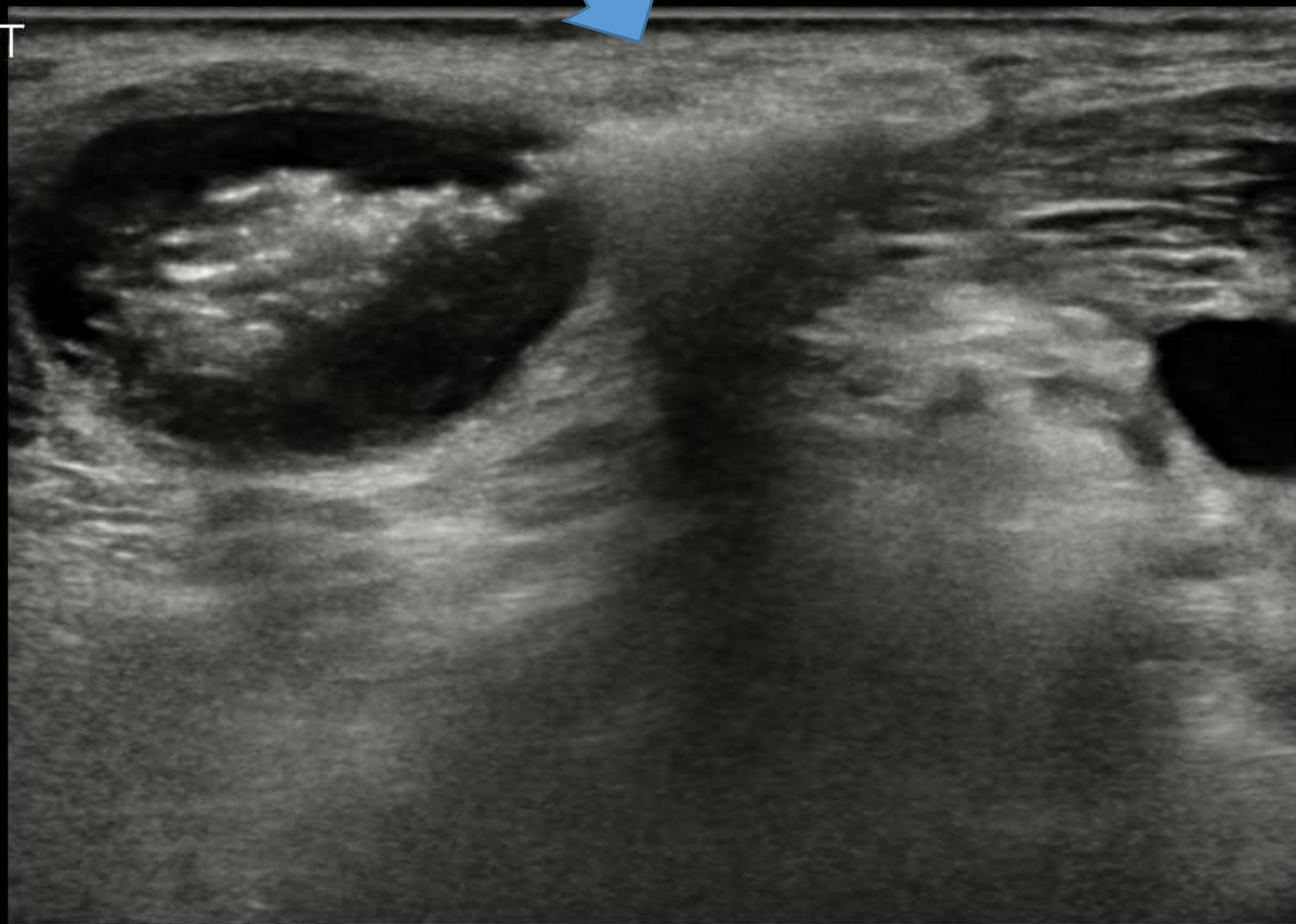


BS80A  
RIGHT

-1

-2

-3

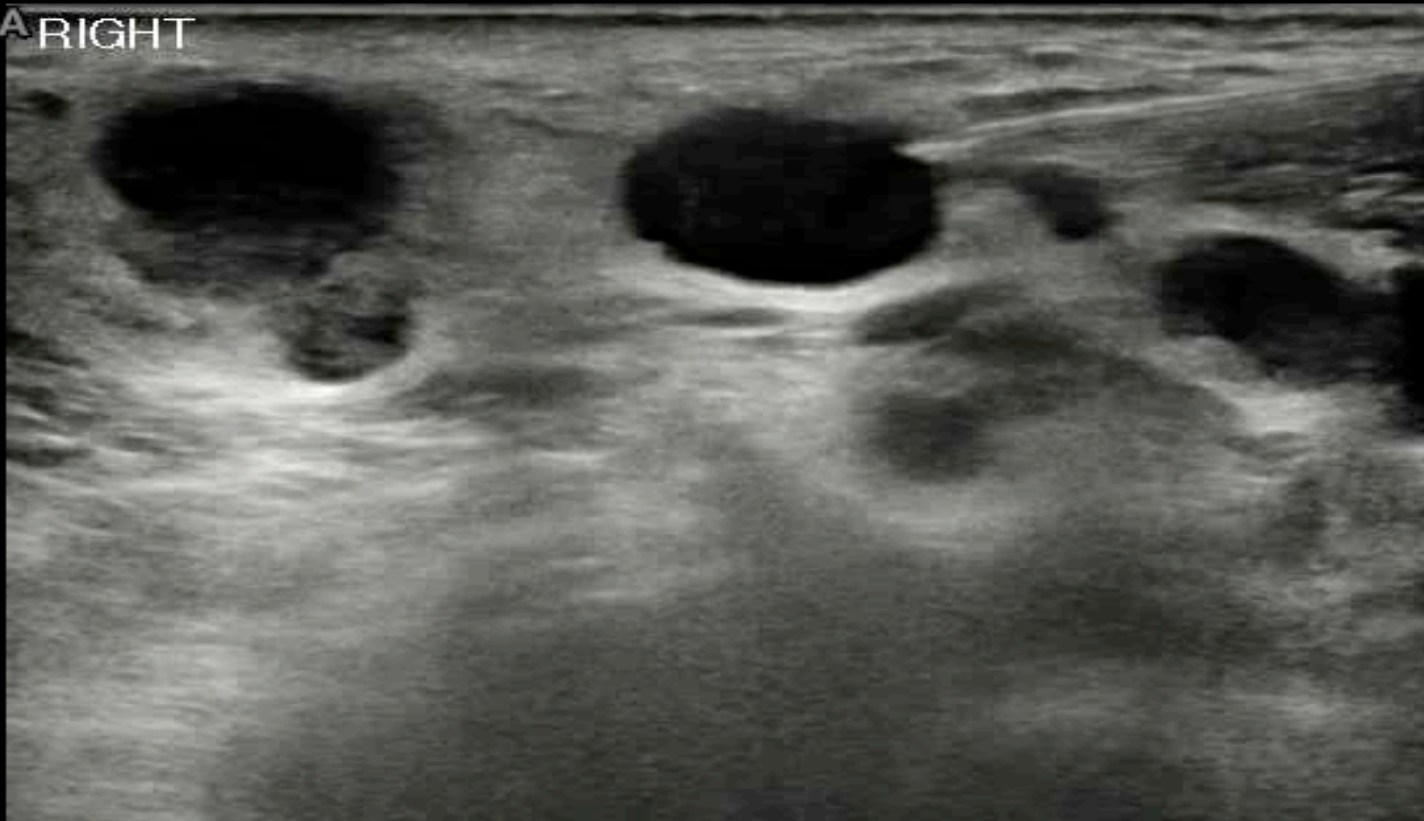


L3-12A / SmallParts / FPS40 / MI0.96 / TIs0.1 / 22-11-2017 12:02:01  
2D G50/DR58/FA4/P90/Frq Pen./3.5cm

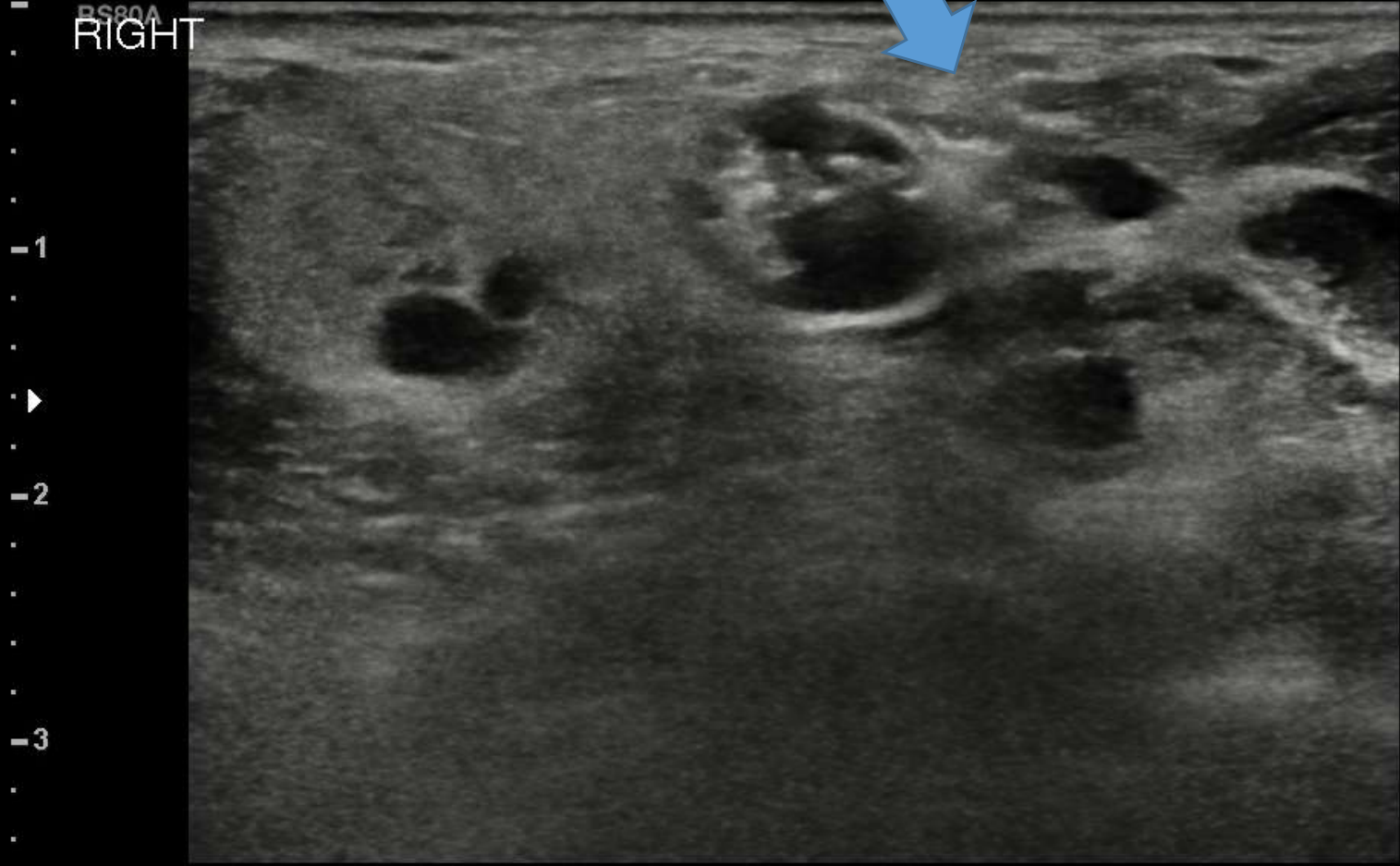


RS80A RIGHT

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-1  
. .  
▶  
-2  
. .  
-3  
. .  
.



BS80A  
RIGHT



-1

-2

-3



# Ethanol injection : tips

Lignocaine injection - exchange syringe - Ethanol

Centrifugal : central position

Short pulses : needle move/ inject : 0.1ml  
increments / watch capsule : keep bubbles  
inside node

? Volume : fill the node with bubbles

Monitor extravasation

End point : exchange ethanol for lignocaine

Inject lignocaine (0.1ml) into node and keep  
injecting during needle withdrawal , along tract

Day case unit : 2 hrs . Discharged .

# Alcohol v. Radio-frequency ablation

- Costs
- Same technique
- Alcohol seems to be more centrifugal in distribution
- RF : linear in large masses



# Lessons learned

Parathyroid  
Tattooing  
Ethanol ablation  
Tips  
Diolch !



“Old dog - new tricks”

Rhodri M Evans