Formazione per l'eccellenza

Tutorial

RM GE-PHILIPS

Gemelli

UNIVERSITAS CATHOLICA SACRI CORDIS JESU MEDIOLANI

ANGIO-RM TSA

set. '25

Fondazione Policlinico Universitario Agostino Gemelli IRCCS
Università Cattolica del Sacro Cuore

BEST HOSPITALS 2022 Newsweek statista
1° OSPEDALE IN ITALIA
POLICLINICO UNIVERSITARIO A. GEMELLI

TSRM Ada Guidi - Marino Gentile
Radiographer

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✉💻 www.variodyne.it

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Gemelli

Ver 1.5

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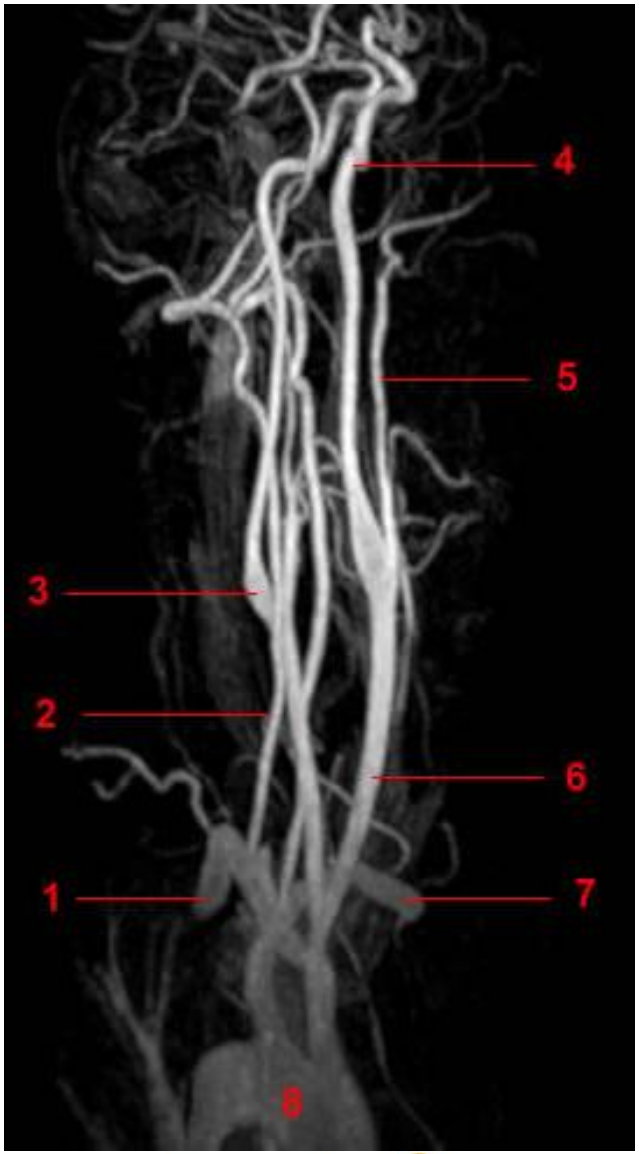
Università Cattolica del Sacro Cuore

Angio-RM TSA

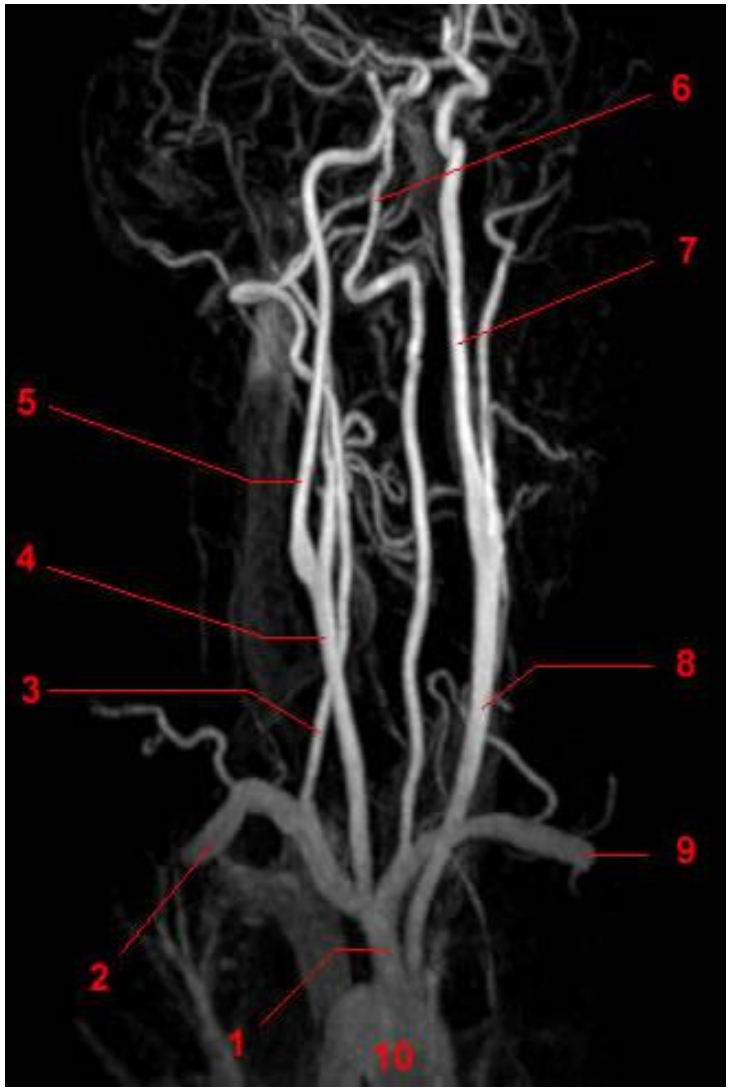


Angio-RM TSA: Risonanza Magnetica angiografica dei tronchi sovraortici

1, arteria succlavia destra.
2, arteria vertebrale destra.
3, arteria carotide interna destra.
4, arteria carotide interna sinistra.
5, arteria carotide esterna sinistra.
6, arteria carotide comune sinistra.
7, arteria succlavia sinistra.
8, Aorta.

https://www.info-radiologie.ch/it/angio-rm-intracranico.php

Angio-RM TSA



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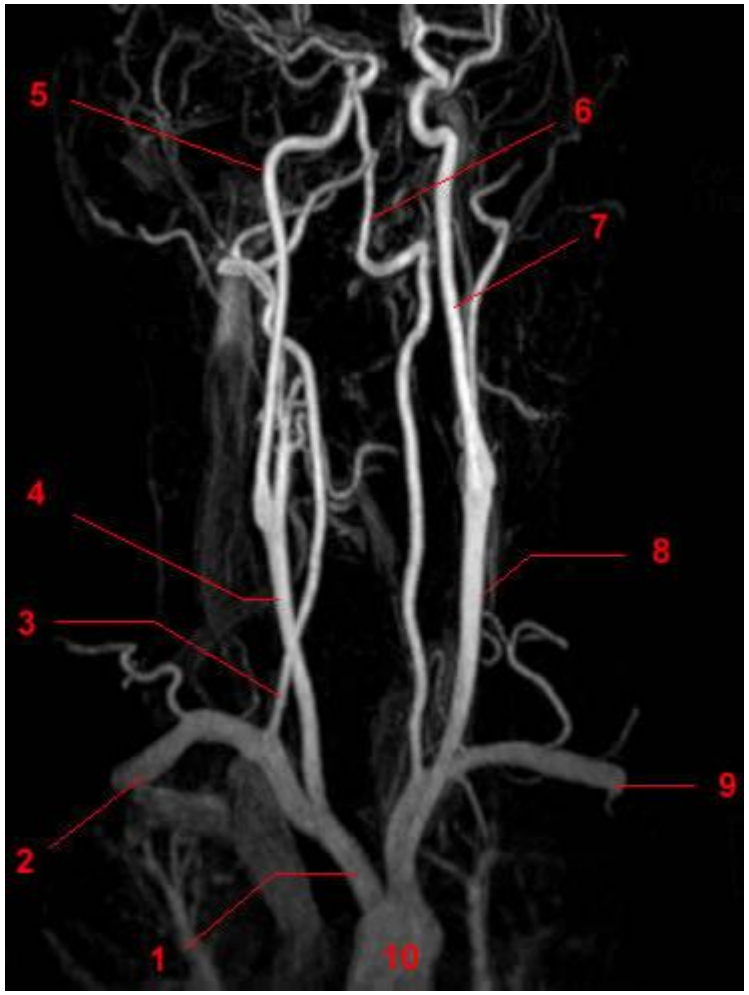
Angio-RM TSA



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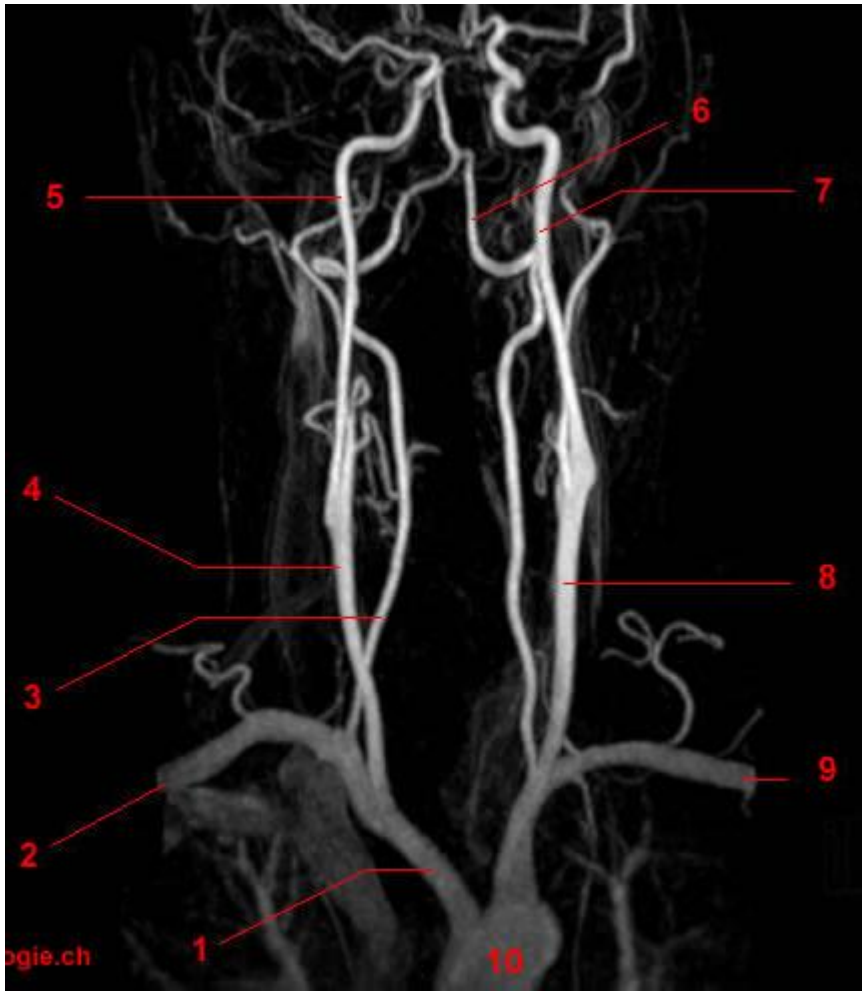

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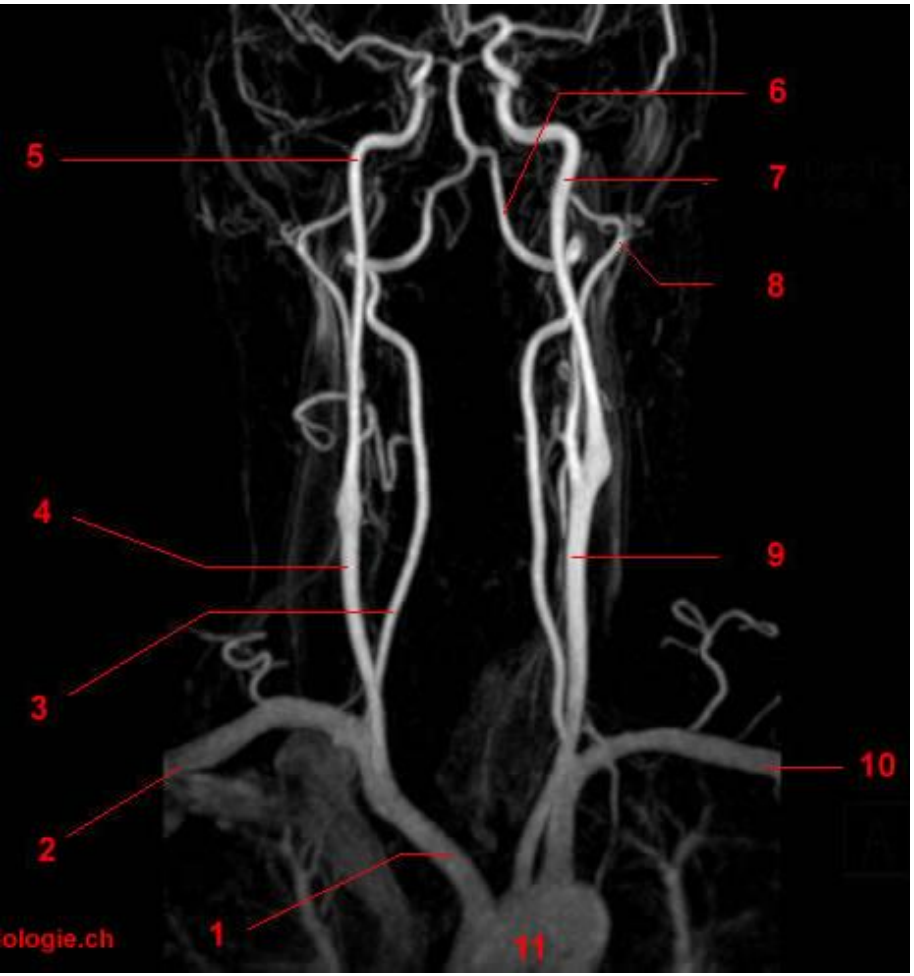

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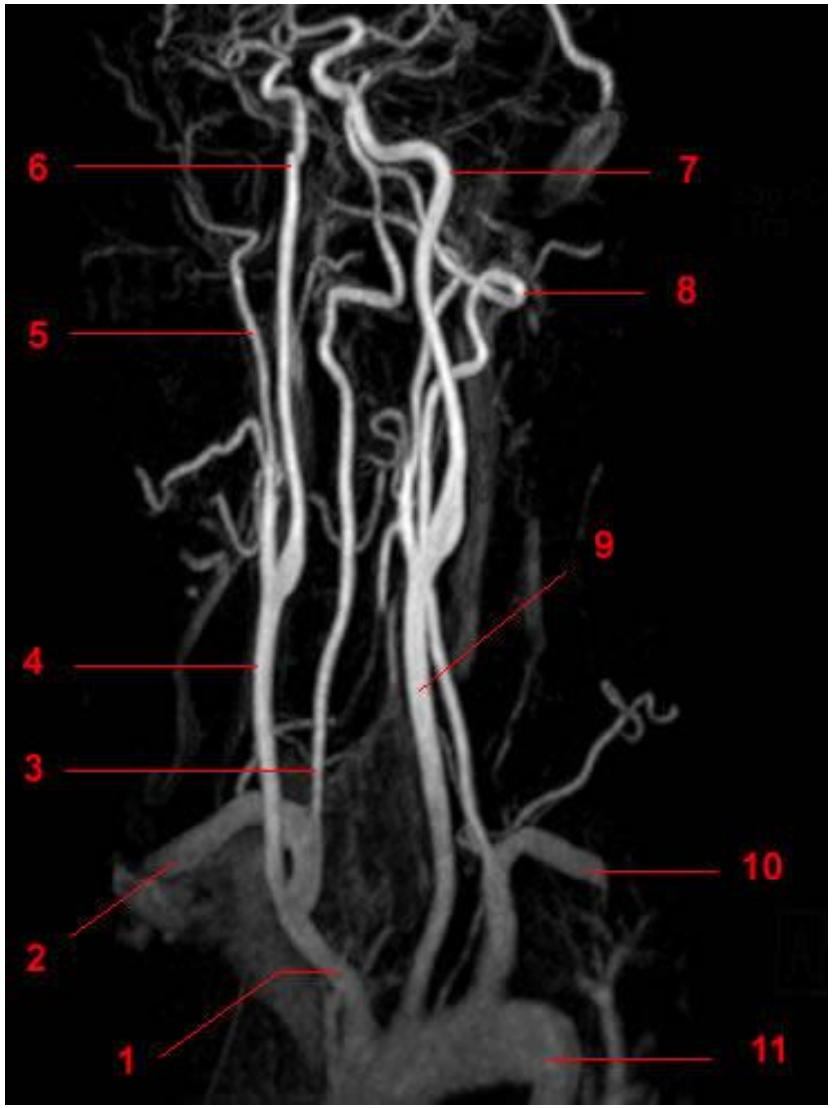

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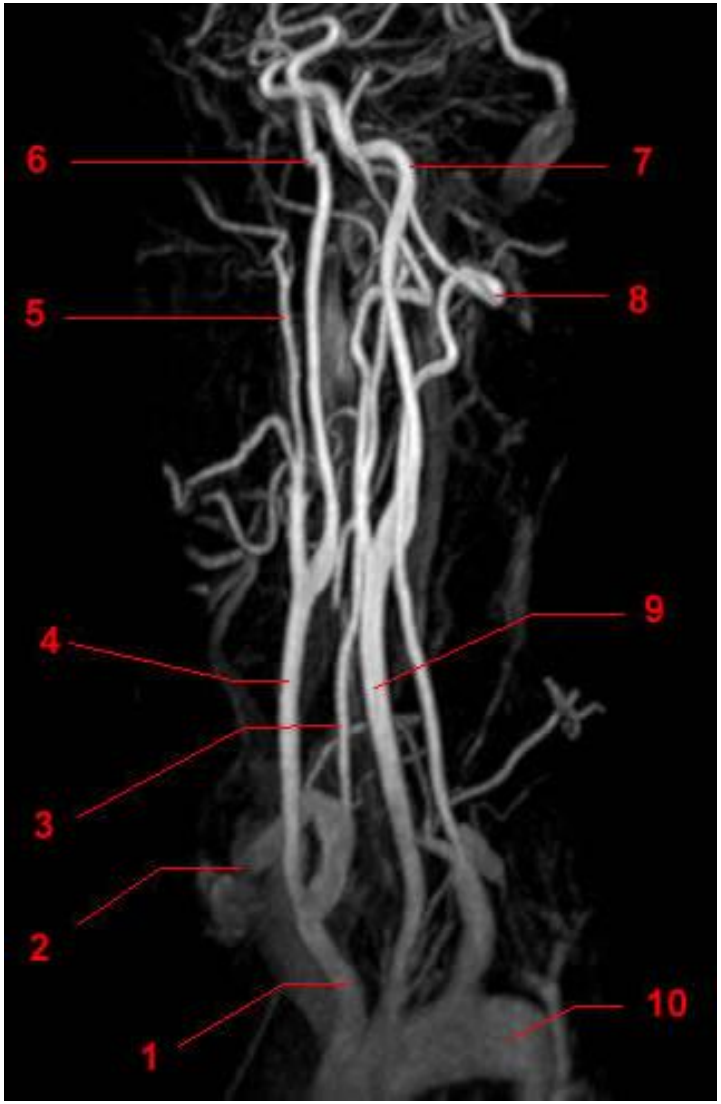


Apparecchiature utilizzate

Formazione per l'eccellenza

GE Healthcare

Optima MR450w
1.5T GEM Suite

Apparecchiature utilizzate

SIGNA™ Voyager - 70 cm

Apparecchiature utilizzate

Formazione per l'eccellenza

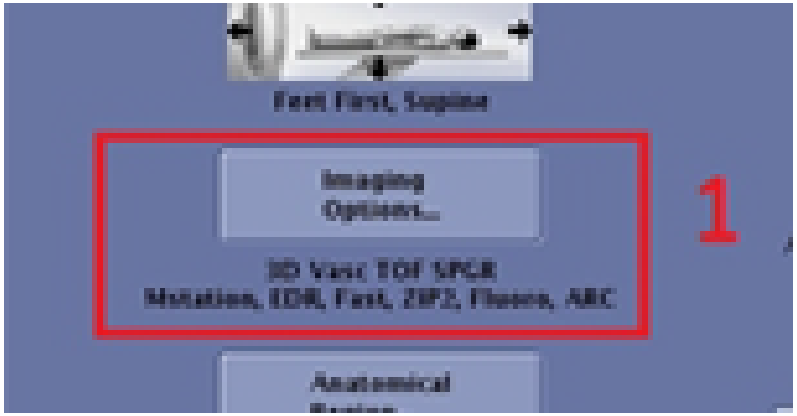
SIGNA™ Premier - 70 cm

Angio-RM TSA

Per eseguire nel modo migliore la sequenza Angio-RM TSA, deve essere abilitata la funzione «FLUORO Trigger».

Angio-RM TSA

1. Fare clic su «Imaging Options»

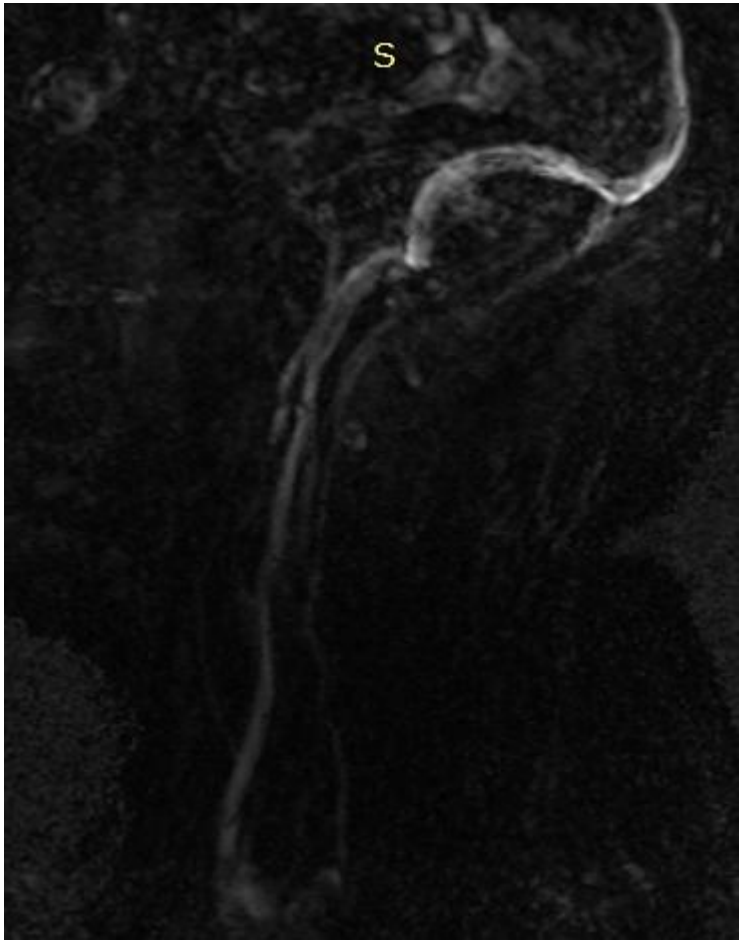


2. Selezionare ***Fluoro Trigger***

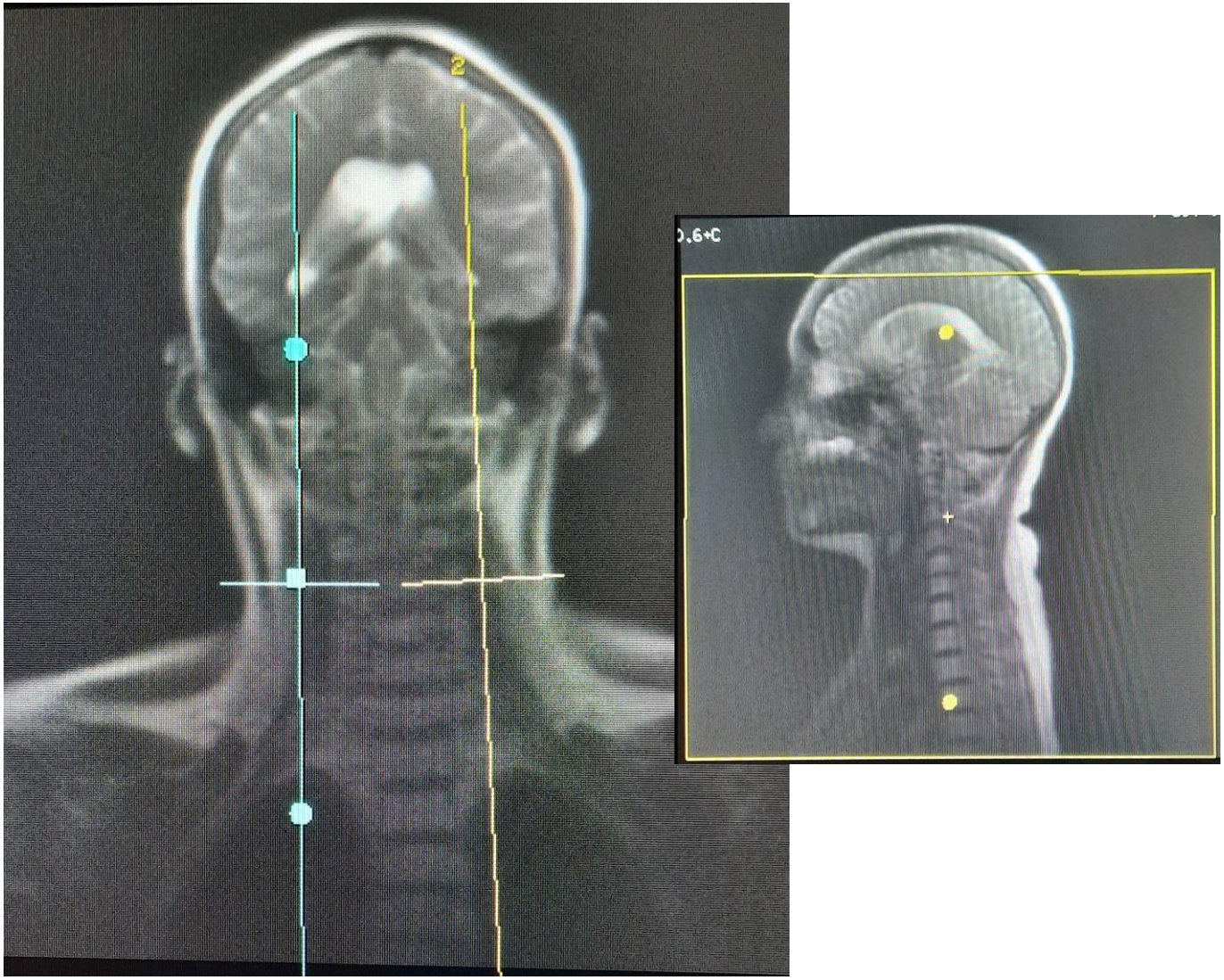
3. Fare clic su ***Accept***

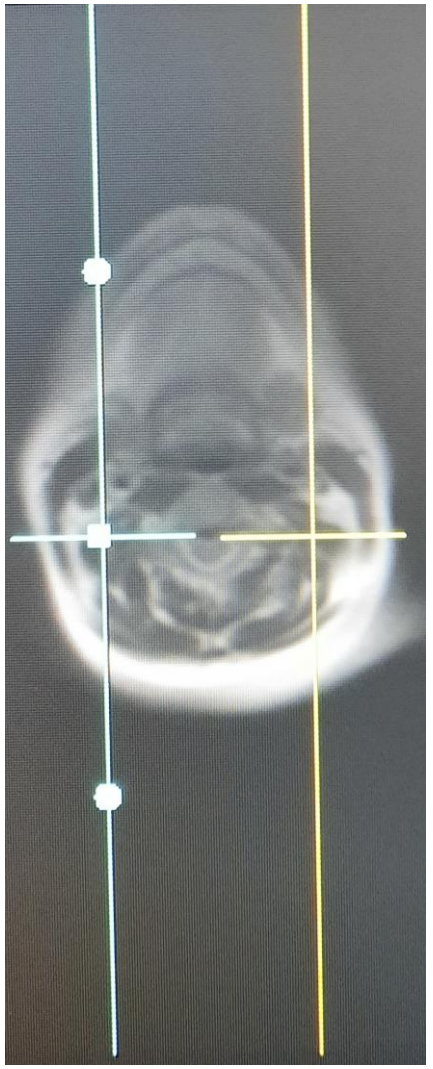
SAG 2D PHASE CONTRAST

Per un corretto centraggio della sequenza angio è consigliabile eseguire una sequenza «Phase contrast», sul piano sagittale. Ovviamente senza mdc. Non è richiesta una risoluzione elevata.



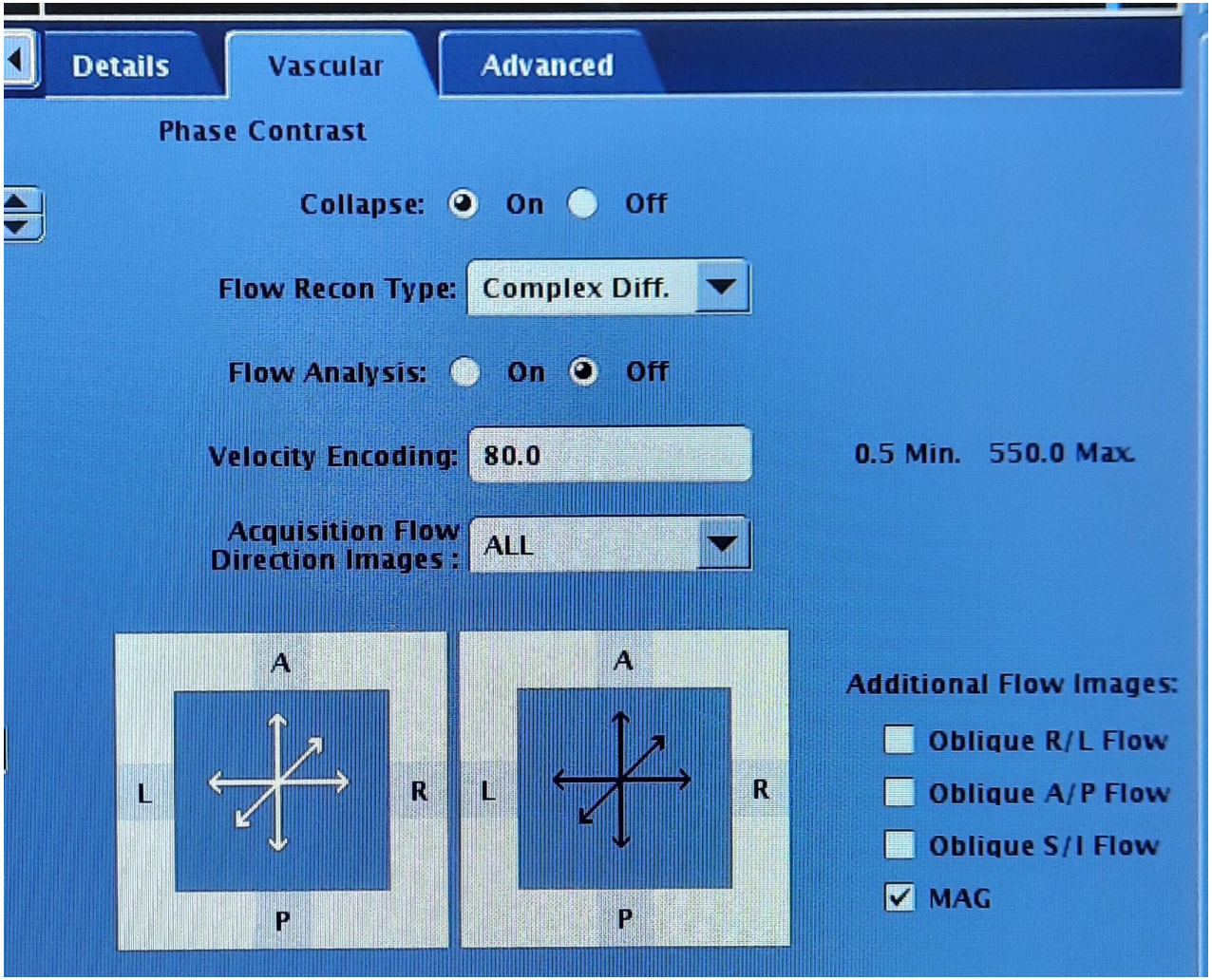
SAG 2D PHASE CONTRAST

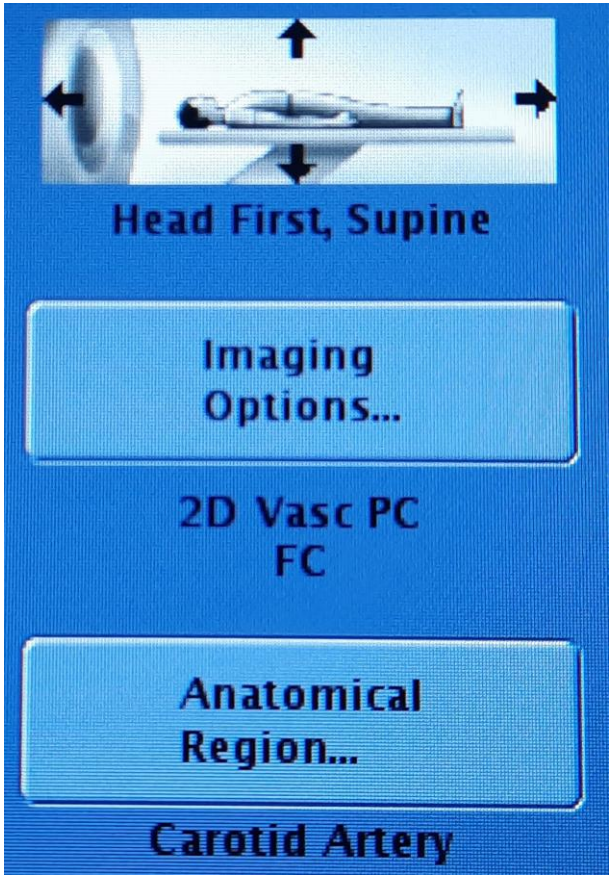




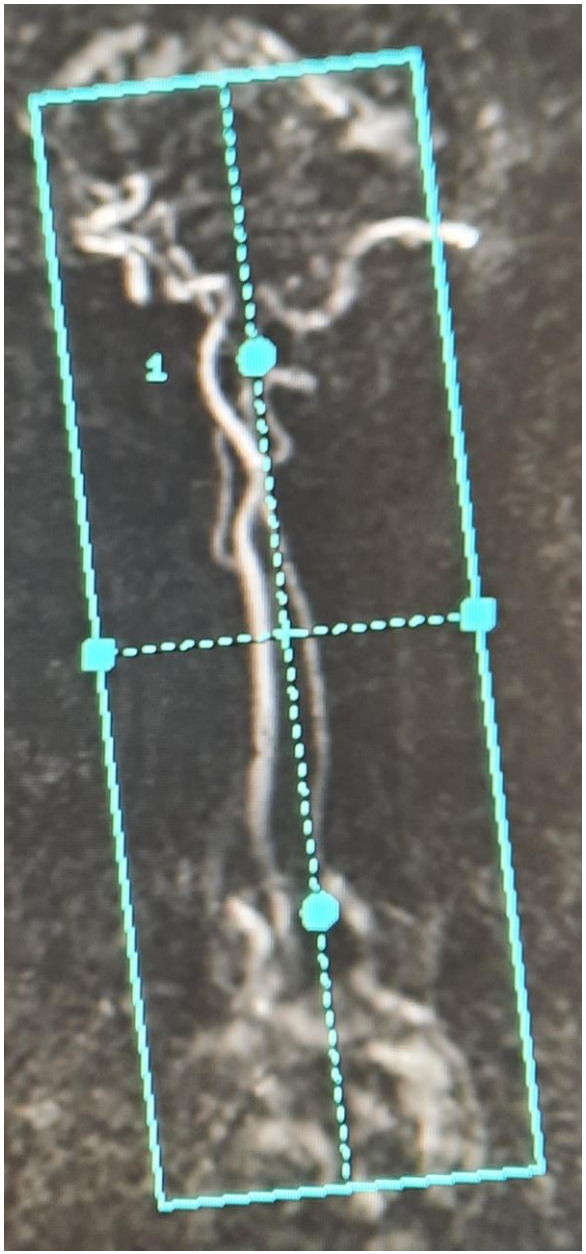
Esempio di impostazione della Sag PC

SAG 2D PHASE CONTRAST



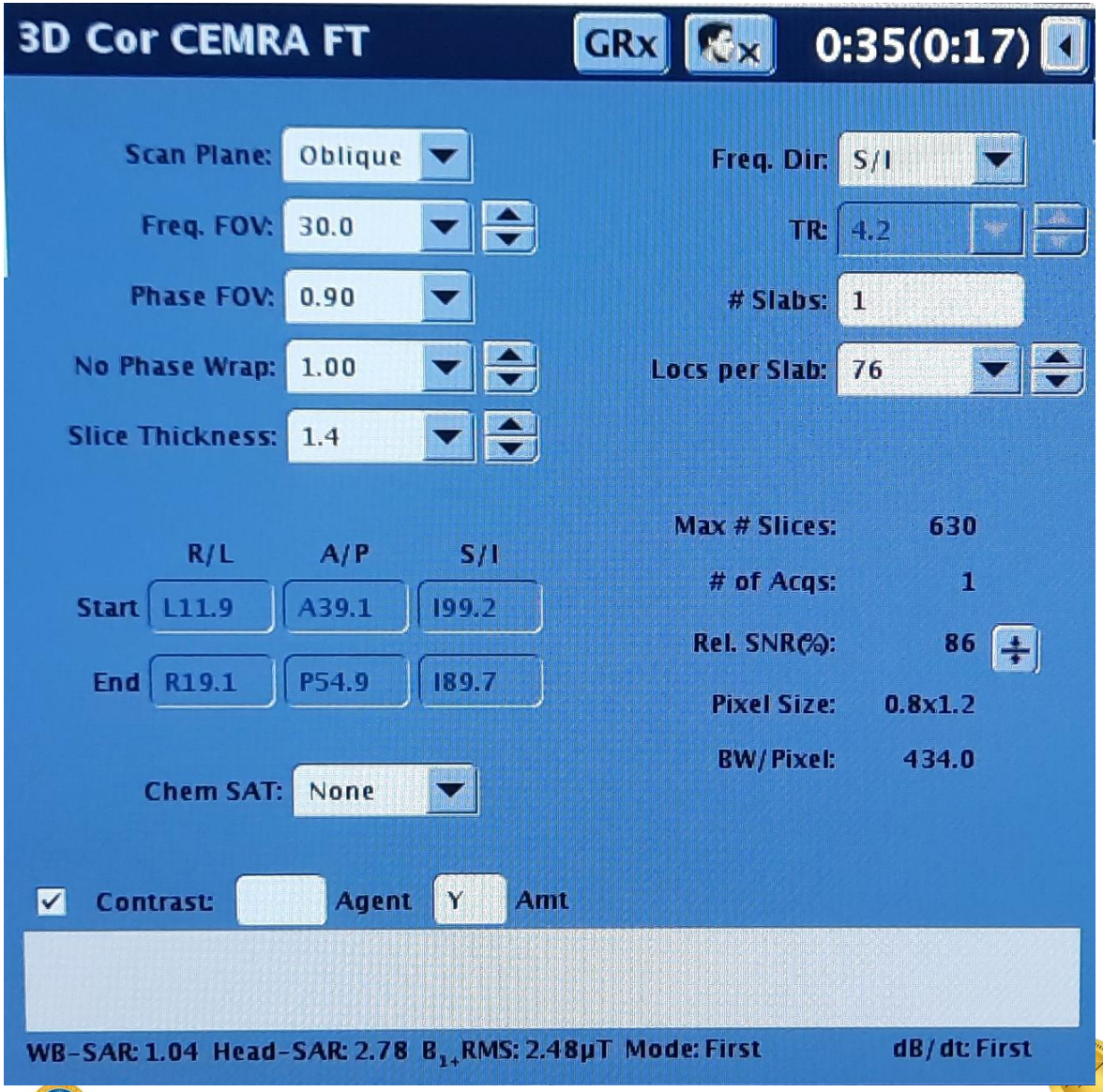


CEMRA RM3

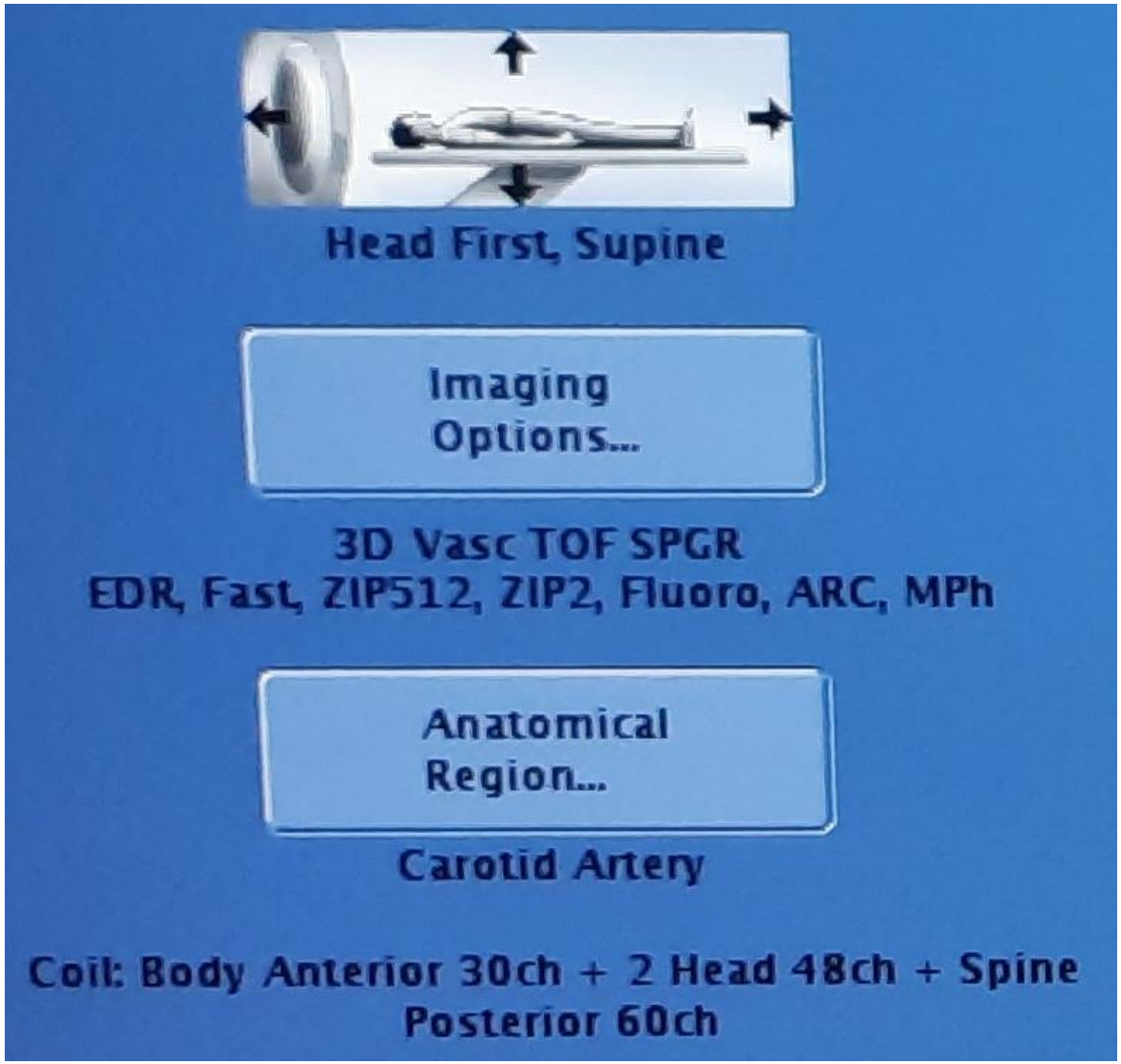


L'impostazione della sequenza CEMRA in coronale avviene sulla Sag Phase Contrast precedentemente acquisita

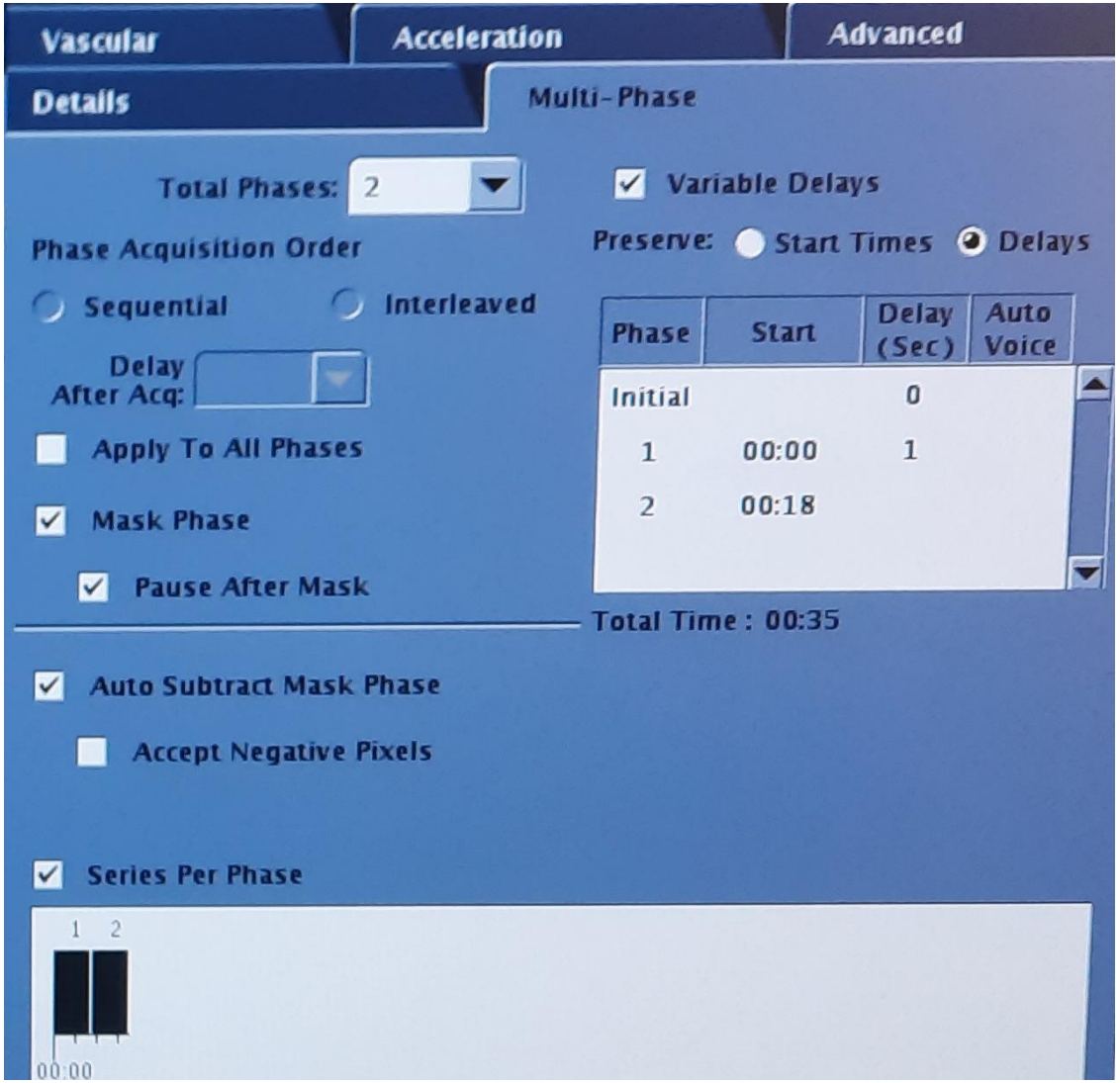
CEMRA RM3


3D Cor CEMRA FT
GRx
0:35(0:17)
Scan Plane: Oblique
Freq. FOV: 30.0
Phase FOV: 0.90
No Phase Wrap: 1.00
Slice Thickness: 1.4
Freq. Dir: S/I
TR: 4.2
Slabs: 1
Locs per Slab: 76
R/L A/P S/I
Start L11.9 A39.1 I99.2
End R19.1 P54.9 I89.7
Max # Slices: 630
# of Acqs: 1
Rel. SNR(%): 86
Pixel Size: 0.8x1.2
BW/Pixel: 434.0
Chem SAT: None
Contrast: Agent Y Amt
WB-SAR: 1.04 Head-SAR: 2.78 B1+RMS: 2.48µT Mode: First
dB/dt: First

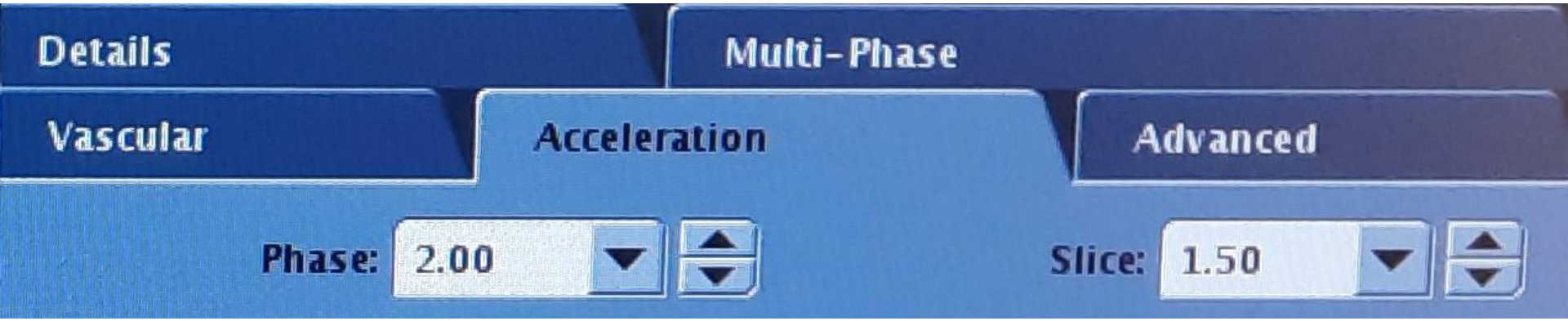
CEMRA RM3


Head First, Supine
Imaging Options...
3D Vasc TOF SPGR
EDR, Fast, ZIP512, ZIP2, Fluoro, ARC, MPh
Anatomical Region...
Carotid Artery
Coil: Body Anterior 30ch + 2 Head 48ch + Spine Posterior 60ch

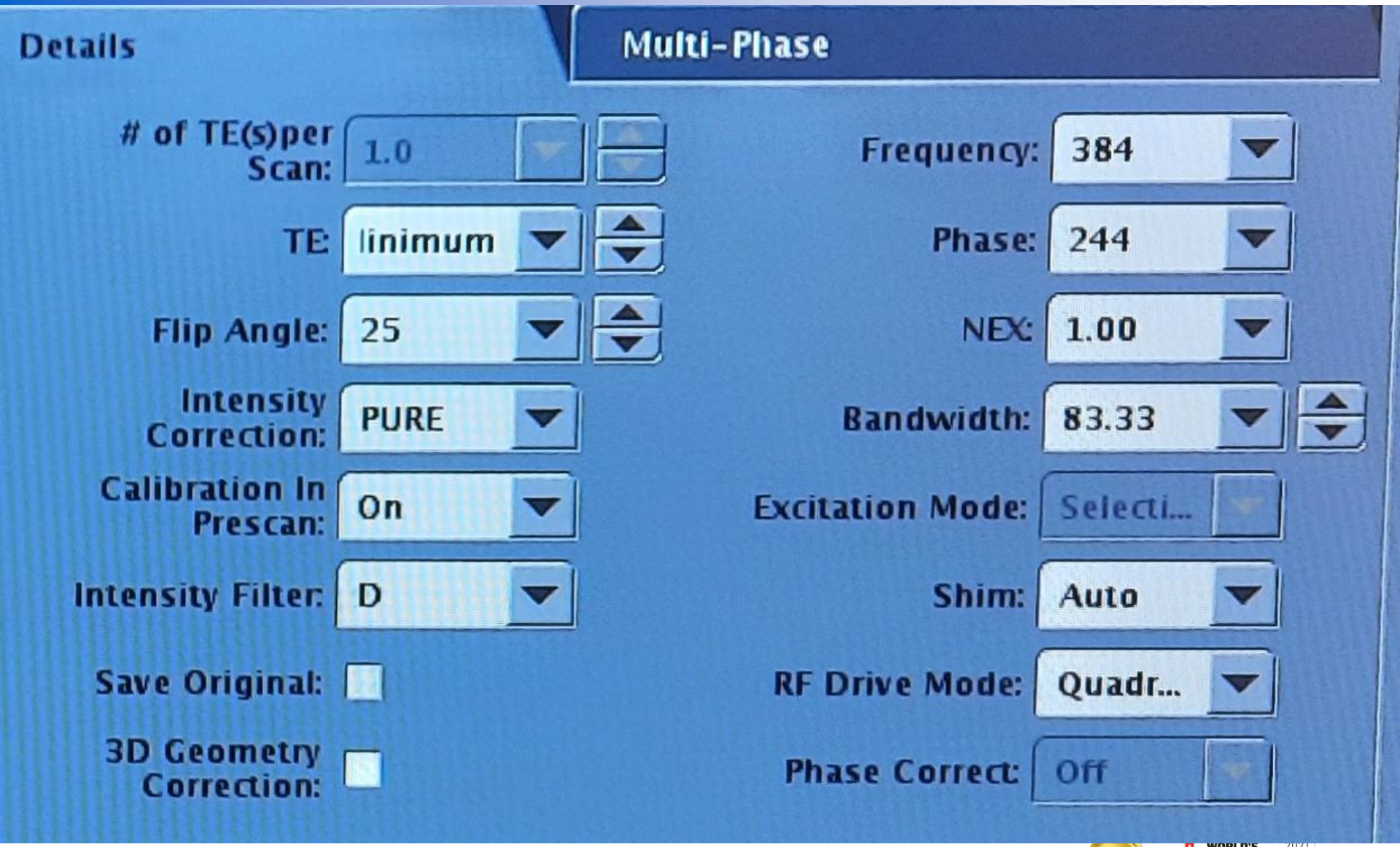
CEMRA RM3


Vascular
Acceleration
Advanced
Details
Multi-Phase
Total Phases: 2
Variable Delays
Phase Acquisition Order
Preserve: Start Times Delays
Sequential
Interleaved
Delay After Acq:
Apply To All Phases
Mask Phase
Pause After Mask
Phase
Start
Delay (Sec)
Auto Voice
Initial 0
1 00:00 1
2 00:18
Total Time : 00:35
Auto Subtract Mask Phase
Accept Negative Pixels
Series Per Phase
1 2
00:00

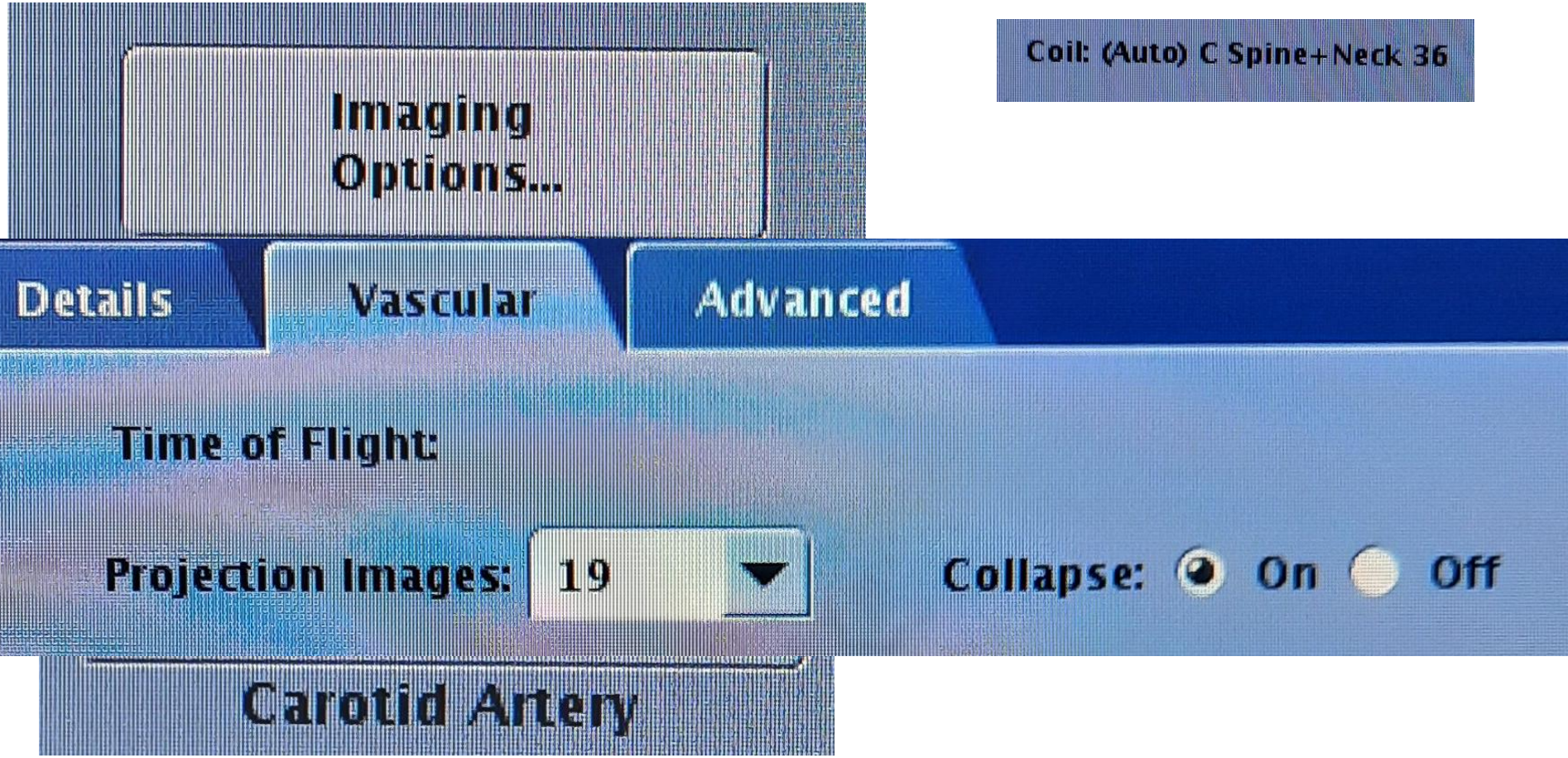
CEMRA RM3


Details
Multi-Phase
Vascular
Acceleration
Advanced
Phase:
2.00
Slice:
1.50

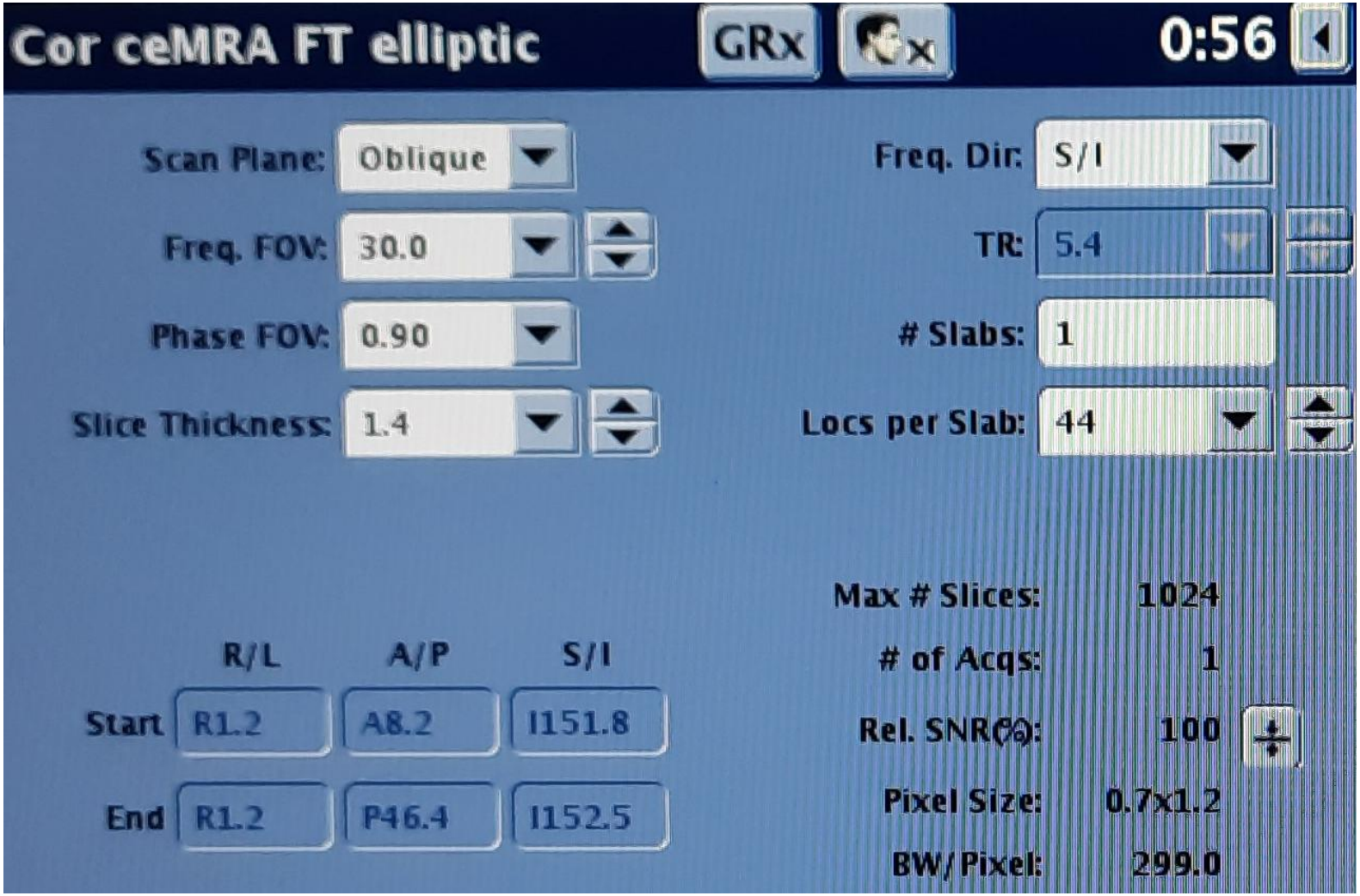
CEMRA RM3


Details
Multi-Phase
# of TE(s)per Scan:
1.0
TE:
linimum
Flip Angle:
25
Intensity Correction:
PURE
Calibration In Prescan:
On
Intensity Filter:
D
Save Original:
3D Geometry Correction:
Frequency:
384
Phase:
244
NEX:
1.00
Bandwidth:
83.33
Excitation Mode:
Selecti...
Shim:
Auto
RF Drive Mode:
Quadr...
Phase Correct:
Off

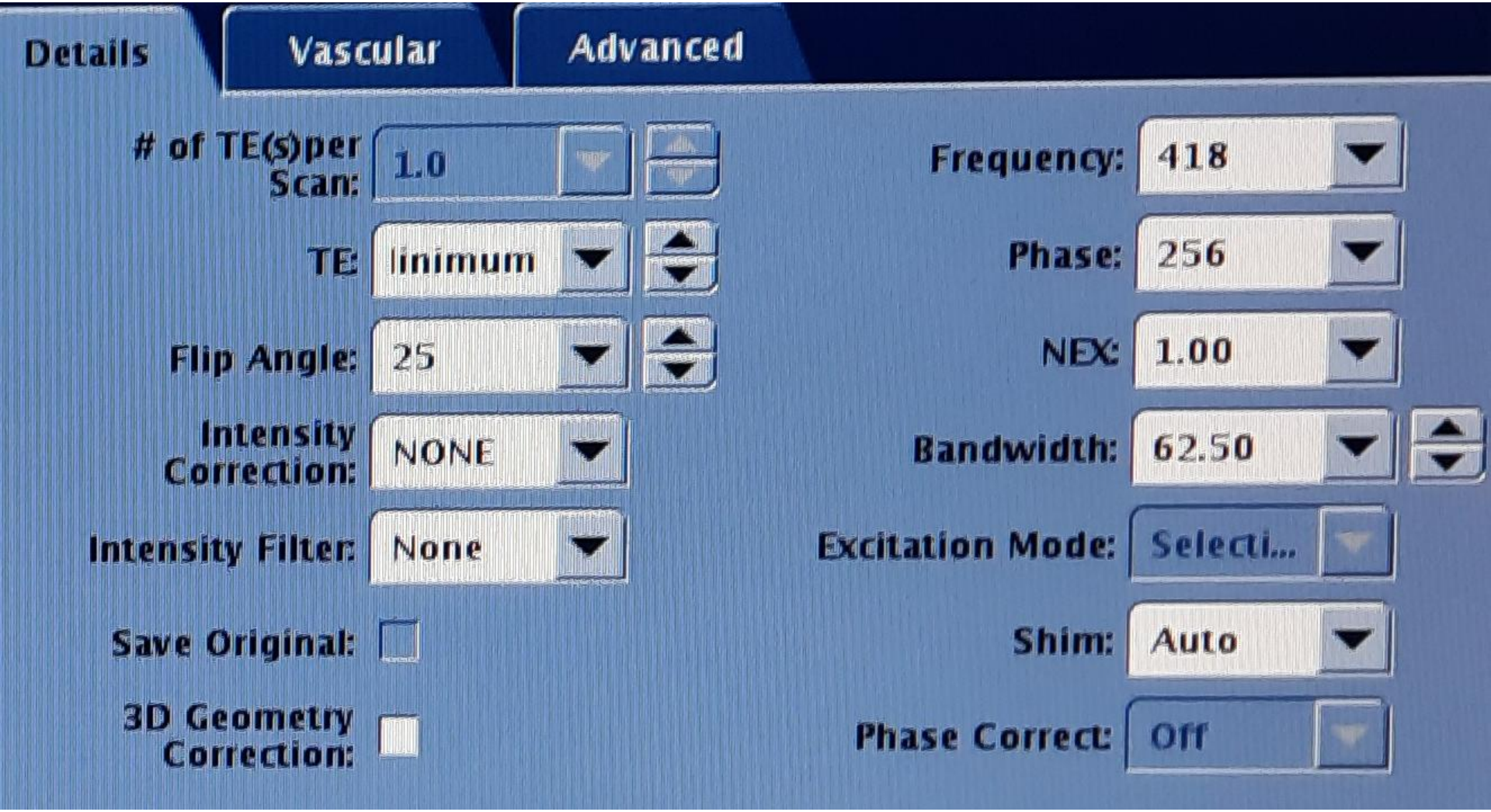
CEMRA RM1


Coil: (Auto) C Spine+Neck 36
Imaging Options...
Details
Vascular
Advanced
Time of Flight:
Projection Images:
19
Collapse:
On
Off
Carotid Artery

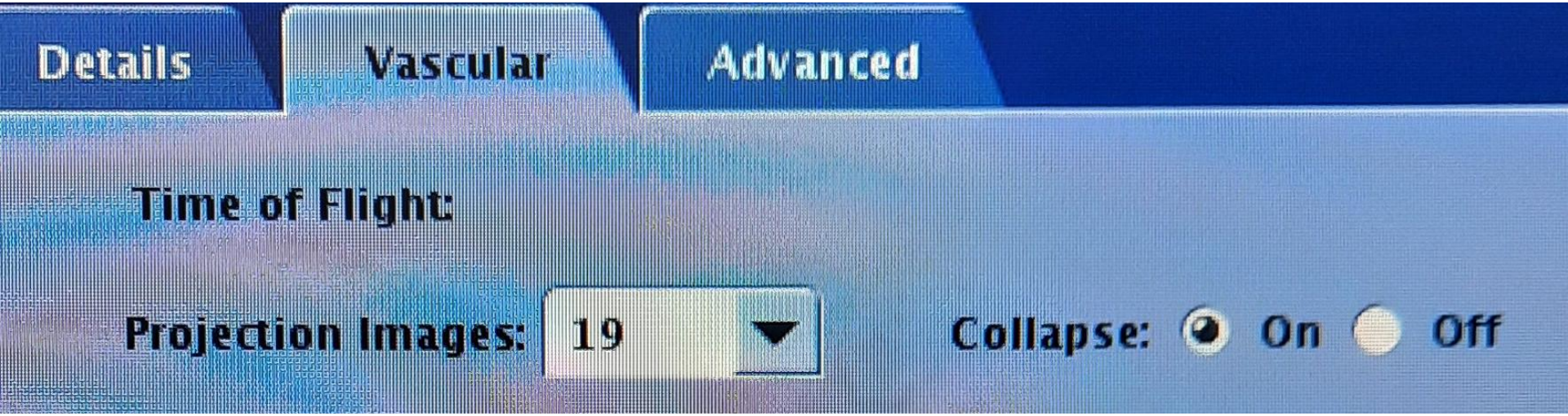
CEMRA RM1


Cor ceMRA FT elliptic
GRx
0:56
Scan Plane: Oblique
Freq. Dir: S/I
Freq. FOV: 30.0
TR: 5.4
Phase FOV: 0.90
Slabs: 1
Slice Thickness: 1.4
Locs per Slab: 44
Max # Slices: 1024
# of Acqs: 1
R/L A/P S/I
Start R1.2 A8.2 I151.8
End R1.2 P46.4 I152.5
Rel. SNR(%): 100
Pixel Size: 0.7x1.2
BW/Pixel: 299.0

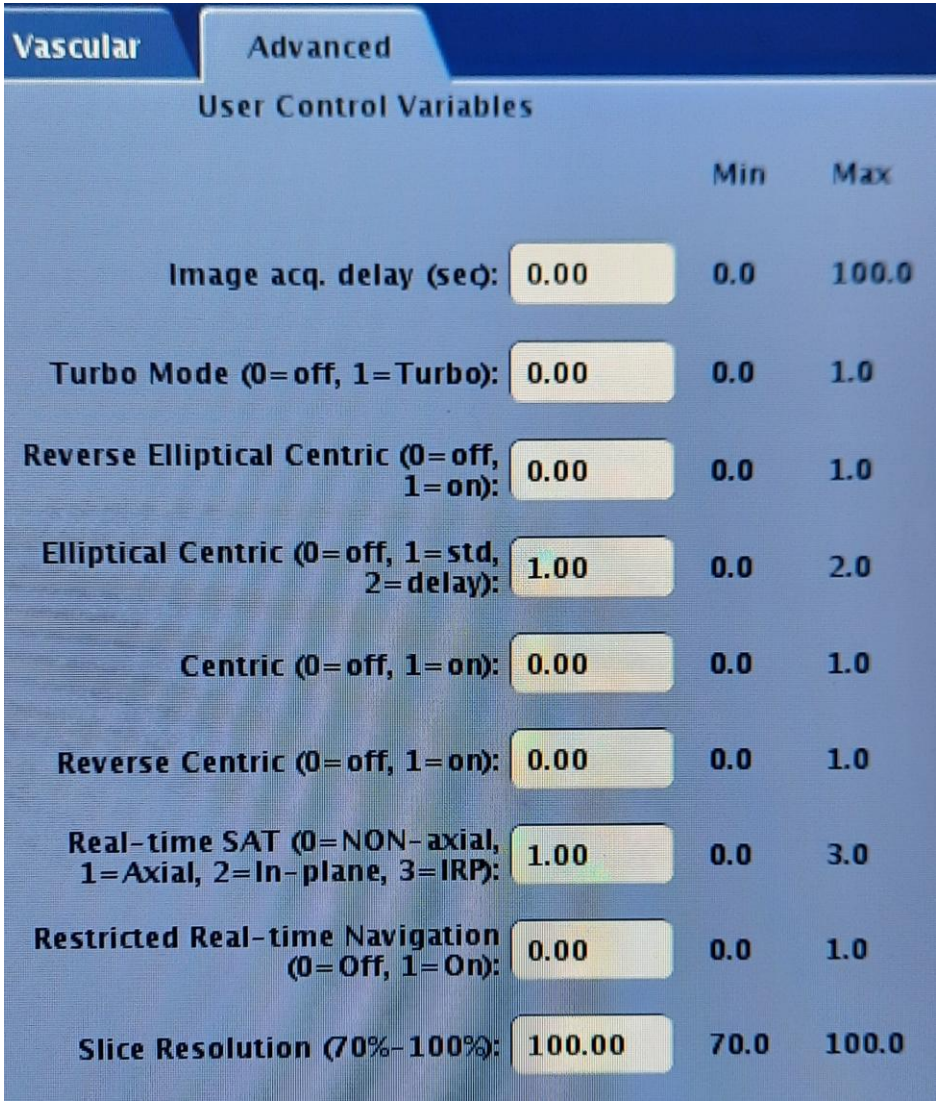
CEMRA RM1


Details
Vascular
Advanced
# of TE(s)per Scan:
1.0
TE:
linimum
Flip Angle:
25
Intensity Correction:
NONE
Intensity Filter:
None
Save Original:
3D Geometry Correction:
Frequency:
418
Phase:
256
NEX:
1.00
Bandwidth:
62.50
Excitation Mode:
Selecti...
Shim:
Auto
Phase Correct:
Off

CEMRA RM1


Details
Vascular
Advanced
Time of Flight:
Projection Images:
19
Collapse:
On
Off

CEMRA RM1


Vascular
Advanced
User Control Variables
Min
Max
Image acq. delay (sec): 0.00 0.0 100.0
Turbo Mode (0=off, 1=Turbo): 0.00 0.0 1.0
Reverse Elliptical Centric (0=off, 1=on): 0.00 0.0 1.0
Elliptical Centric (0=off, 1=std, 2=delay): 1.00 0.0 2.0
Centric (0=off, 1=on): 0.00 0.0 1.0
Reverse Centric (0=off, 1=on): 0.00 0.0 1.0
Real-time SAT (0=NON-axial, 1=Axial, 2=In-plane, 3=IRP): 1.00 0.0 3.0
Restricted Real-time Navigation (0=Off, 1=On): 0.00 0.0 1.0
Slice Resolution (70%-100%): 100.00 70.0 100.0

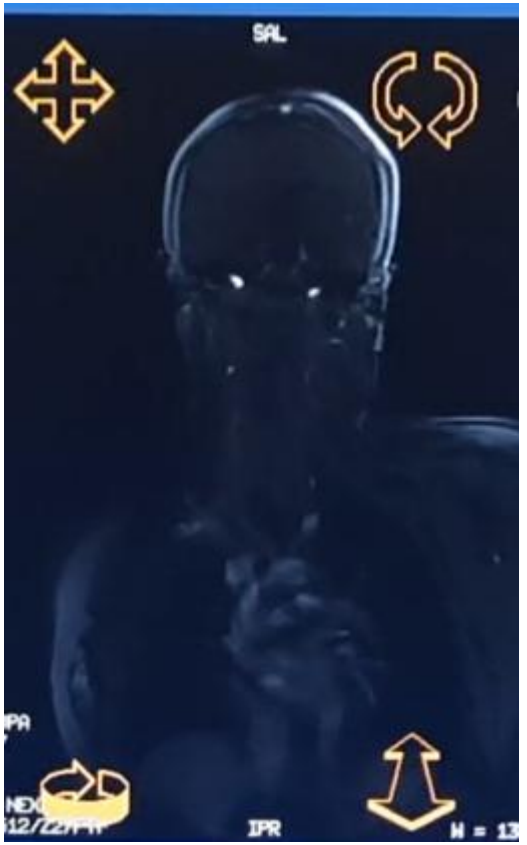
CEMRA RM1

Attenzione al ritardo di acquisizione dell'immagine. Questo tempo può essere utilizzato per fornire al paziente informazioni sulla respirazione. Nell'angio-TSA deve essere uguale a 0.

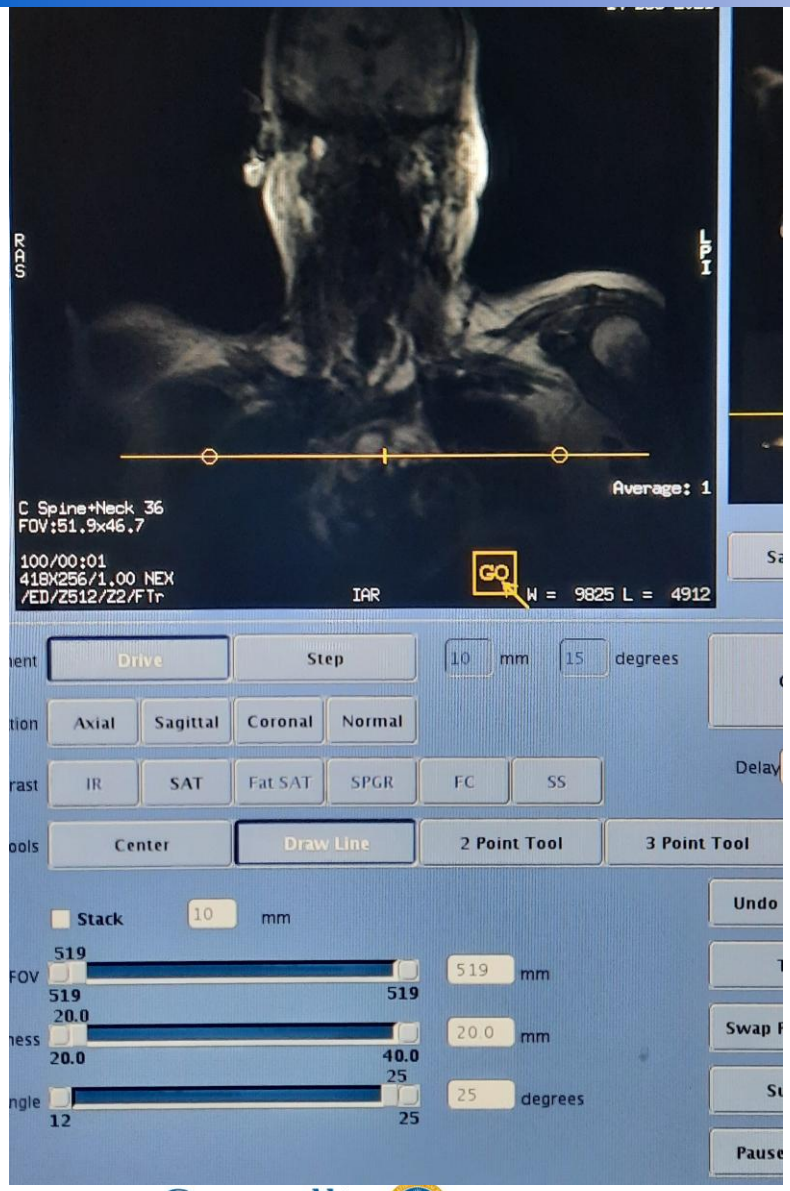
Le opzioni di riempimento dello spazio K sono comprese tra la CV utente 11 e la CV14. I parametri dipendono dall'anatomia da sottoporre alla scansione.

FLUORO

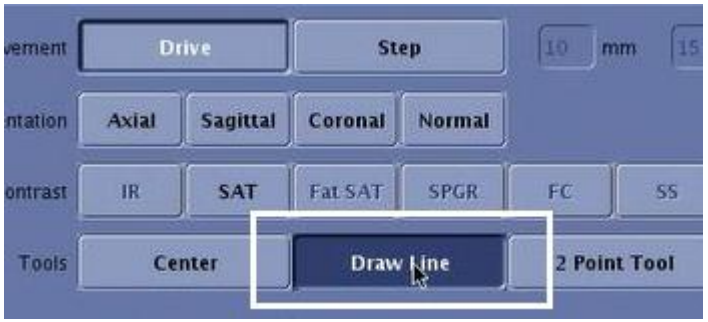
Appena inizia la sequenza, parte il Fluoro Trigger.
Aspettiamo di ottenere i 3 piani di localizzazione spaziale (assiale, sagittale, coronale)



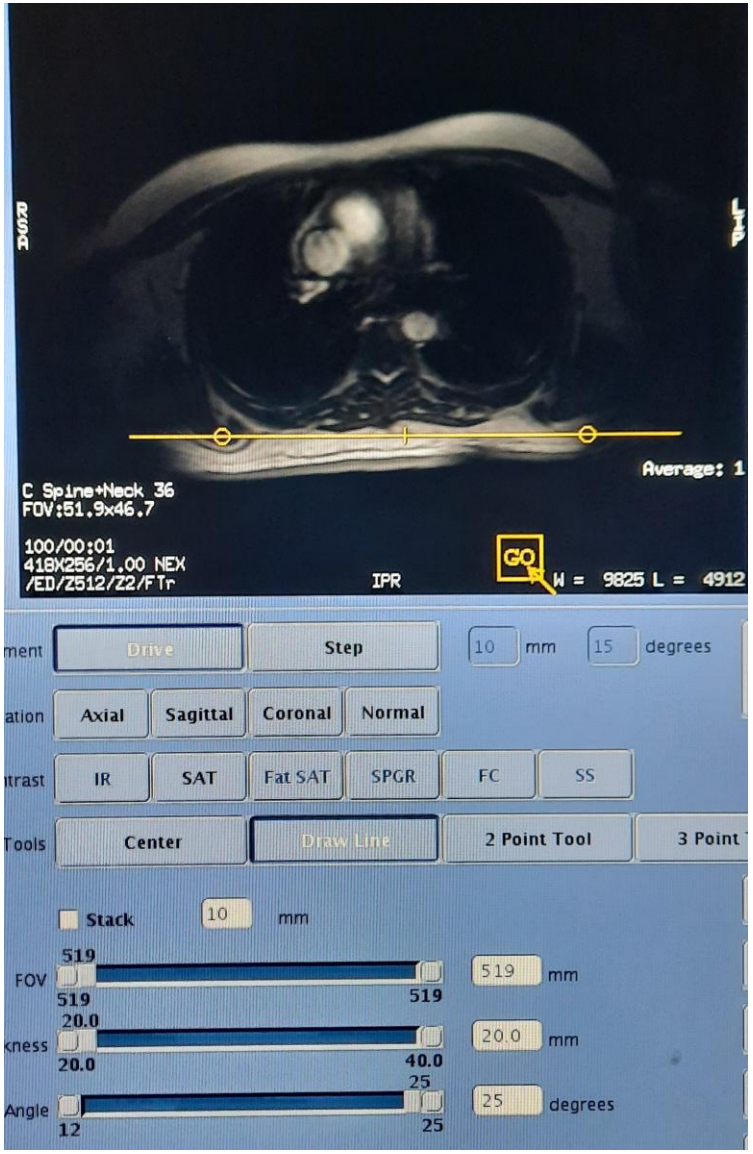
FLUORO



Posizionare la Draw Line sull'arco aortico e poi fare clic su «Go» …

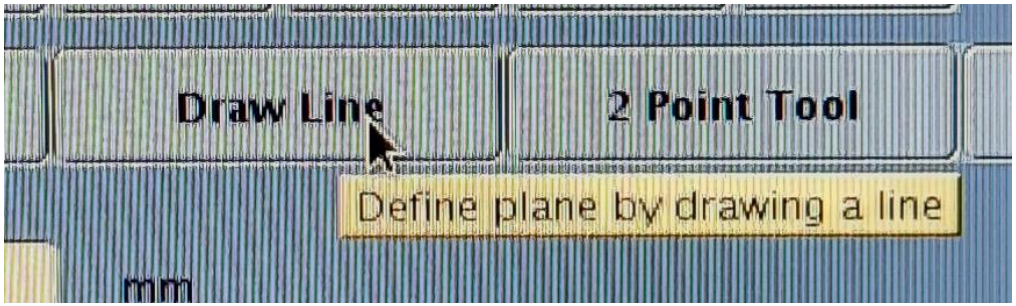


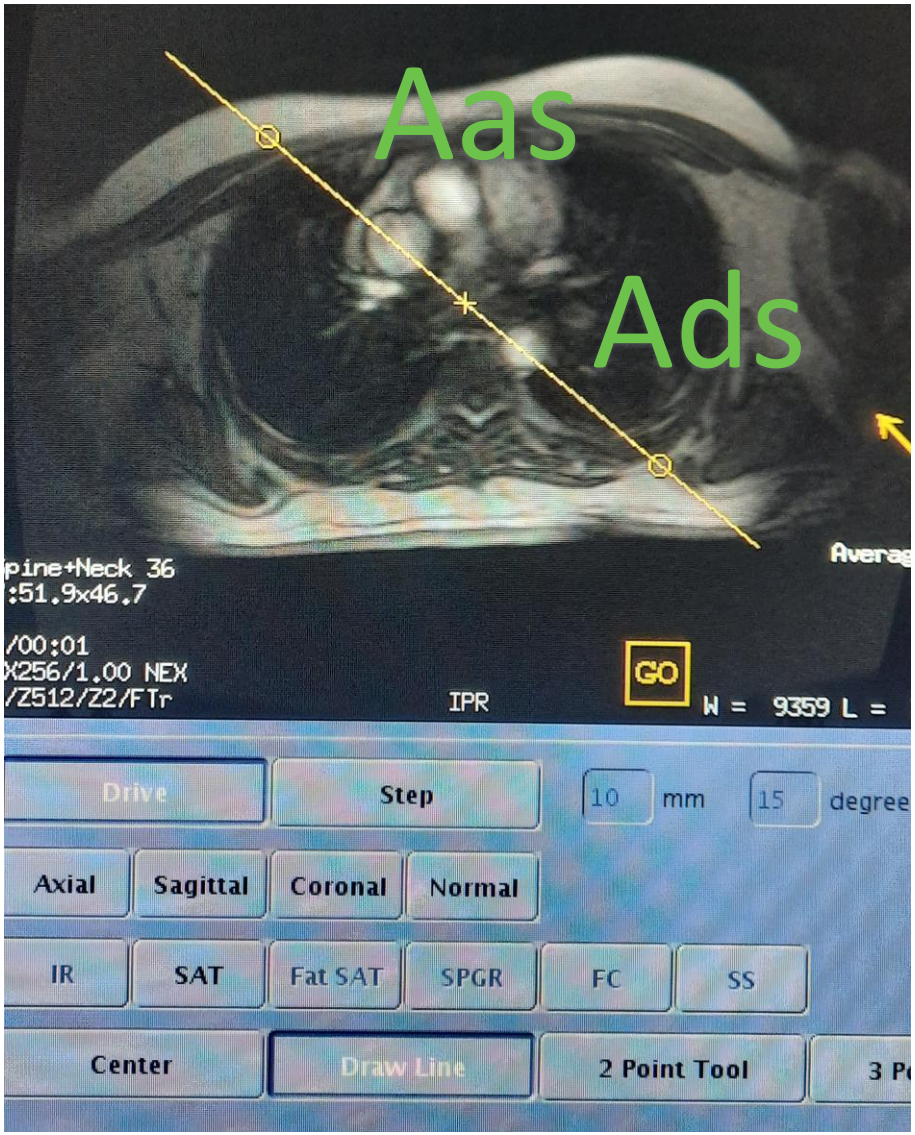
FLUORO



Fluoro

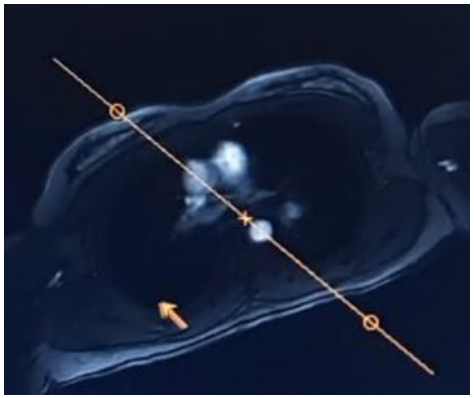
Aspettare qualche secondo e apparirà questa immagine …





Fluoro

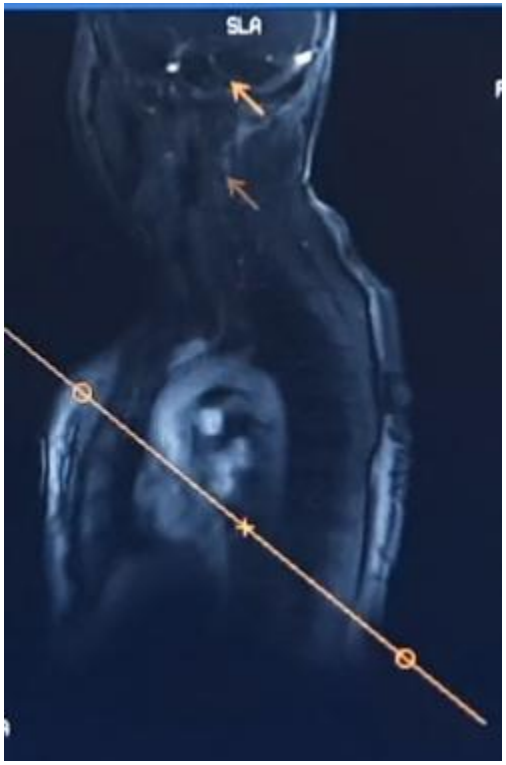
A questo punto posizionare la «Draw Line» unendo l'aorta ascendente e l'aorta discendente. Una bisettrice che unisce questi due punti.

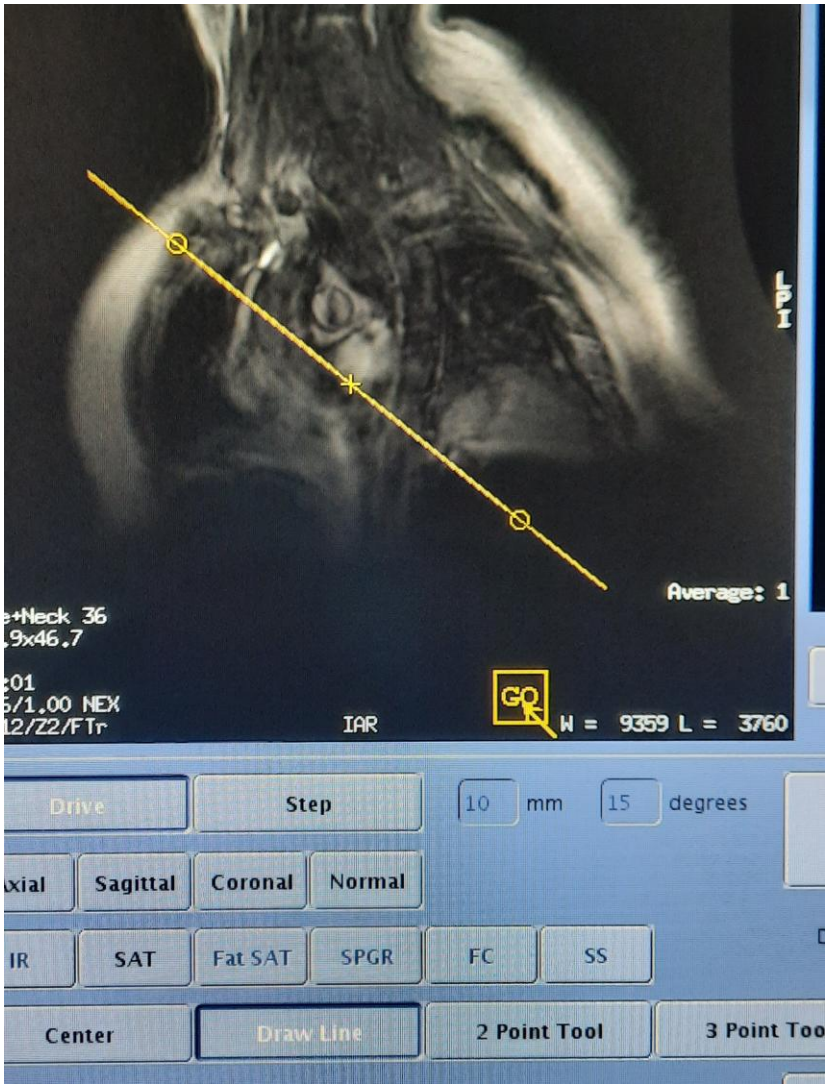


Formazione per l'eccellenza

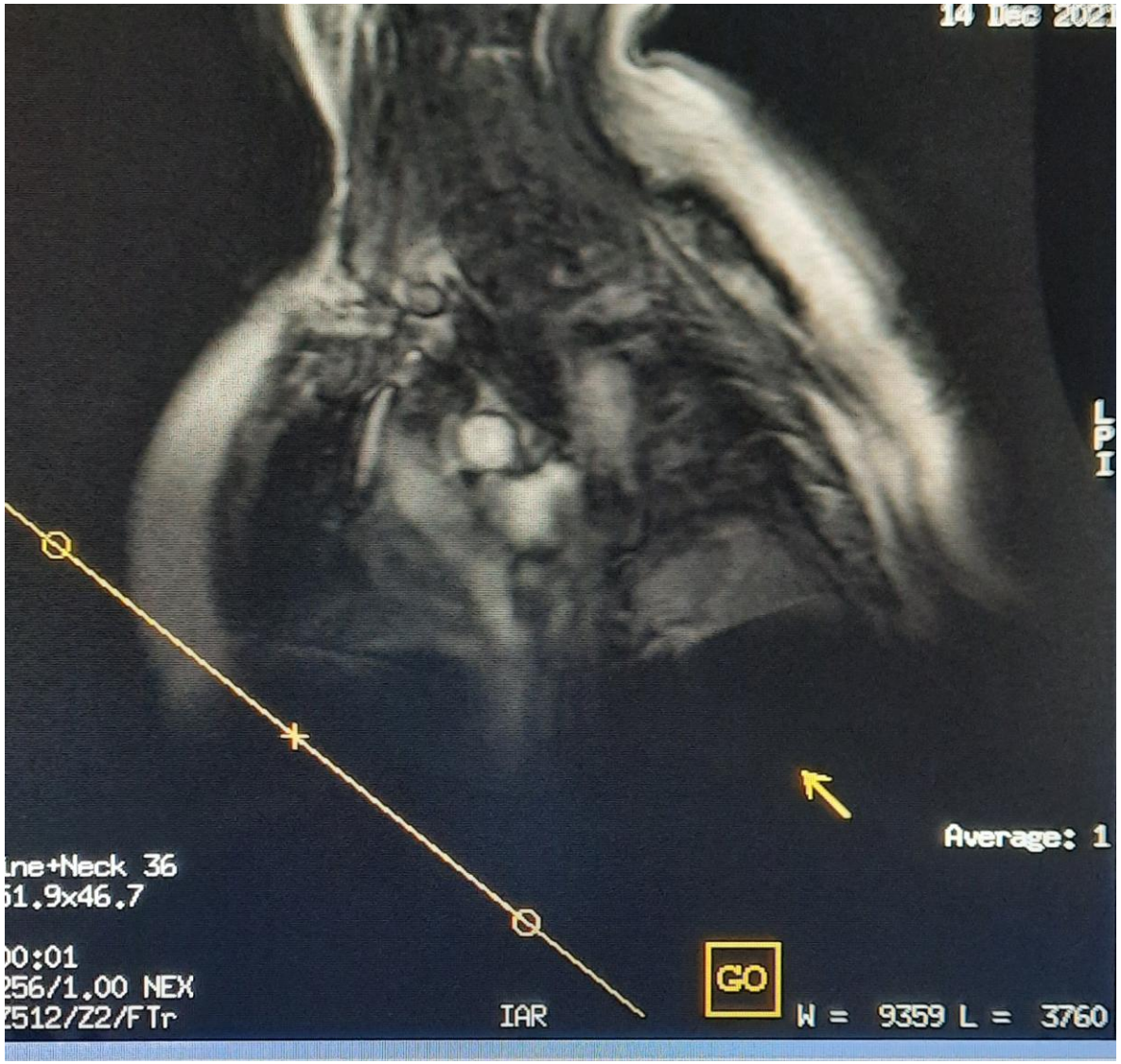
Apparirà questa immagine …

Fluoro





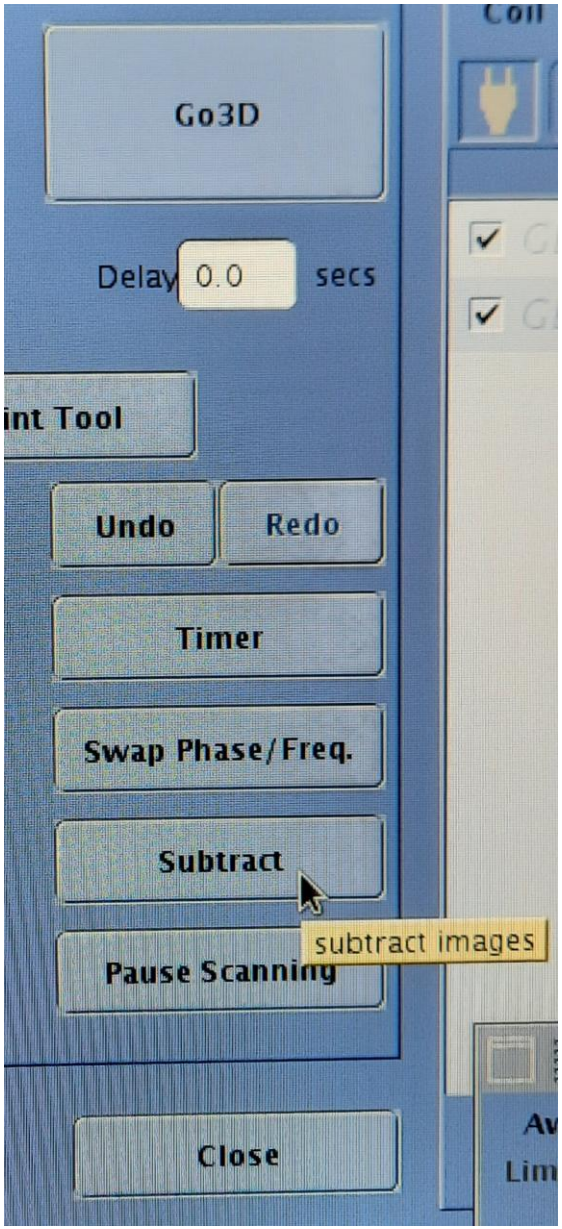
ANGIO RM COLLO



Fluoro

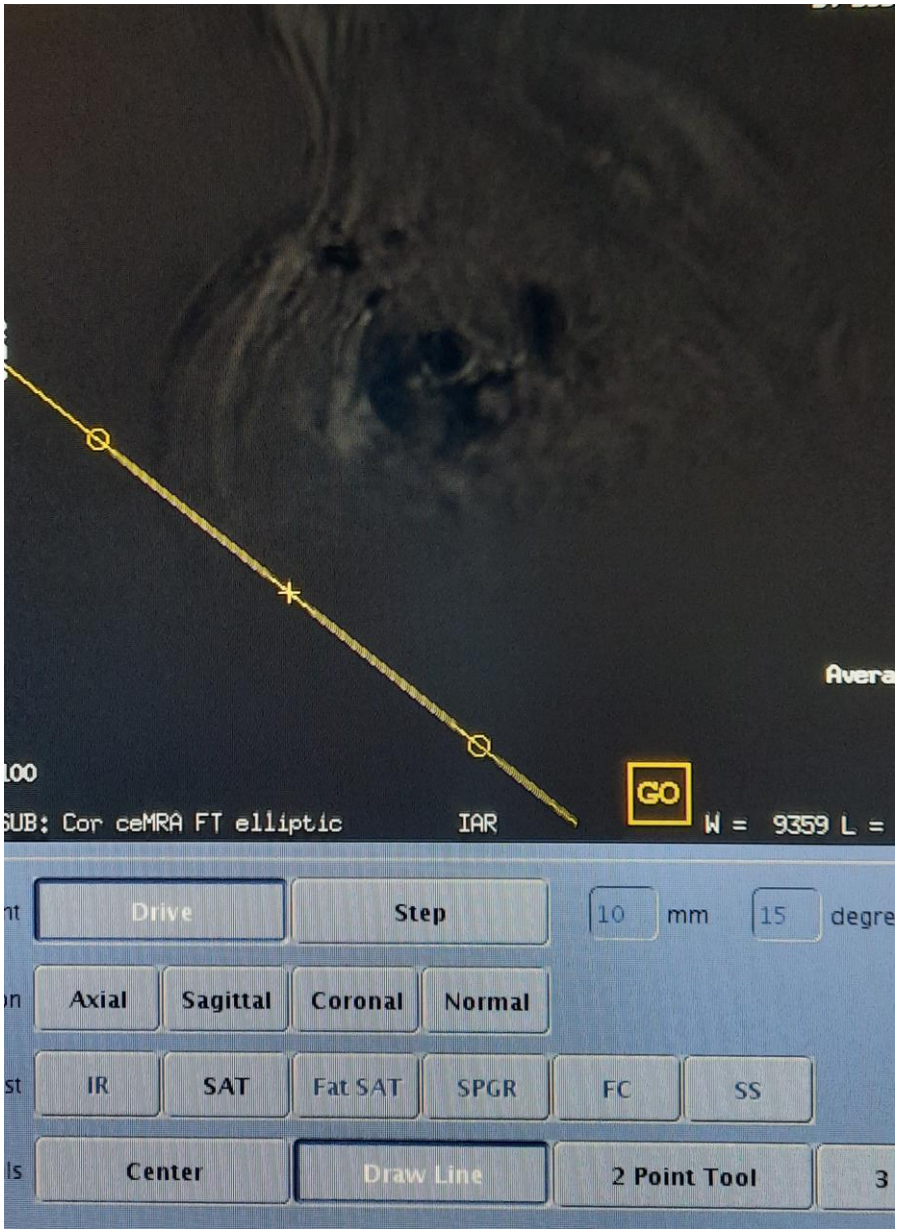
Possiamo spostare in basso la linea in modo che non ci copra la zona di interesse …

Fluoro



Fare clic su «Subtract»…

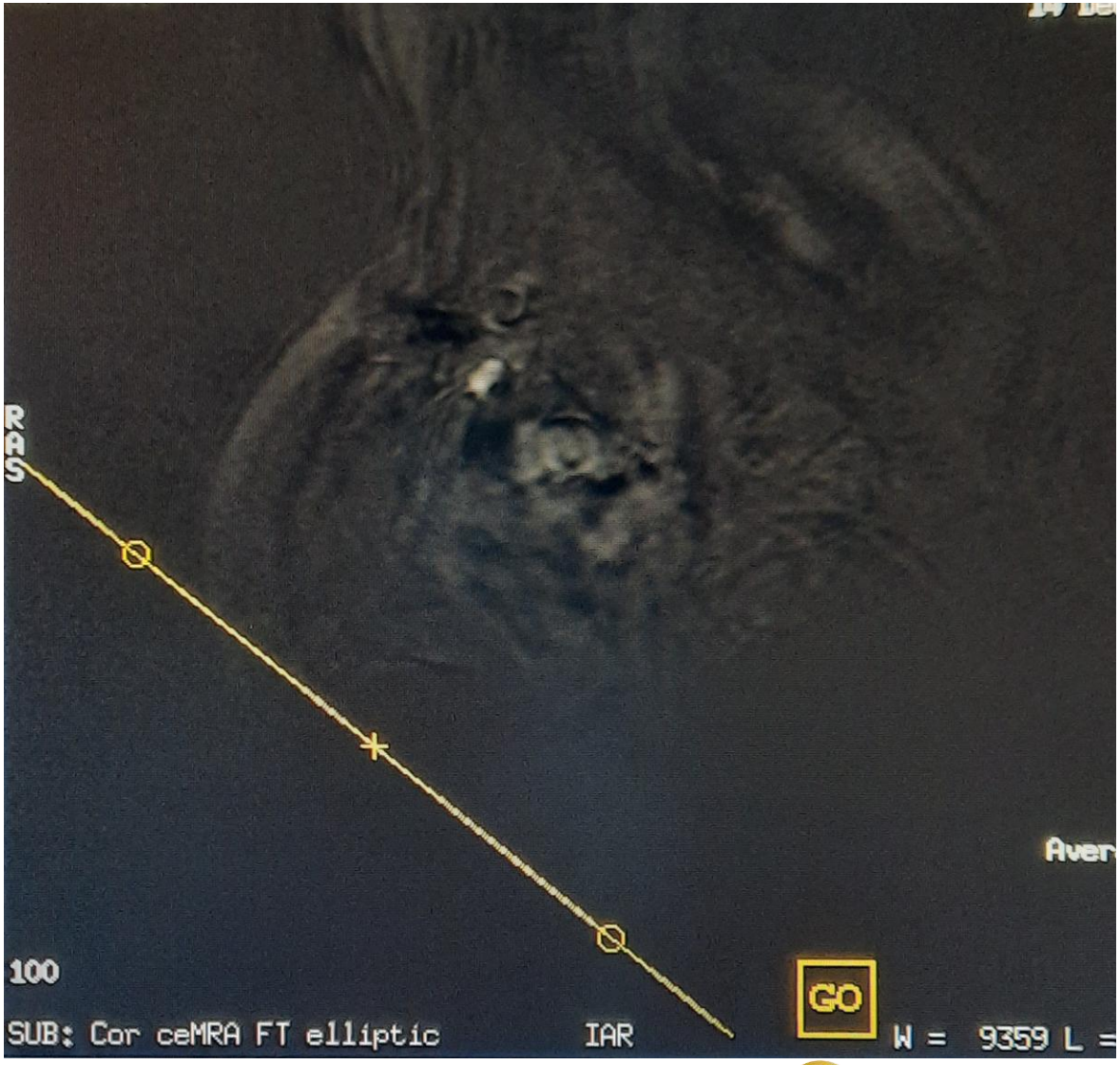
Fluoro



Apparirà l'immagine sottratta…

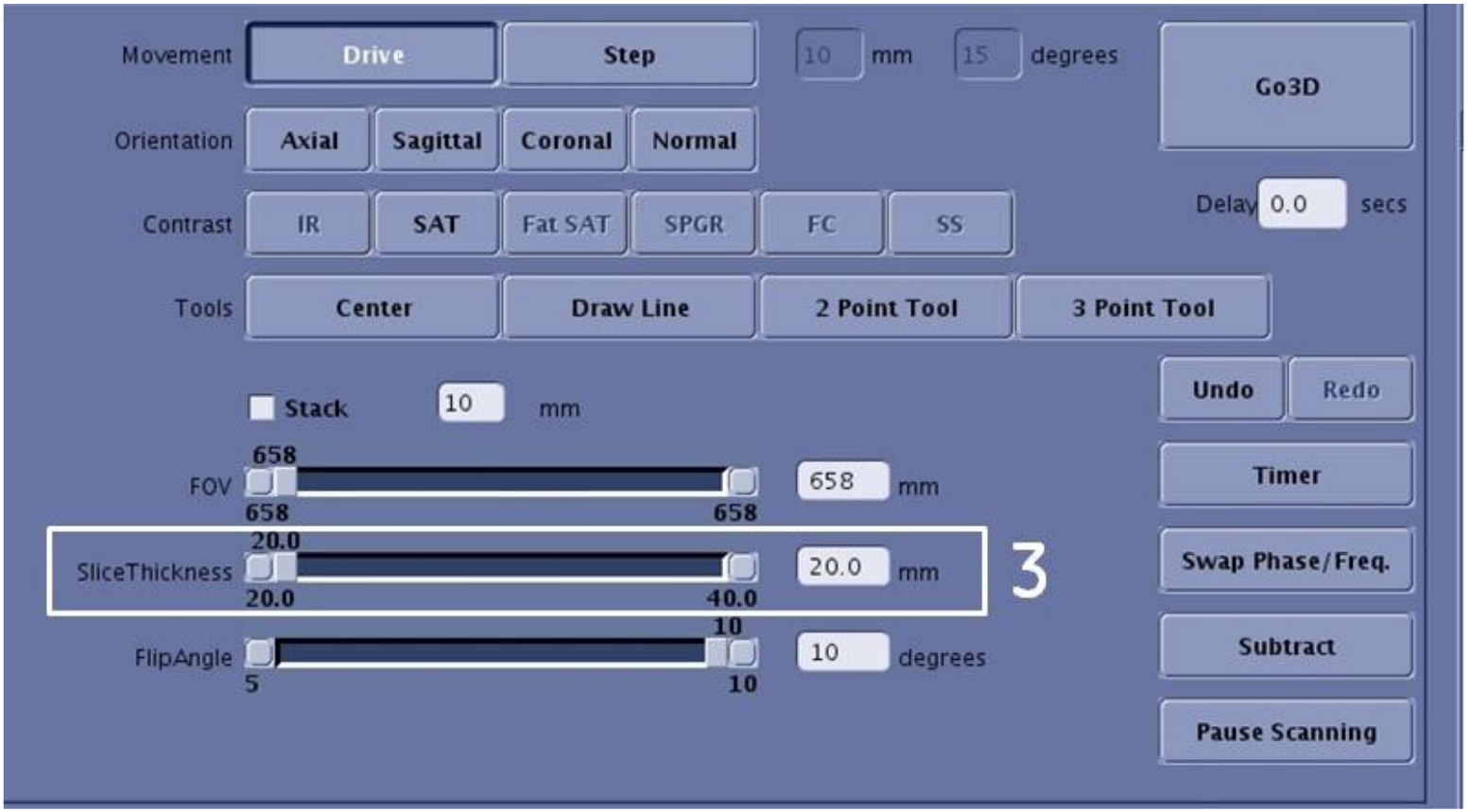
Fluoro

Per migliorare il contrasto dell'immagine fare clic con il mouse trascinandolo verso l'alto…



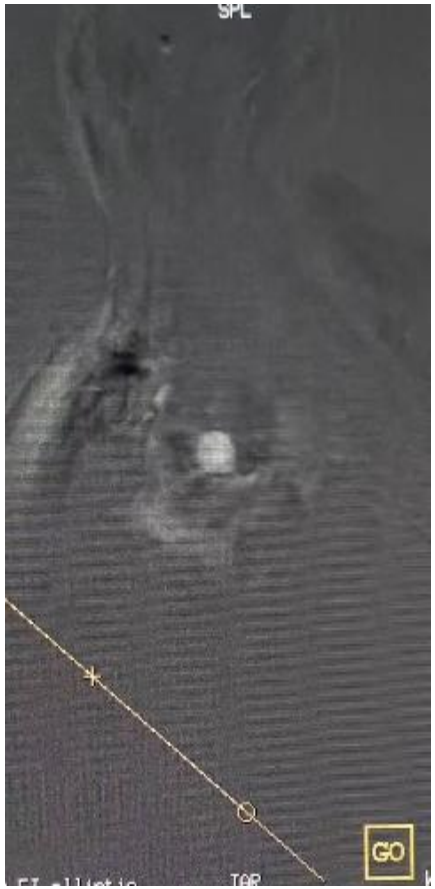
Fluoro

Possiamo anche regolare lo spessore della sezione per ottimizzare la visualizzazione vascolare.

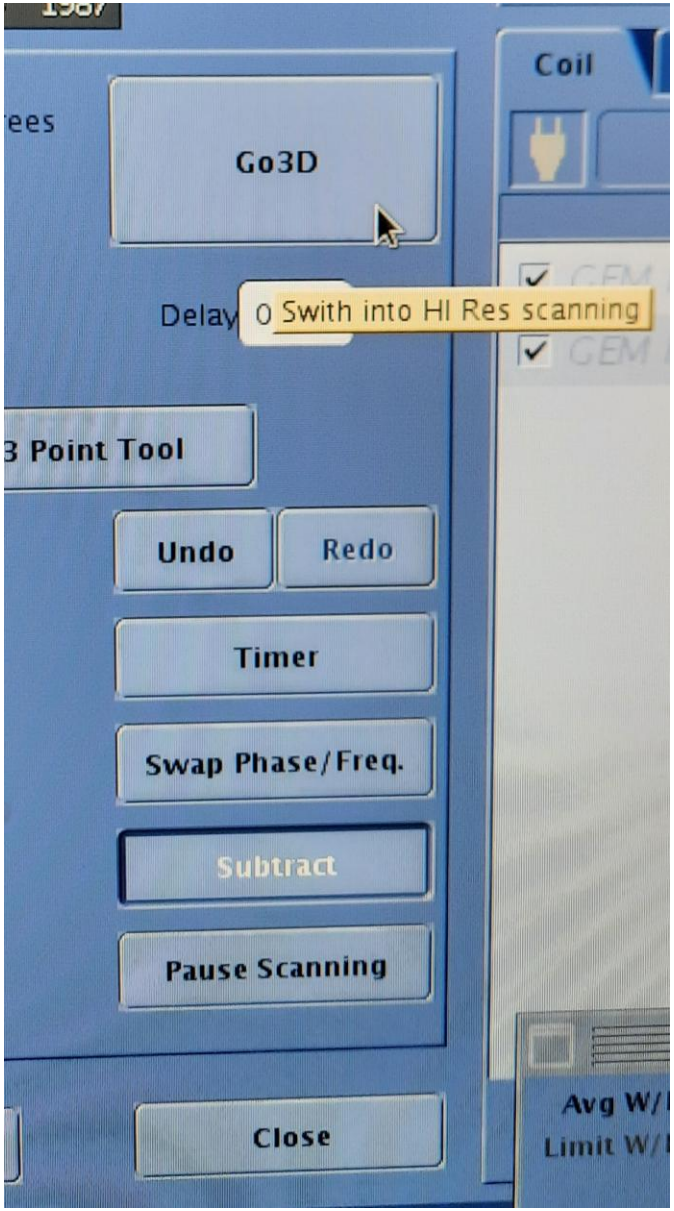


Formazione per l'eccellenza

Seguiamo il passaggio del mezzo di contrasto …

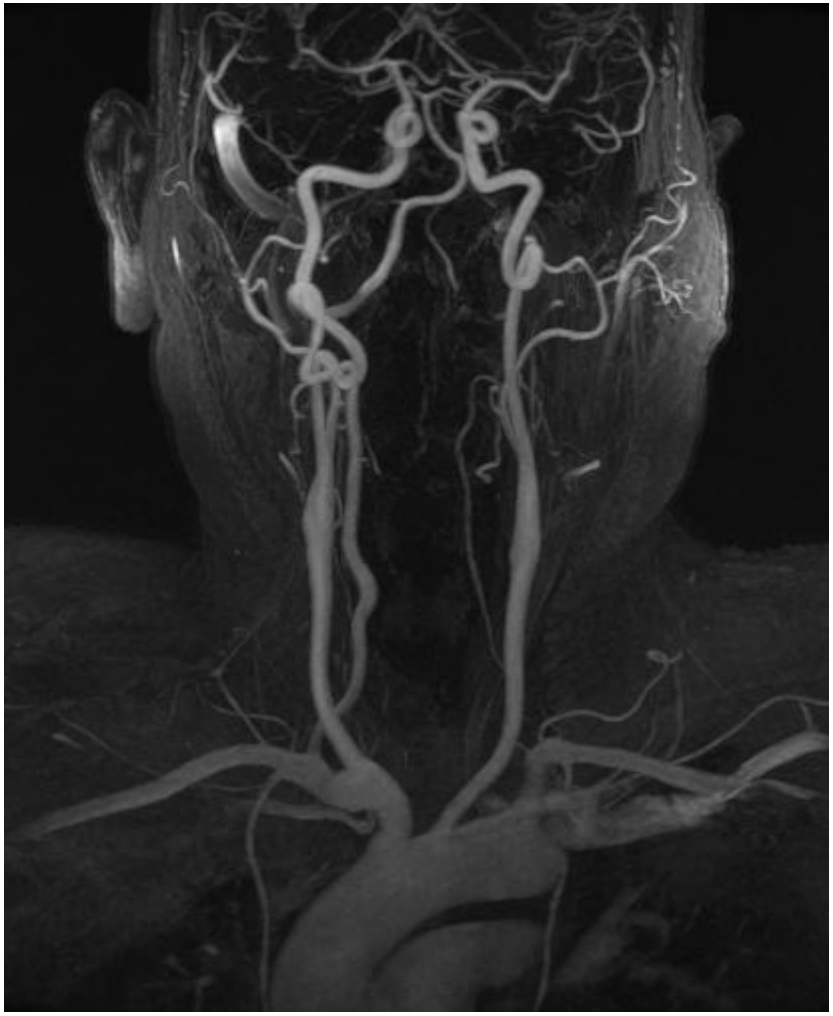


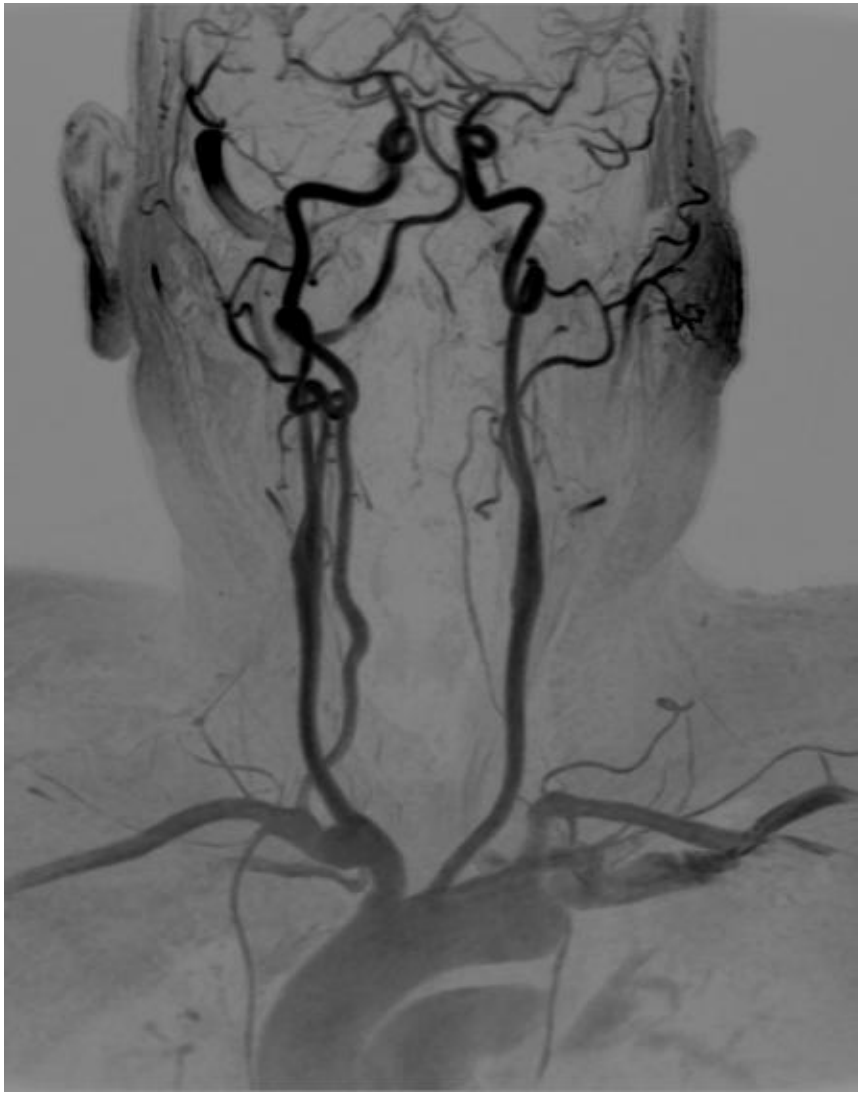
Fluoro



Appena vedremo il contrasto che inizia a riempire le carotidi premiamo immediatamente «Go3D». Partirà la scansione vera e propria

ANGIO RM COLLO





ANGIO RM COLLO

Apparecchiature utilizzate

PHILIPS

sense and simplicity

PHILIPS

Magnetic Resonance

Apparecchiature utilizzate

Formazione per l'eccellenza

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Magnetic Resonance

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sense and simplicity

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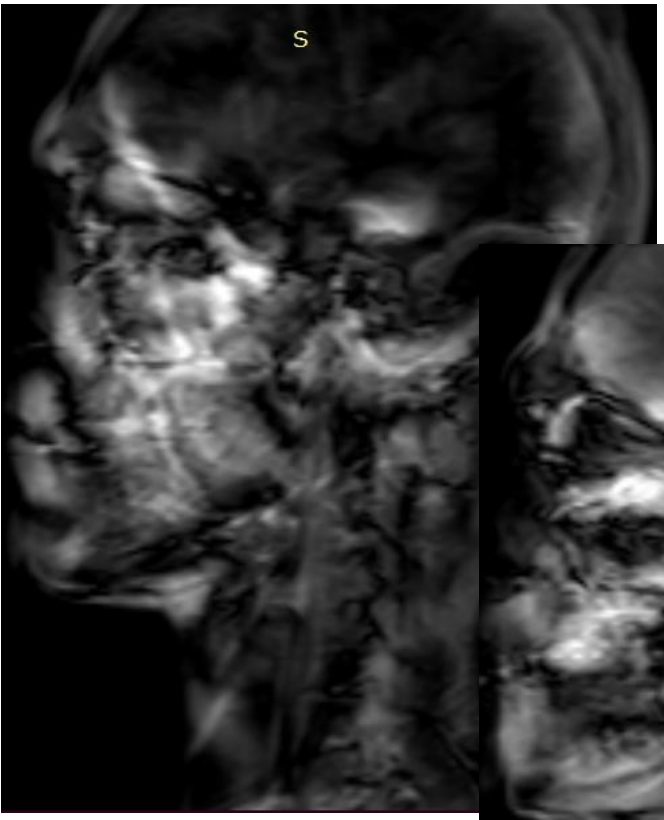
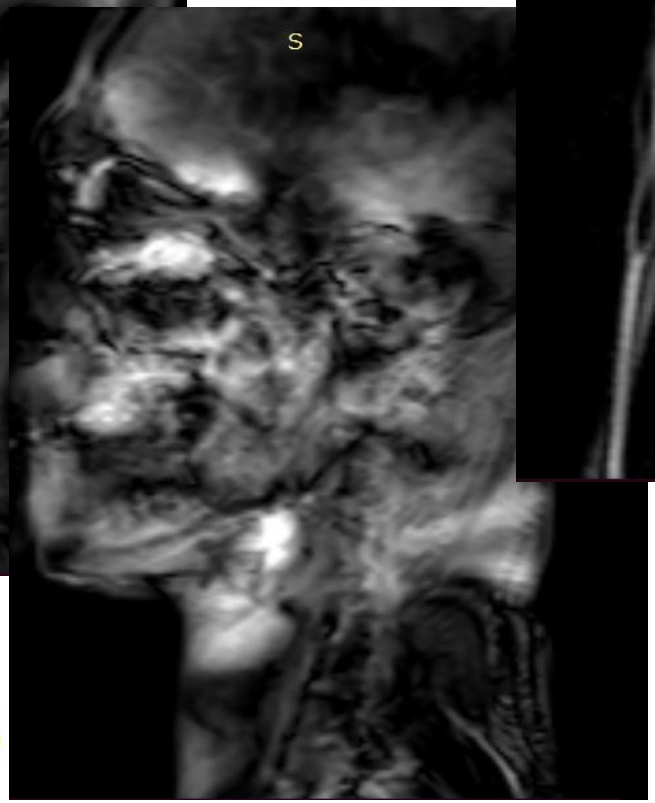
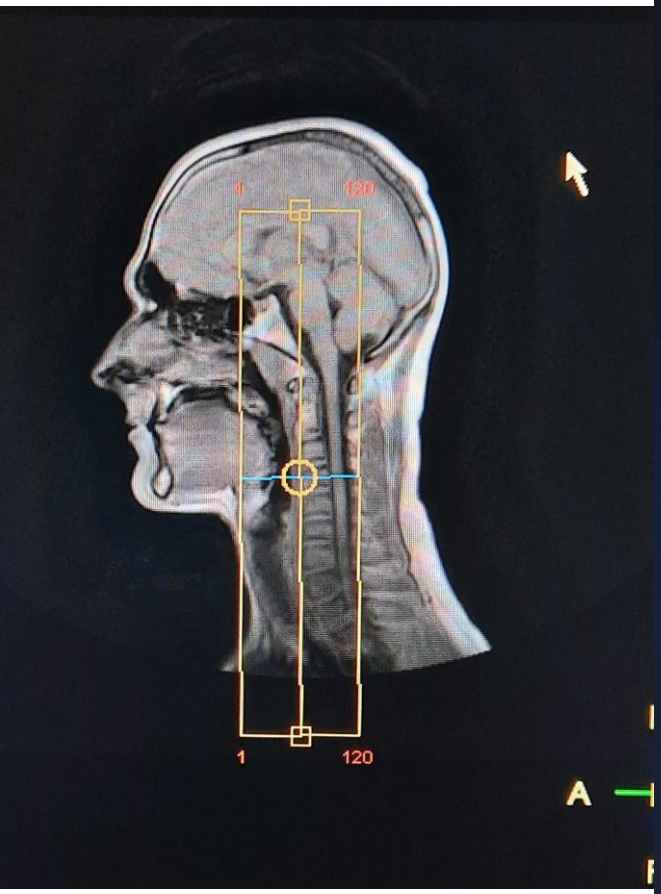
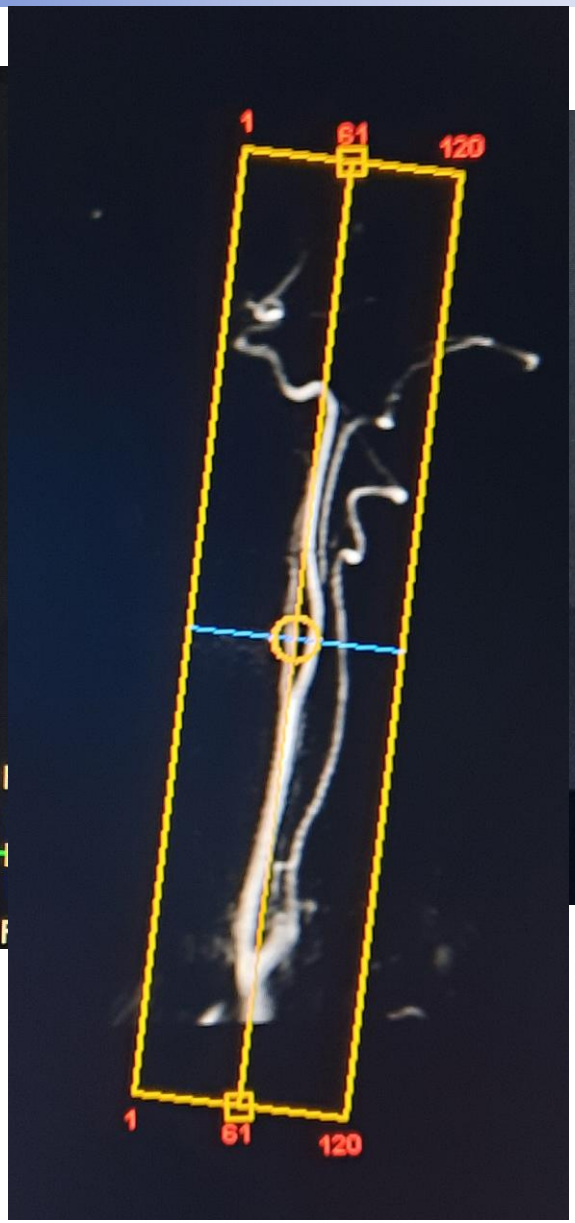
ANGIO RM COLLO: SURVEY PHASE CONTRAST

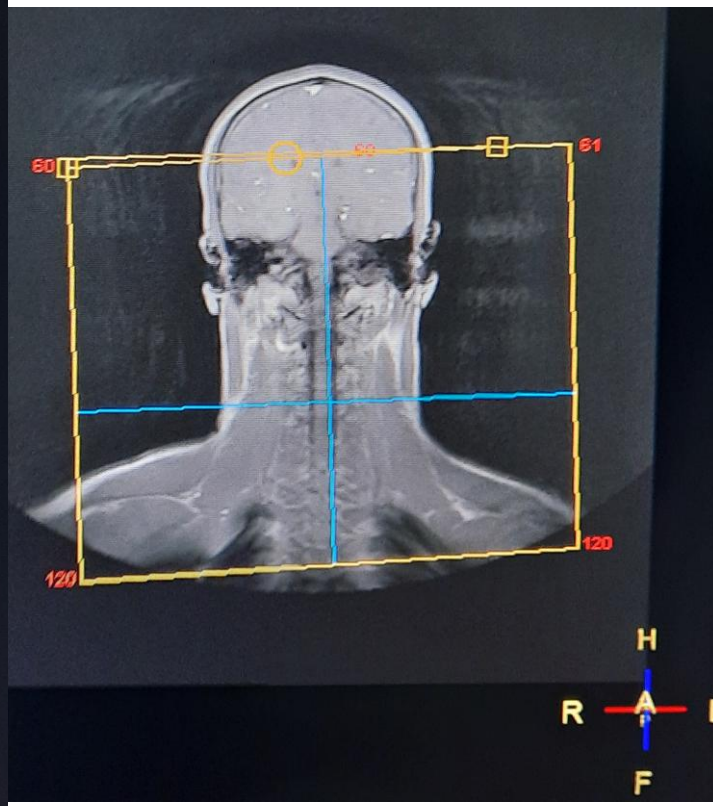




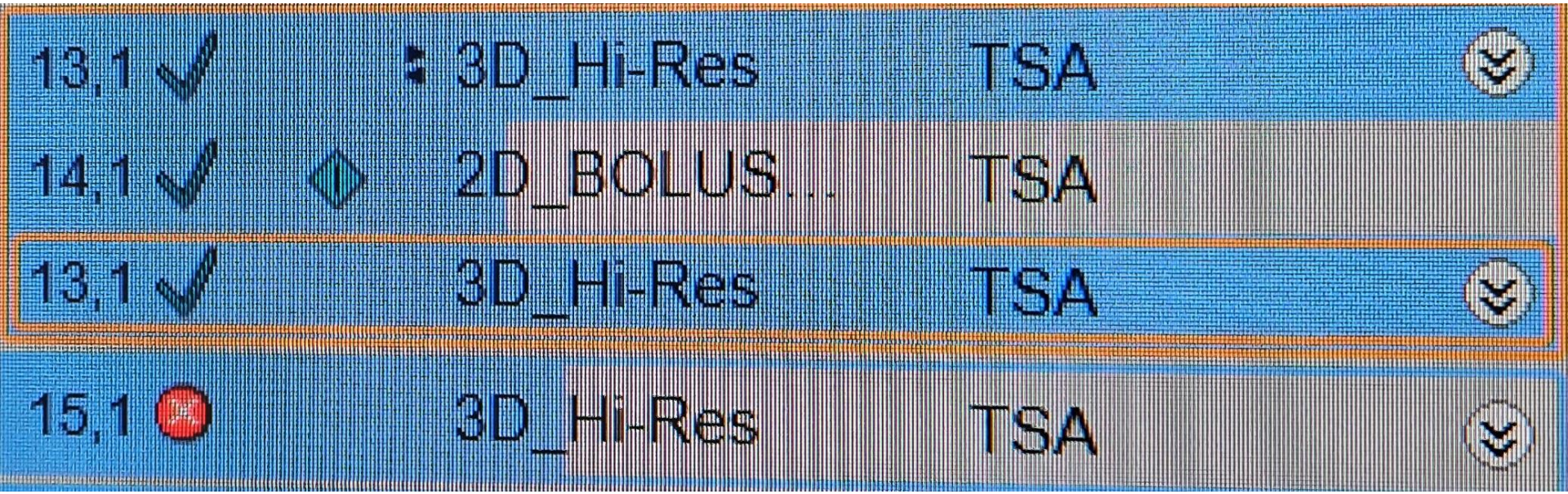
ANGIO RM COLLO



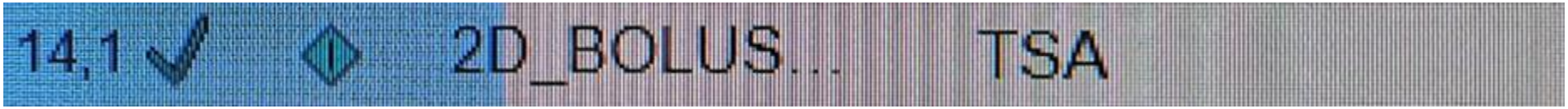




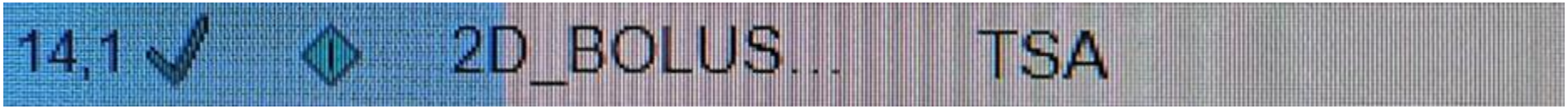
ANGIO RM COLLO



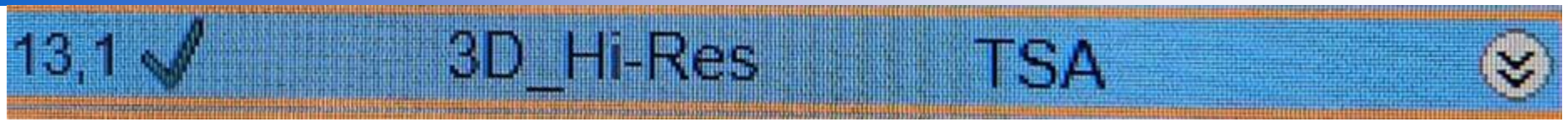
ANGIO RM COLLO: 2D BOLUSTRAK

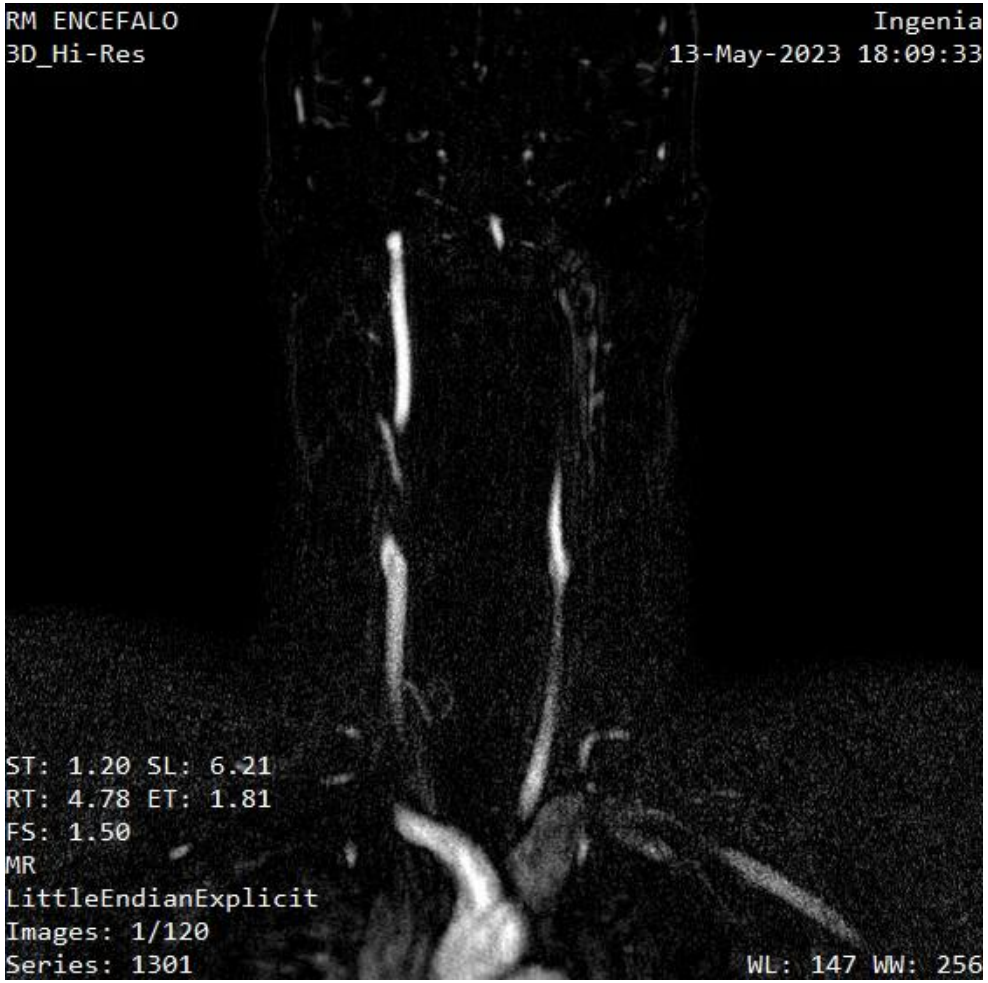


ANGIO RM COLLO: 2D BOLUSTRAK

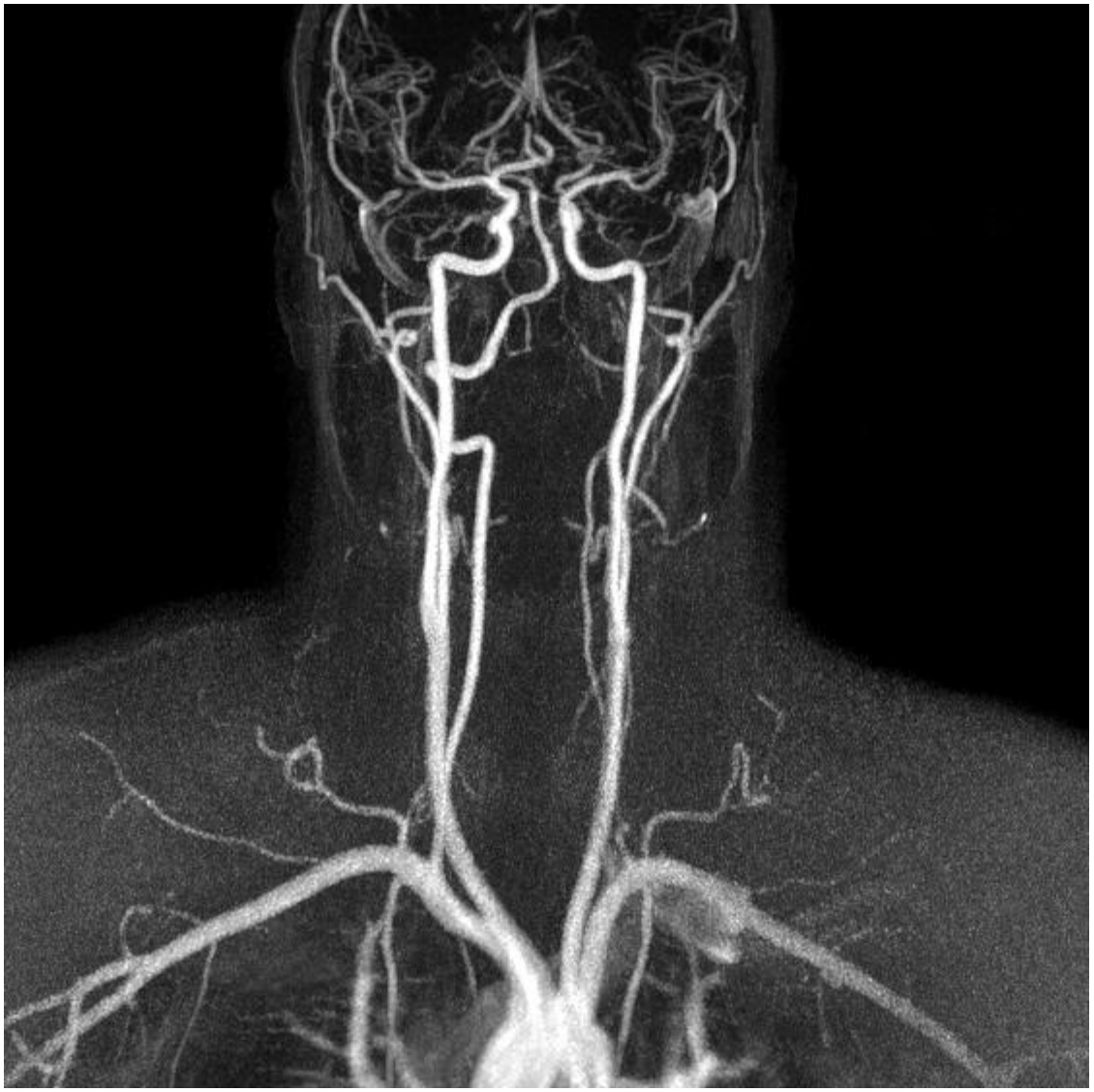


ANGIO RM COLLO: 3D HI-RES TSA





ANGIO RM COLLO: MIP 3D HI RES TSA



ANGIO RM COLLO: MIP 3D HI RES TSA

ANGIO RM COLLO: VR