

# Neuro MR protokoly

## 1,5 Tesla

### ÚVN Praha

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General Electric

Discovery 450

1,5 T



# MozeK 1,5 T

## MozeK Standard

- Ax DWI
- Ax T2 Propeller
- Ax T2 Flair
- Cor 3D T1 IR
  - Sag T2 Propeller
  - Cor T2 FS
  - Fiesta
  - Cor T2 Flair
  - Ax T2 GRE

## MozeK KL

- Ax DWI
- Ax T2 Propeller
- Ax T1 FSE
- Ax T1 FSE + Gd
- Cor T1 FSE + Gd
- Sag T1 FSE + Gd

# MozeK 1,5 T

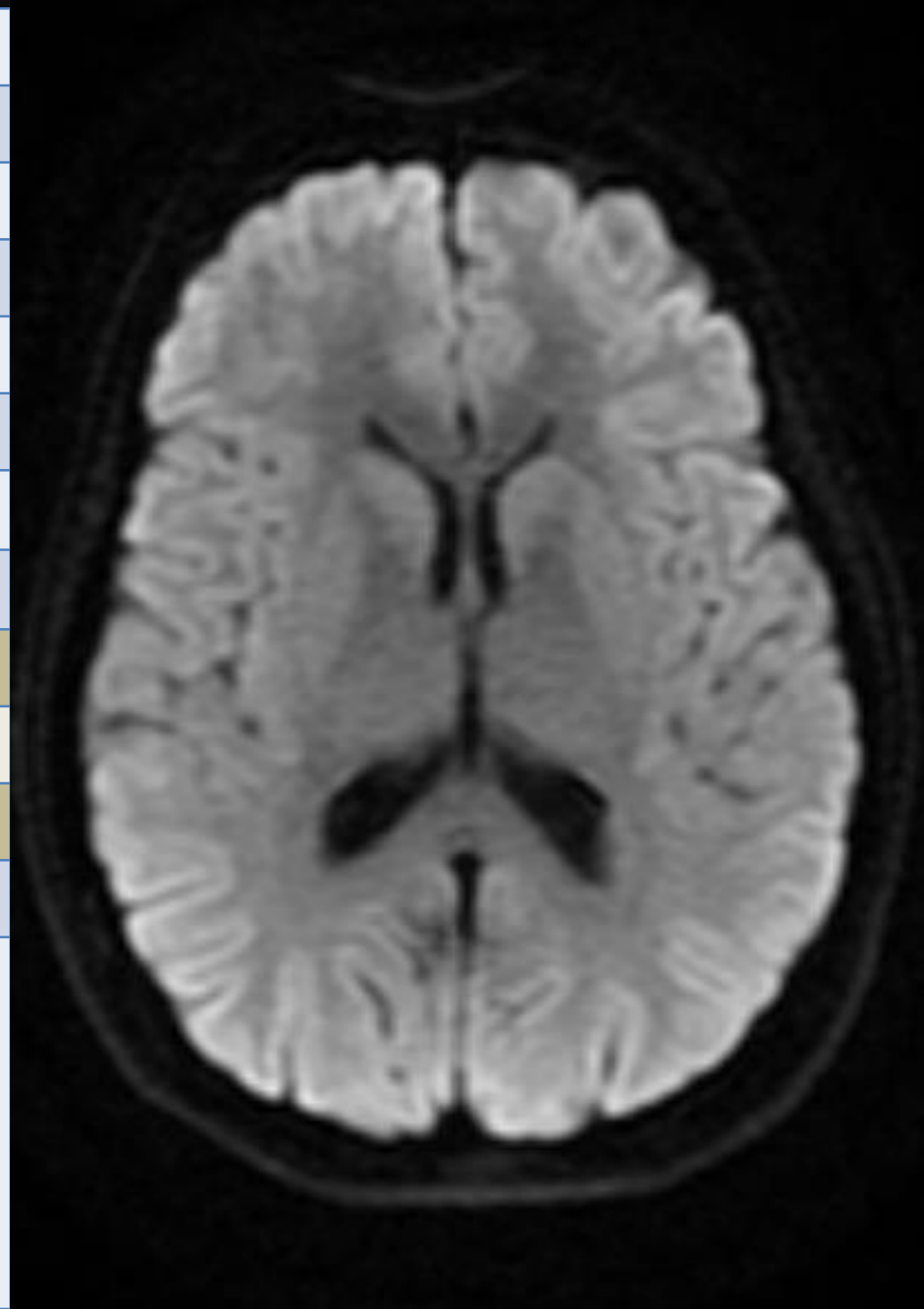
## Hypofýza

- Ax DWI
- Ax T2 Propeller
- Cor T1 FSE
- Cor T1 FSE + Gd
- Sag T1 FSE + Gd

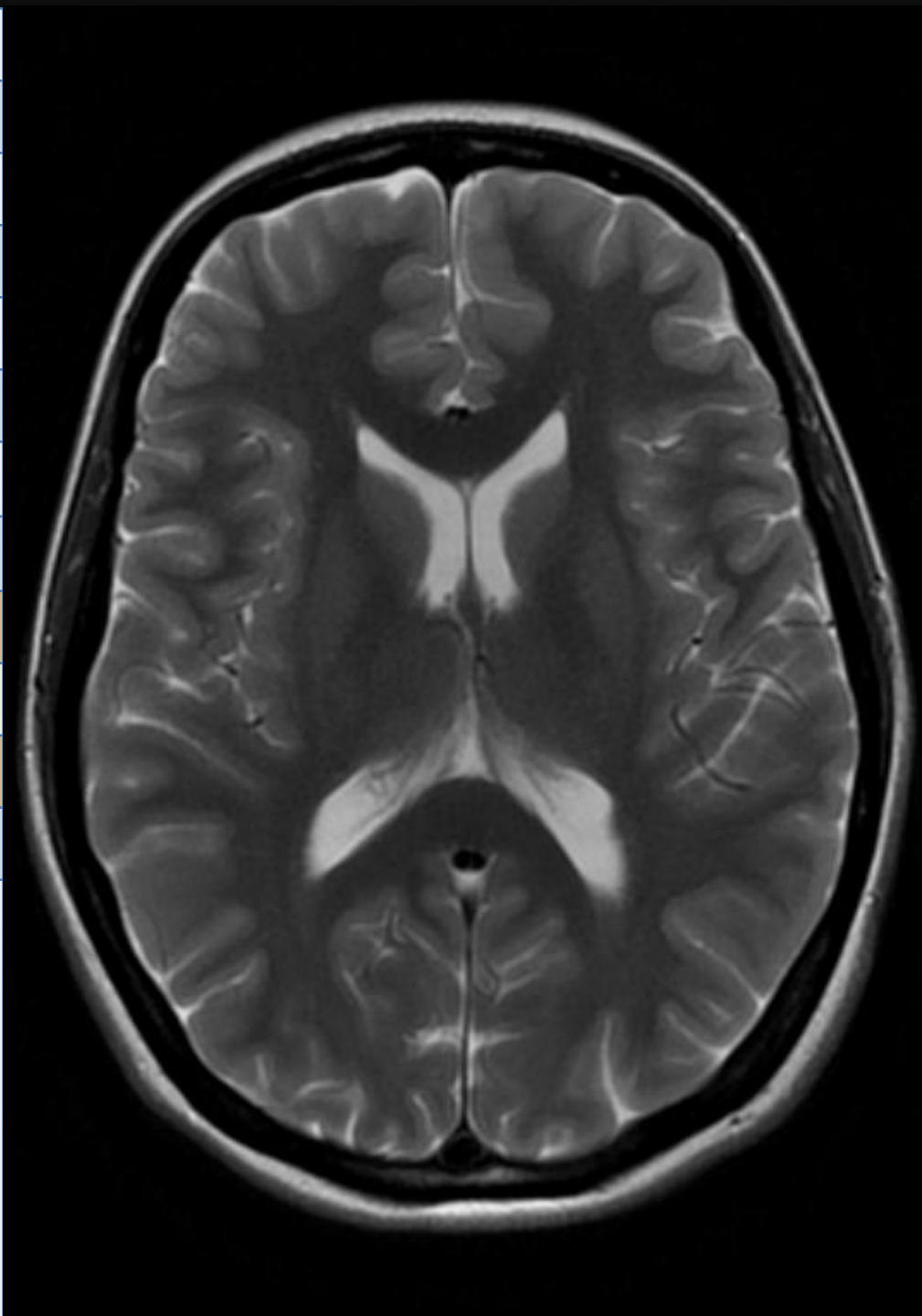
## MozeK RS + KL (Navazuje Cpt)

- Ax DWI
- Ax T2 Propeller
- Ax T2 Flair
- Ax T1 FSE
- Ax T1 FSE + Gd
- Cor T1 FSE + Gd

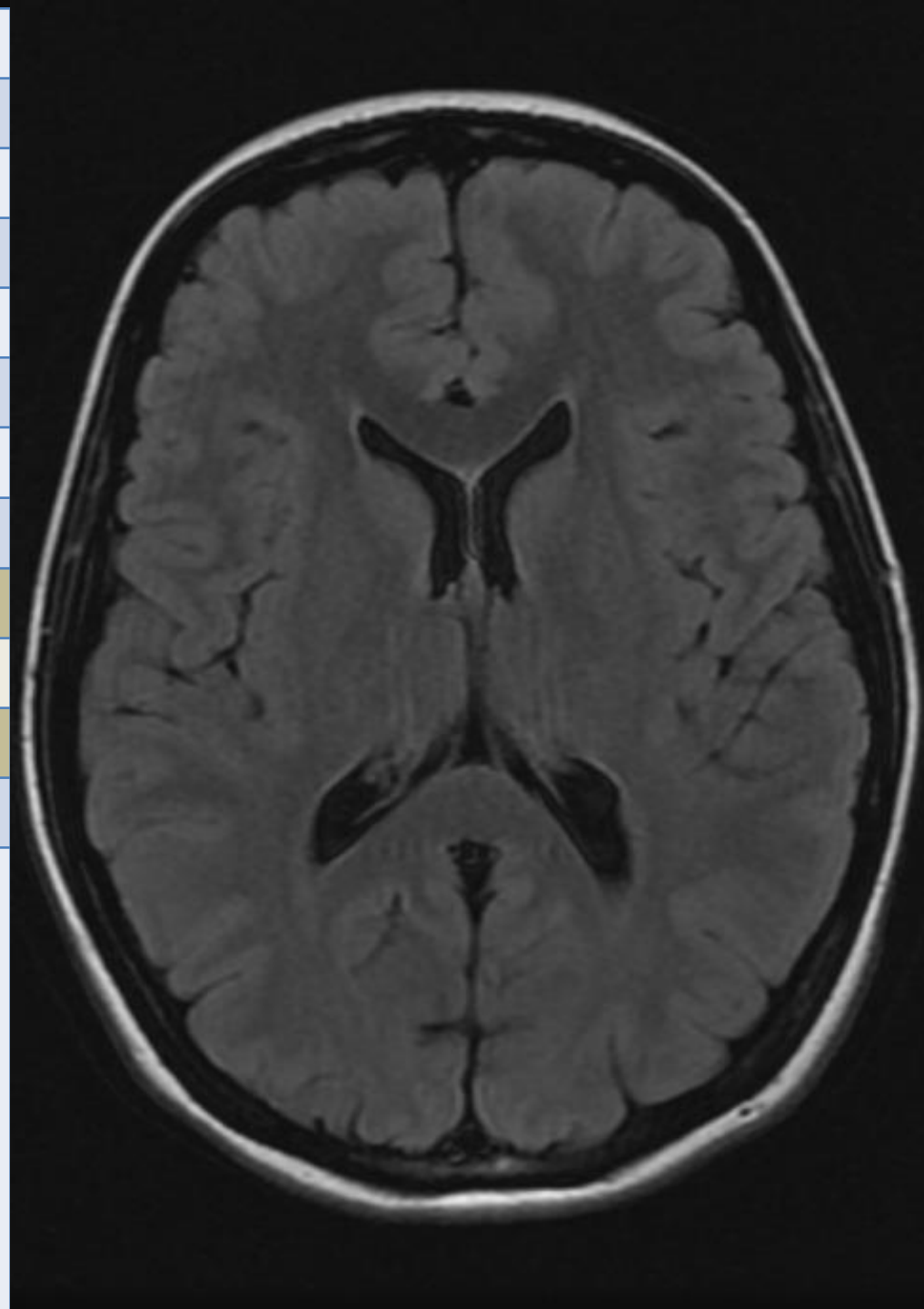
Typ	DWI
Sekvence	SE
Rovina	TRA
Vrstva mm	5
FoV mm	280
Matrix	160 x 192
Fáze	R-L
PAT	off
TR ms	Auto, min 3000
TE ms	min
ETL	8
Čas	0:27
Různé	Phase correction, Optimized TE



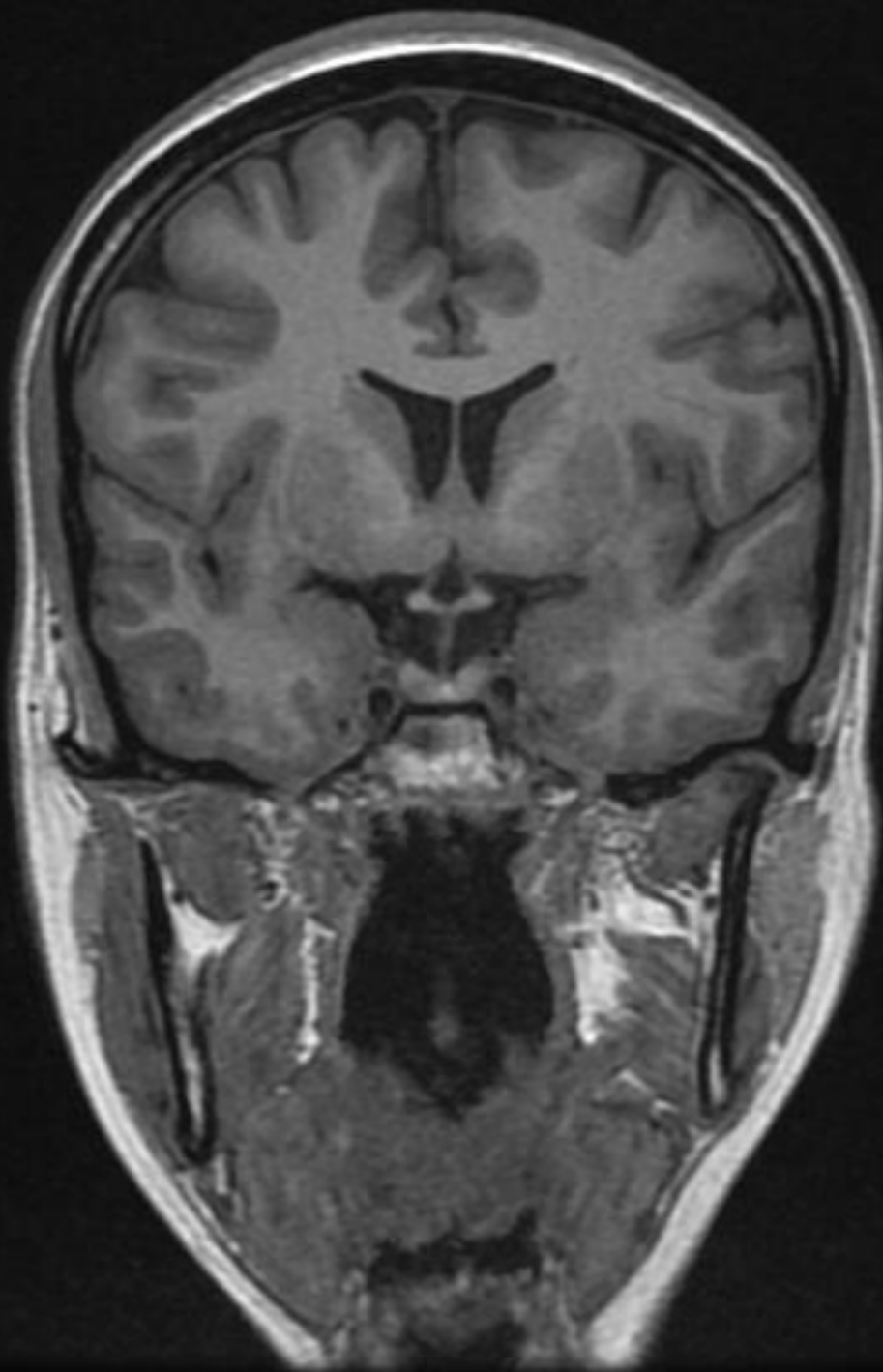
Typ	T2
Sekvence	Propeller
Rovina	TRA
Vrstva	5
FoV	240
Matrix	Freq 384
Fáze	H-F
PAT	Phase acc 2
TR	5964
TE	96
ETL	26
Čas	1:53
Různé	Nex 2, FA 160 Oversampling 1 TRF, SCIC, Harmonize



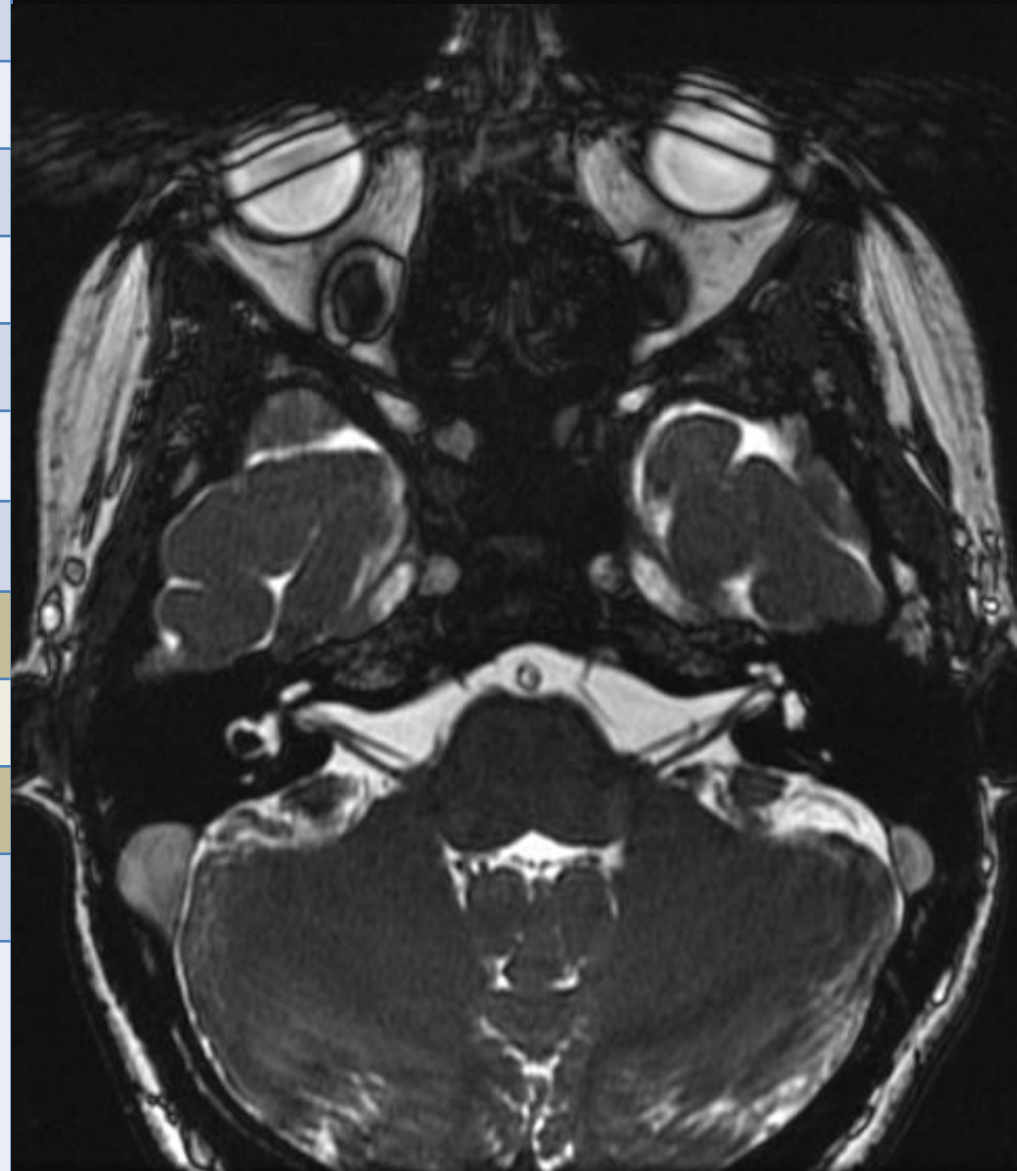
Typ	T2 Flair
Sekvence	FSE
Rovina	TRA
Vrstva	5
FoV	240
Matrix	Phase 224 Freq 352
Fáze	A-P
PAT	-
TR	8000
TE	120
ETL	-
Čas	3:12
Různé	FC, TRF, Fast, Zip 512 TI 2000 SCIC, NEX 1 Bdw 31,25



<b>Typ</b>	<b>T1 3D IR</b>
Sekvence	SPGR
Rovina	COR
Vrstva	2
FoV	240
Matrix	Phase 224 Freq 320
Fáze	S-I
PAT	-
TR	9,1
TE	In Phase
ETL	-
Čas	2:50
Různé	TI 400 EDR, Fast, Zip 512, Zip 2 FA 12 Bdw 31,25 PURE, Phase FOV 0,7 NEX 1



Typ	Fiesta
Sekvence	GE
Rovina	TRA
Vrstva	1,2
FoV	18
Matrix	Phase 320 Freq 224
Fáze	Unswap
PAT	-
TR	-
TE	MinFull
ETL	-
Čas	4:28
Různé	NEX 3 Bdw 41,67 SCIC FA 55





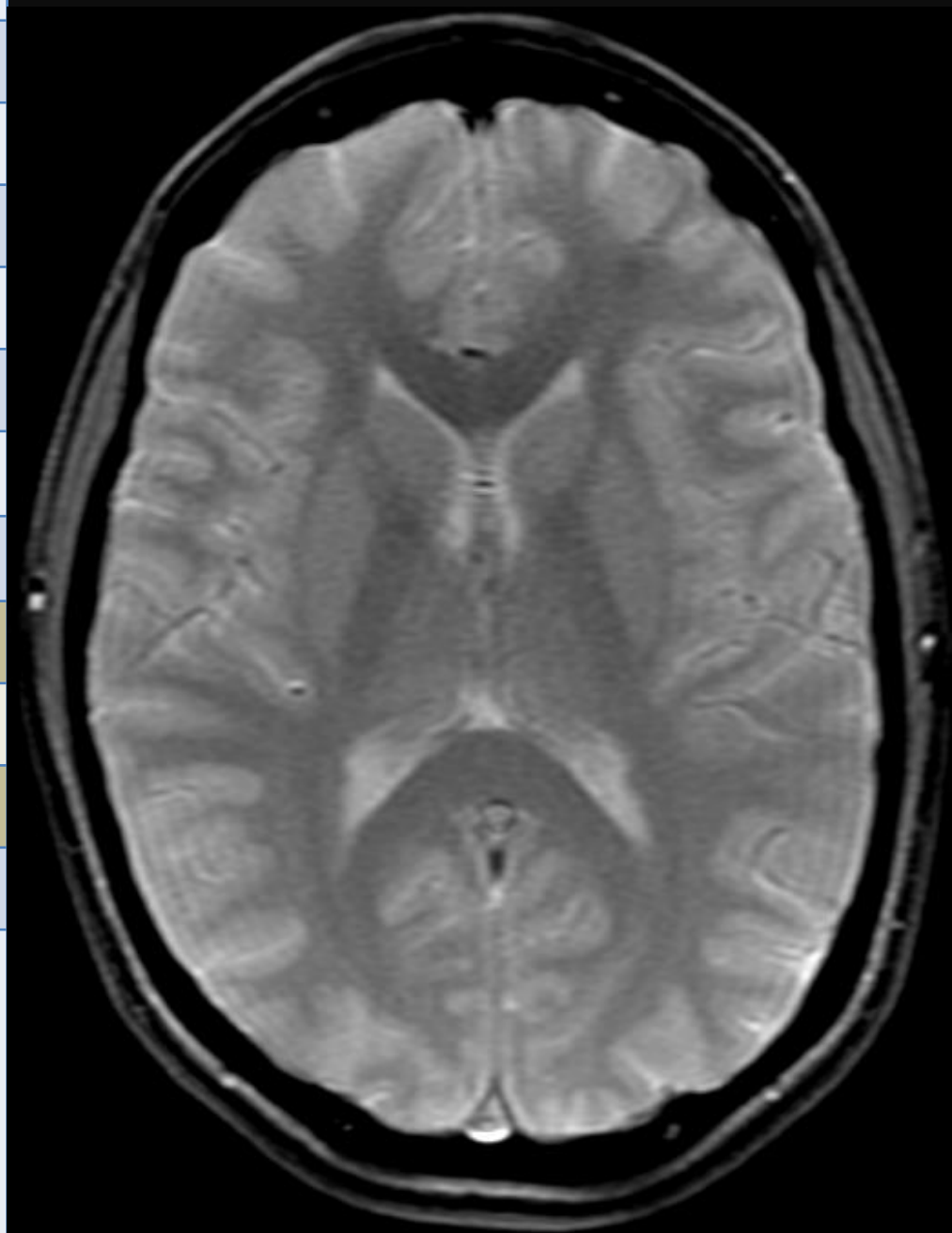
<b>Typ</b>	<b>T2 FS</b>
Sekvence	Propeller
Rovina	COR
Vrstva	3
FoV	24
Matrix	Freq 512
Fáze	
PAT	Phase acc 2
TR	5124
TE	115
ETL	26
Čas	2:08
Různé	NEX 2 Bdw 41,67 SCIC, Fat Classic Oversampling 1



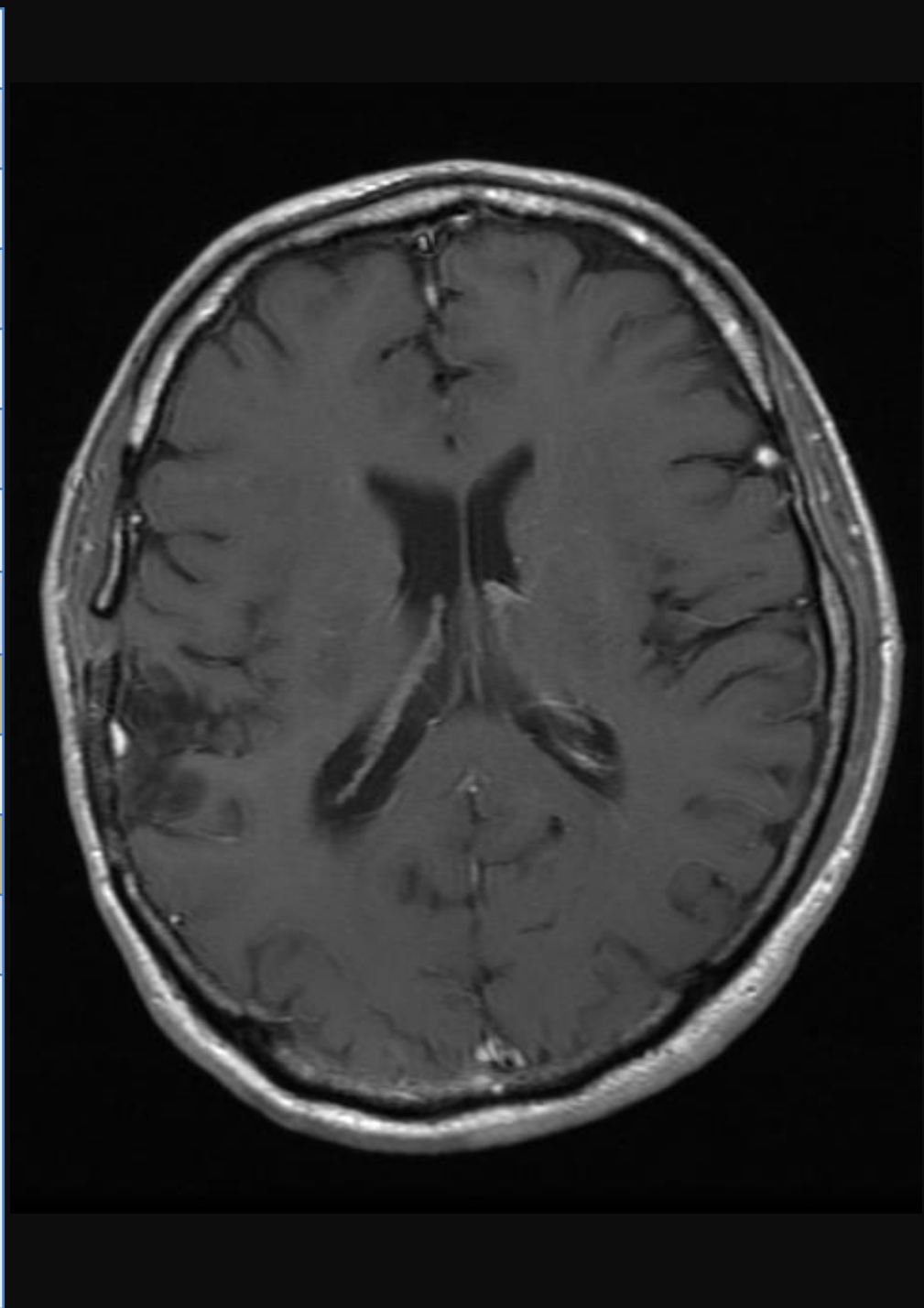
Typ	T2
Sekvence	Propeller
Rovina	SAG
Vrstva	3
FoV	24
Matrix	Freq 384
Fáze	-
PAT	Phase acc 2
TR	5124
TE	115
ETL	26
Čas	2:08
Různé	NEX 2, FA 160 Bdw 41,67 SCIC, Fat Classic Oversampling 1



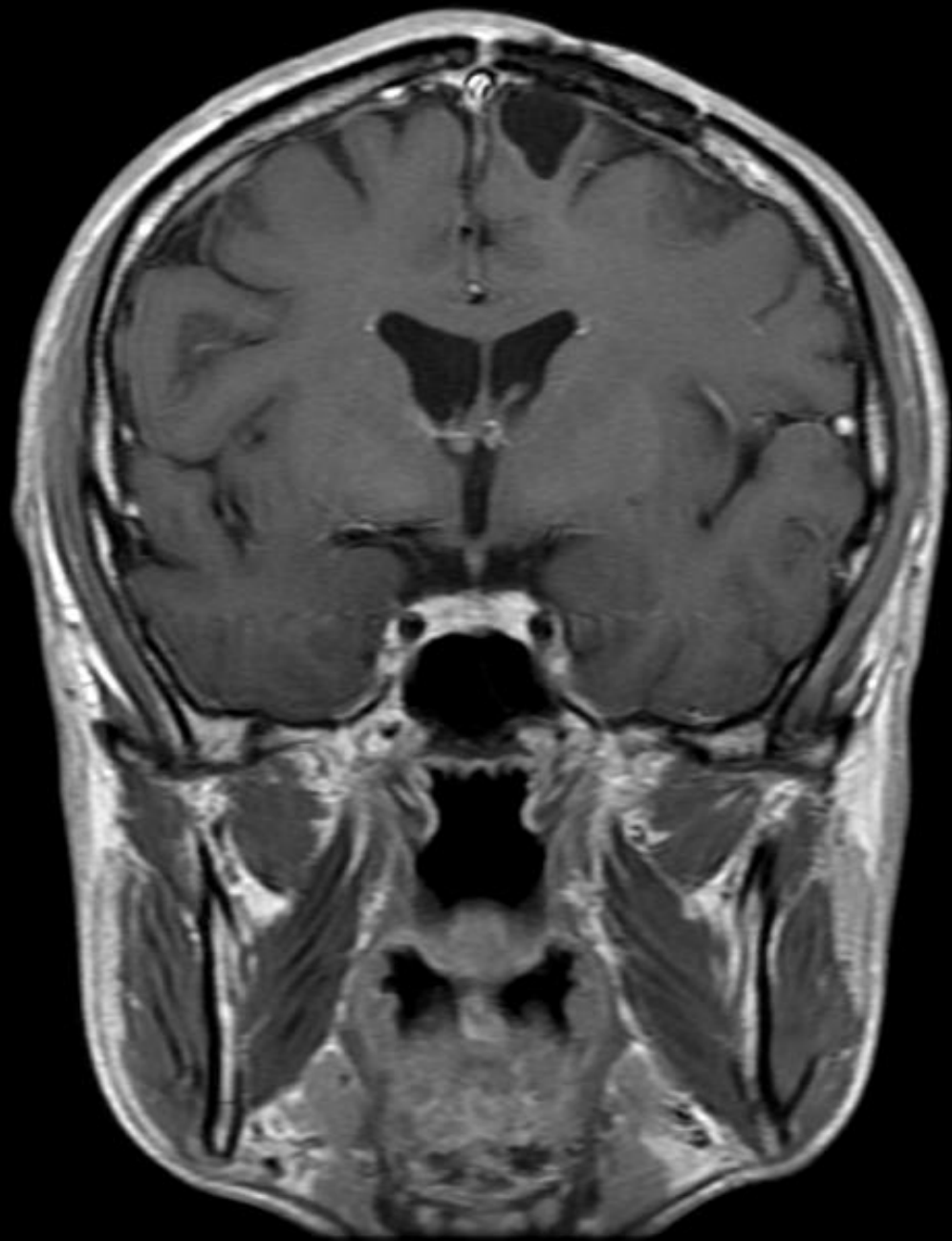
Typ	T2*
Sekvence	GRE
Rovina	TRA
Vrstva	5
FoV	24
Matrix	Phase 224 Freq 352
Fáze	A-P
PAT	-
TR	725
TE	20
ETL	-
Čas	2:46
Různé	NEX 2, FA 15 Bdw 19,23



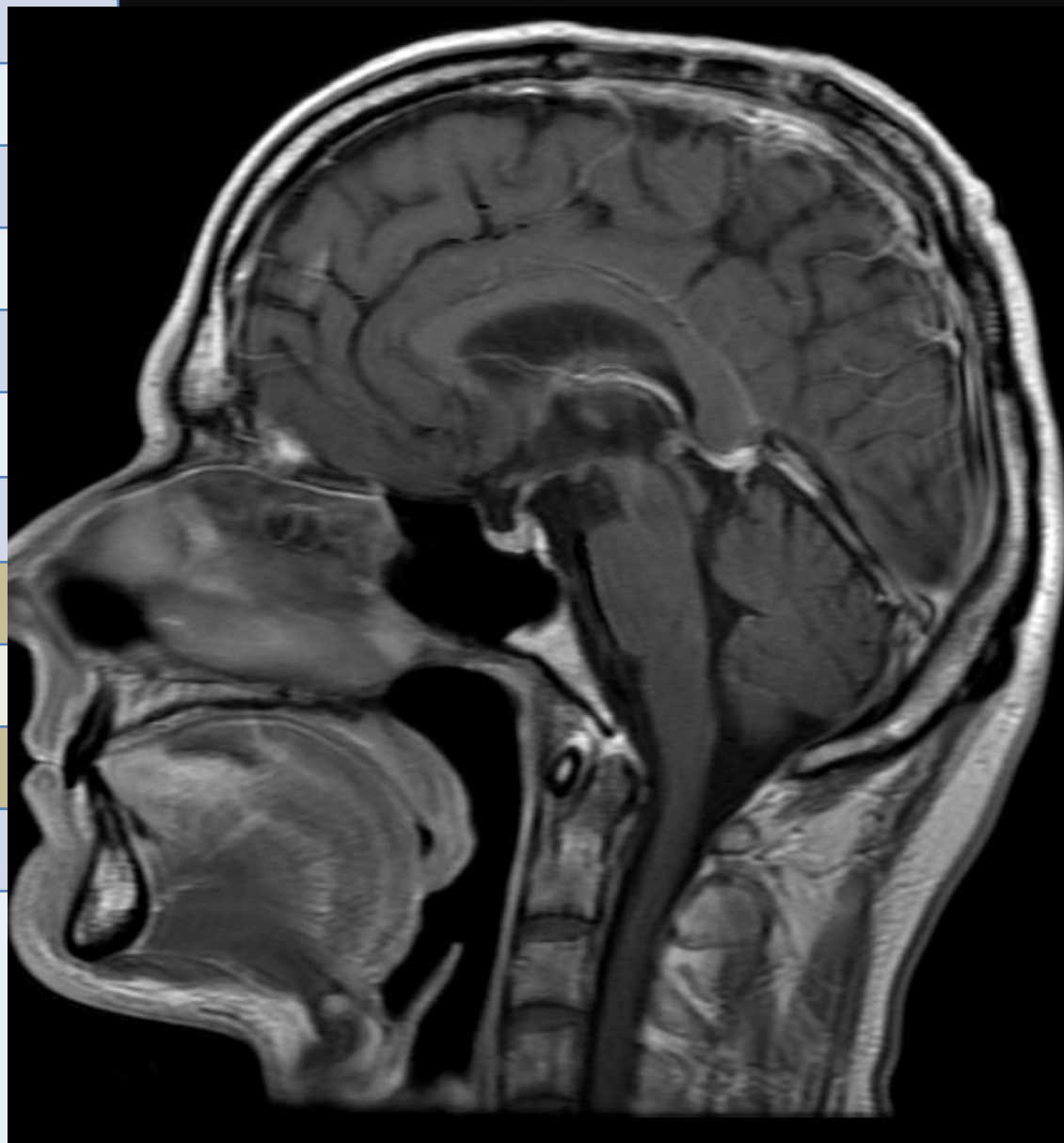
Typ	T1 (+KL)
Sekvence	FSE
Rovina	TRA
Vrstva	5
FoV	24 (Phase FoV 0,8)
Matrix	Phase 256 Freq 384
Fáze	A-P
PAT	1,5
TR	300-750
TE	MinFull
ETL	4
Čas	2:36
Různé	NEX 3, FA 160 PURE Bdw 31,25



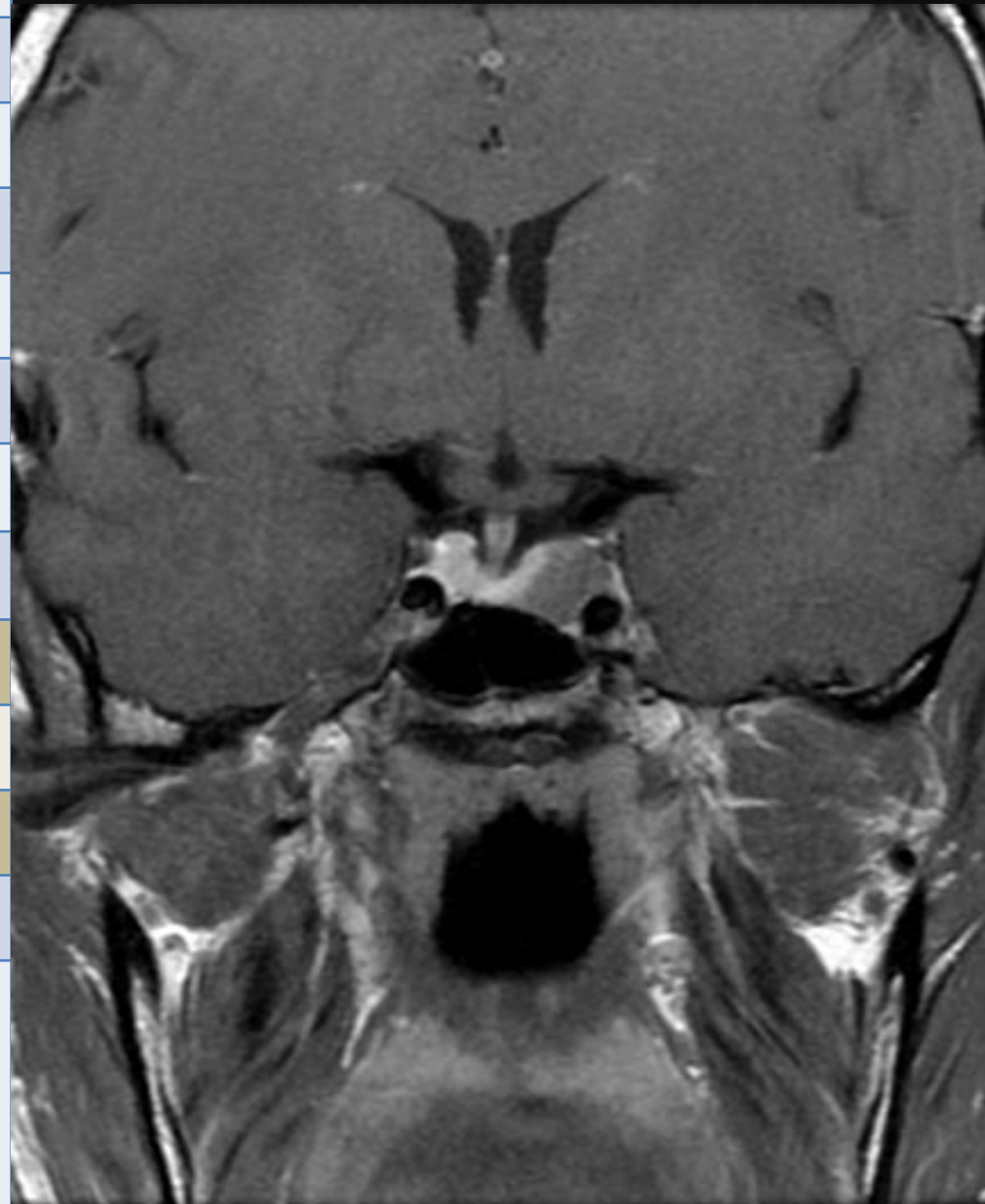
<b>Typ</b>	<b>T1 +kl</b>
Sekvence	FSE
Rovina	COR
Vrstva	5
FoV	24 (Phase FoV 0,8)
Matrix	Phase 256 Freq 384
Fáze	S-I
PAT	1,75
TR	300-750
TE	MinFull
ETL	4
Čas	2:48
Různé	NEX 2, FA 160 PURE Bdw 31,25



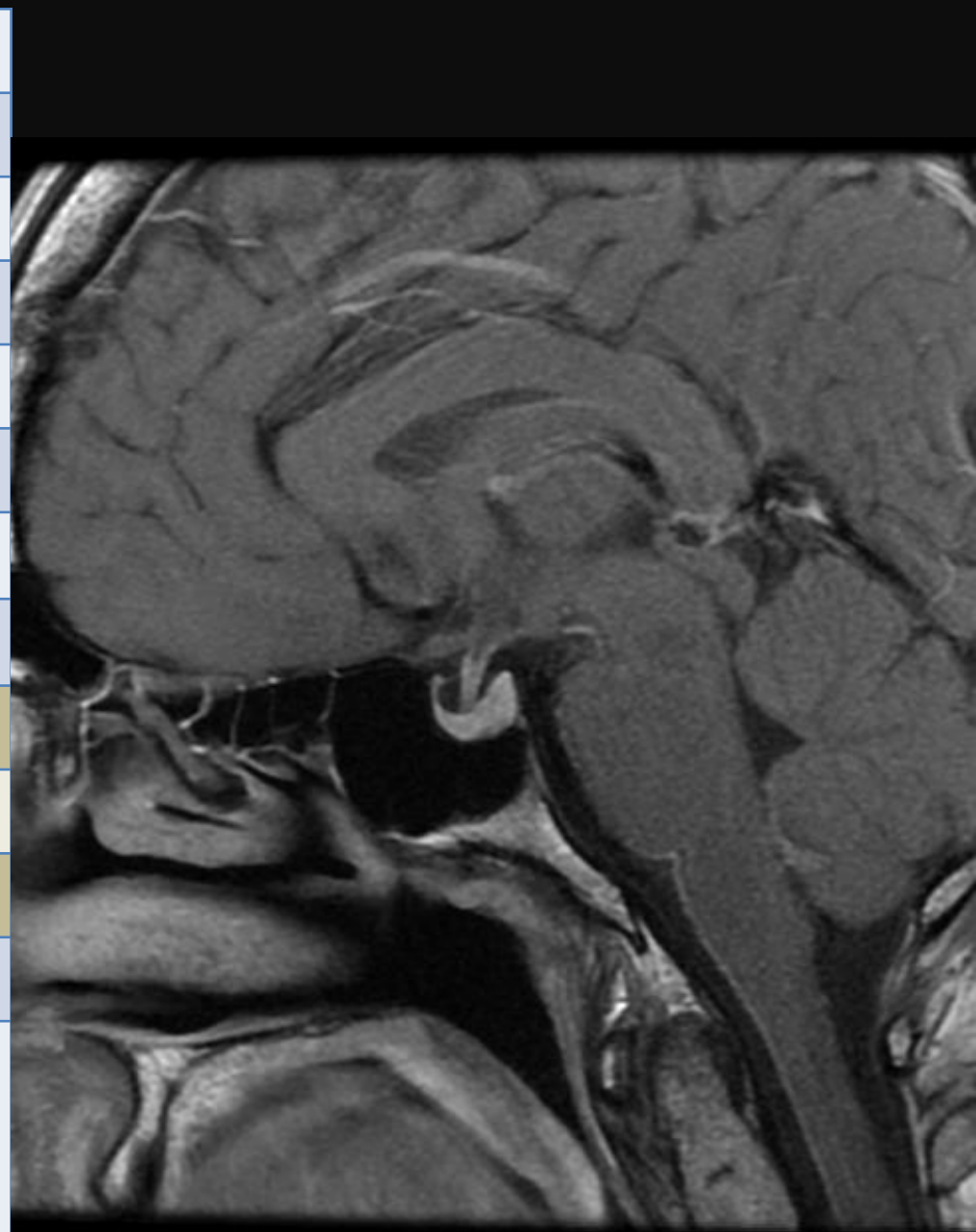
Typ	T1 +kl
Sekvence	FSE
Rovina	SAG
Vrstva	5
FoV	24
Matrix	Phase 256 Freq 384
Fáze	S-I
PAT	1,75
TR	300-750
TE	MinFull
ETL	4
Čas	2:43
Různé	NEX 2, FA 160 PURE Bdw 31,25



<b>Typ</b>	<b>T1 (kl) Hypofýza</b>
Sekvence	FSE-XL
Rovina	COR
Vrstva	3 (2,5)
FoV	16
Matrix	Phase 224 Freq 320
Fáze	Unswap
PAT	-
TR	300-750
TE	MinFull
ETL	4
Čas	3:13
Různé	NEX 6, FA 160 SCIC Bdw 27,28



<b>Typ</b>	<b>T1 (kl) Hypofýza</b>
Sekvence	FSE-XL
Rovina	SAG
Vrstva	3 (2,5)
FoV	16
Matrix	Phase 224 Freq 320
Fáze	Unswap
PAT	-
TR	300-750
TE	MinFull
ETL	4
Čas	3:13
Různé	NEX 6, FA 160 SCIC Bdw 27,28





# C páteř 1,5 T

## Cpt standard

- Sag T2
- Sag T1
- Ax 2D MERGE
  - Sag Stir
  - Ax T2 FRFSE
  - Cor T2 FS
  - 3D COSMIC
  - 3D CUBE

## Cpt + kl

- Sag T2
- Sag T1
- Ax T1
- Ax T2
- Ax T1 (FS) + Gd
- Sag T1 (FS) + Gd

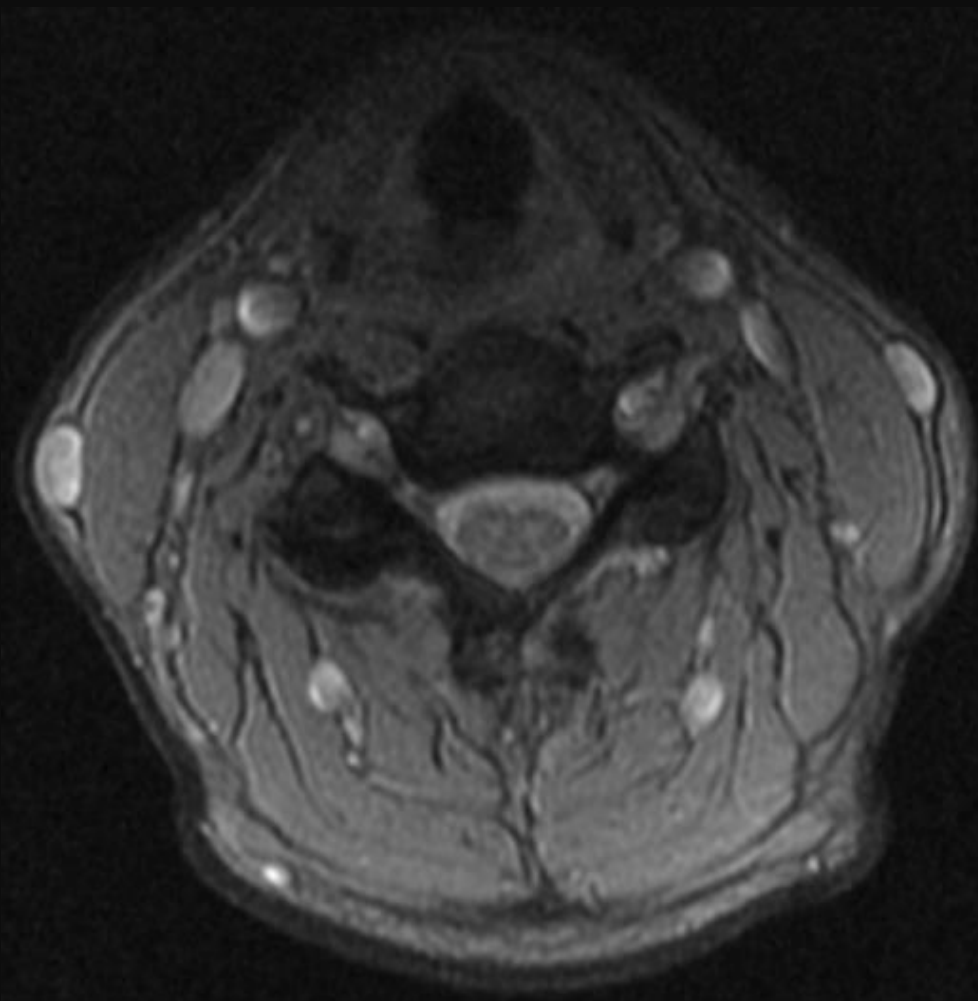
Typ	T2
Sekvence	FRFSE -XL
Rovina	Sag
Vrstva mm	3
FoV mm	240
Matrix	Phase 224 x Freq 416
Fáze	A-P
PAT	-
TR ms	3800
TE ms	110
ETL	24
Čas	2:41
Různé	REF FA 160 NEX 4 Bdw 41,67



Typ	T1 (FS,Gd)
Sekvence	FSE -XL
Rovina	Sag
Vrstva mm	3
FoV mm	240
Matrix	Phase 224 x Freq 416
Fáze	A-P
PAT	-
TR ms	466
TE ms	MinFull
ETL	4
Čas	3:33
Různé	REF FA 160 NEX 4 Bdw 41,67



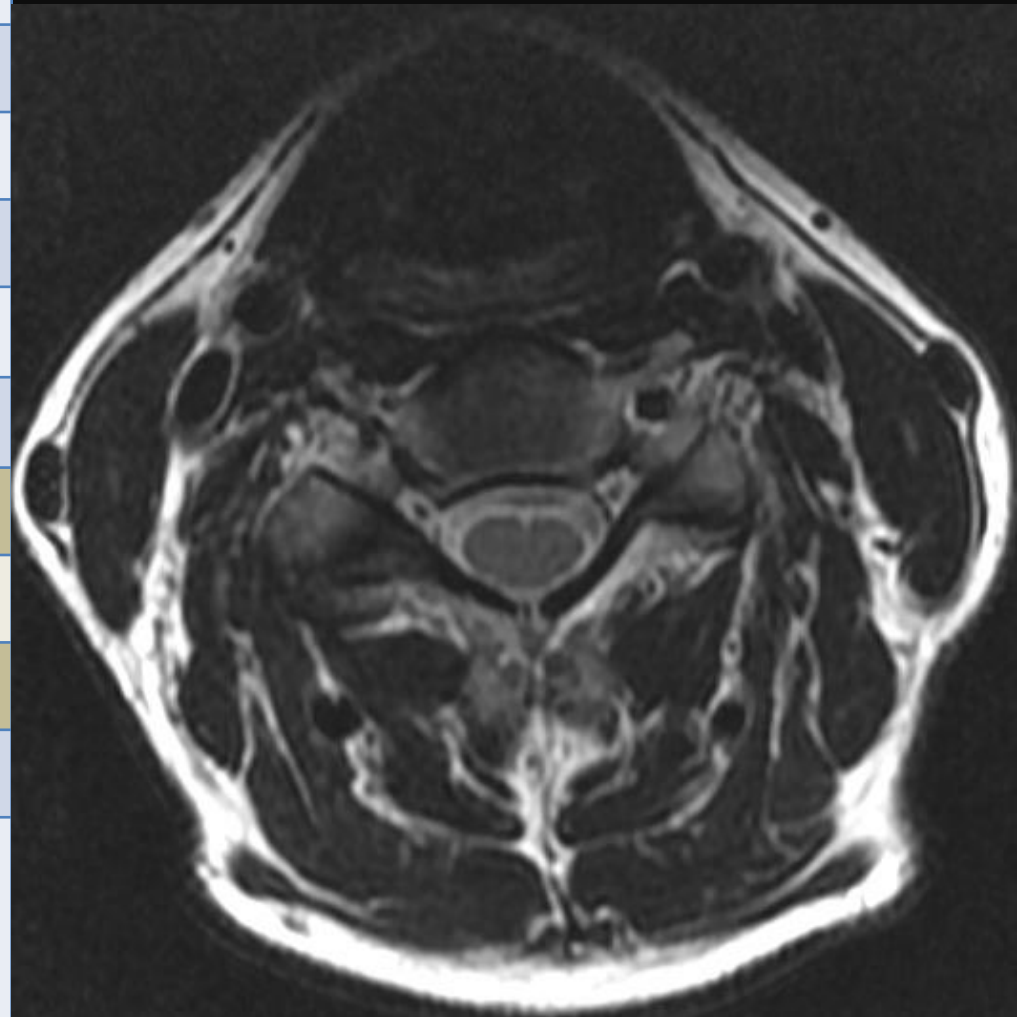
Typ	T2*
Sekvence	MERGE
Rovina	TRA
Vrstva mm	3
FoV mm	200
Matrix	Phase 224 x Freq 288
Fáze	R-L
PAT	-
TR ms	614
TE ms	4,8
ETL	4
Čas	4:39
Různé	FA 20, 5TE per scan NEX 2, ZIP 512, NPW Bdw 41,67



Typ	T2 STIR
Sekvence	FSE - IR
Rovina	SAG
Vrstva mm	3
FoV mm	240
Matrix	Phase 192 x Freq 320
Fáze	A-P
PAT	1,5
TR ms	3500
TE ms	42
ETL	9
Čas	2:40
Různé	REF FA 160, TI 150 NEX 2, ZIP 512, NPW Bdw 31,25



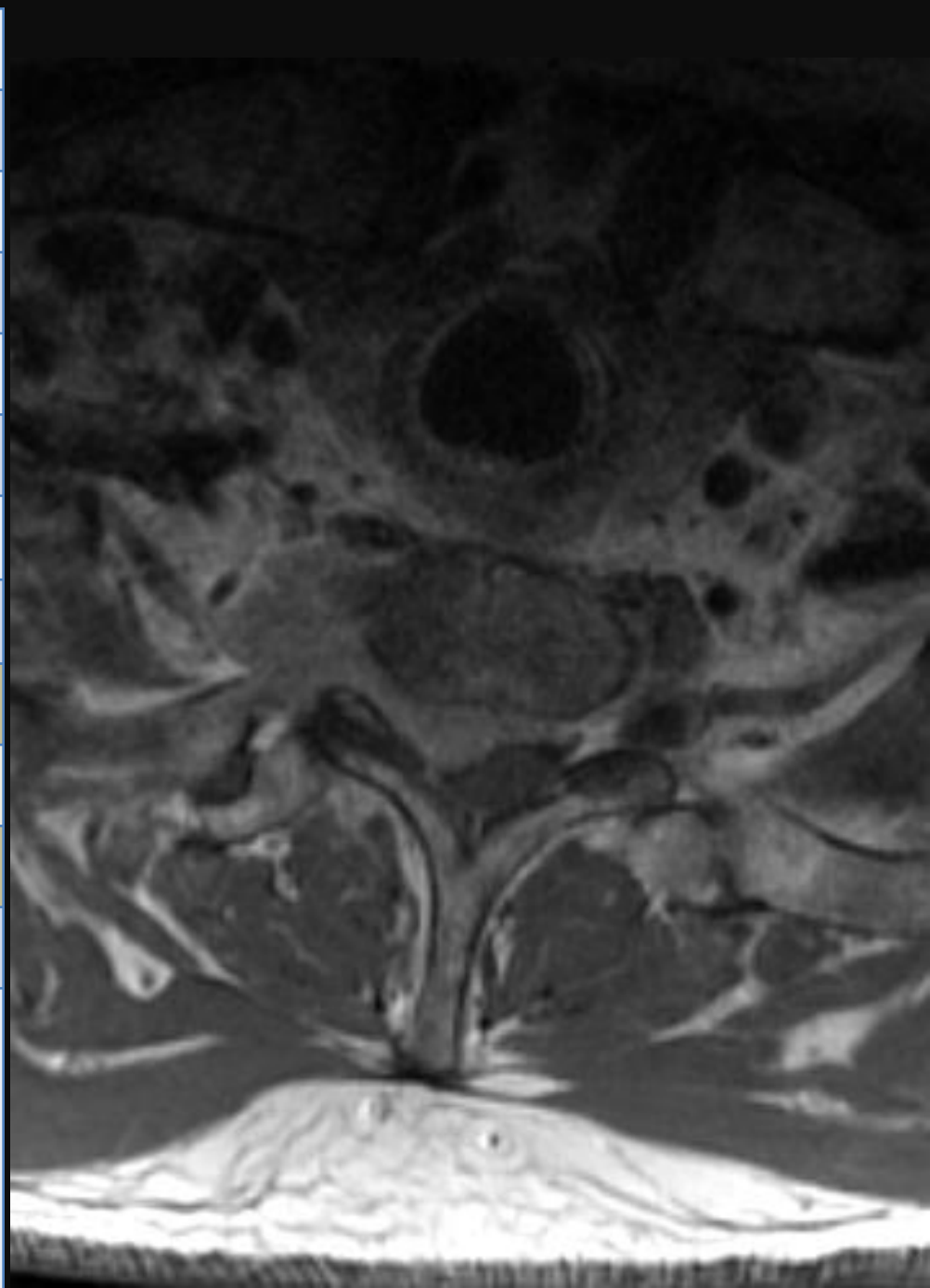
Typ	T2
Sekvence	FRFSE-XL
Rovina	TRA
Vrstva mm	4
FoV mm	200
Matrix	Phase 256 x Freq 320
Fáze	R-L
PAT	-
TR ms	Auto (4000)
TE ms	42
ETL	19
Čas	3:50
Různé	REF FA 160, NEX 4, ZIP 512, NPW Bdw 31,25, EDR, SCIC



Typ	T2 FS
Sekvence	FRFSE-XL
Rovina	COR
Vrstva mm	3
FoV mm	240
Matrix	Phase 224 x Freq 384
Fáze	R-L
PAT	-
TR ms	Auto 5028
TE ms	110
ETL	24
Čas	3:20
Různé	REF FA 160, NEX 2, ZIP 512, NPW Bdw 41,67, EDR, SCIC



Typ	T1 (FS, Gd)
Sekvence	FSE-XL
Rovina	TRA
Vrstva mm	4
FoV mm	240
Matrix	Phase 224 x Freq 256
Fáze	R-L
PAT	-
TR ms	Auto (557)
TE ms	MinFull
ETL	4
Čas	2:20
Různé	REF FA 160, NEX 2, ZIP 512, NPW Bdw 31,25, EDR, SCIC





# LS páteř 1,5 T

## LS pt standard

- Sag T2
- Sag T1
- Ax T2
  - Sag Stir
  - Ax T2 FRFSE
  - Cor T2 FS

## LS pt + kl

- Sag T2
- Sag T1
- Ax T1
- Ax T2
- Ax T1 (FS) + Gd
- Sag T1 (FS) + Gd

<b>Typ</b>	<b>T2</b>
Sekvence	FRFSE -XL
Rovina	Sag
Vrstva mm	4
FoV mm	300
Matrix	Phase 256 x Freq 416
Fáze	A-P
PAT	-
TR ms	4235
TE ms	102
ETL	24
Čas	3:11
Různé	REF FA 160 NEX 4 Bdw 31,25



Typ	T1 (FS,Gd)
Sekvence	FSE -XL
Rovina	Sag
Vrstva mm	4
FoV mm	300
Matrix	Phase 224 x Freq 384
Fáze	A-P
PAT	-
TR ms	538
TE ms	MinFull
ETL	8
Čas	
Různé	REF FA 160 NEX 4 Bdw 27,78



Typ	T1 (FS,Gd)
Sekvence	FSE -XL
Rovina	Sag
Vrstva mm	4
FoV mm	300
Matrix	Phase 224 x Freq 384
Fáze	A-P
PAT	-
TR ms	538
TE ms	MinFull
ETL	8
Čas	
Různé	REF FA 160 NEX 4 Bdw 27,78



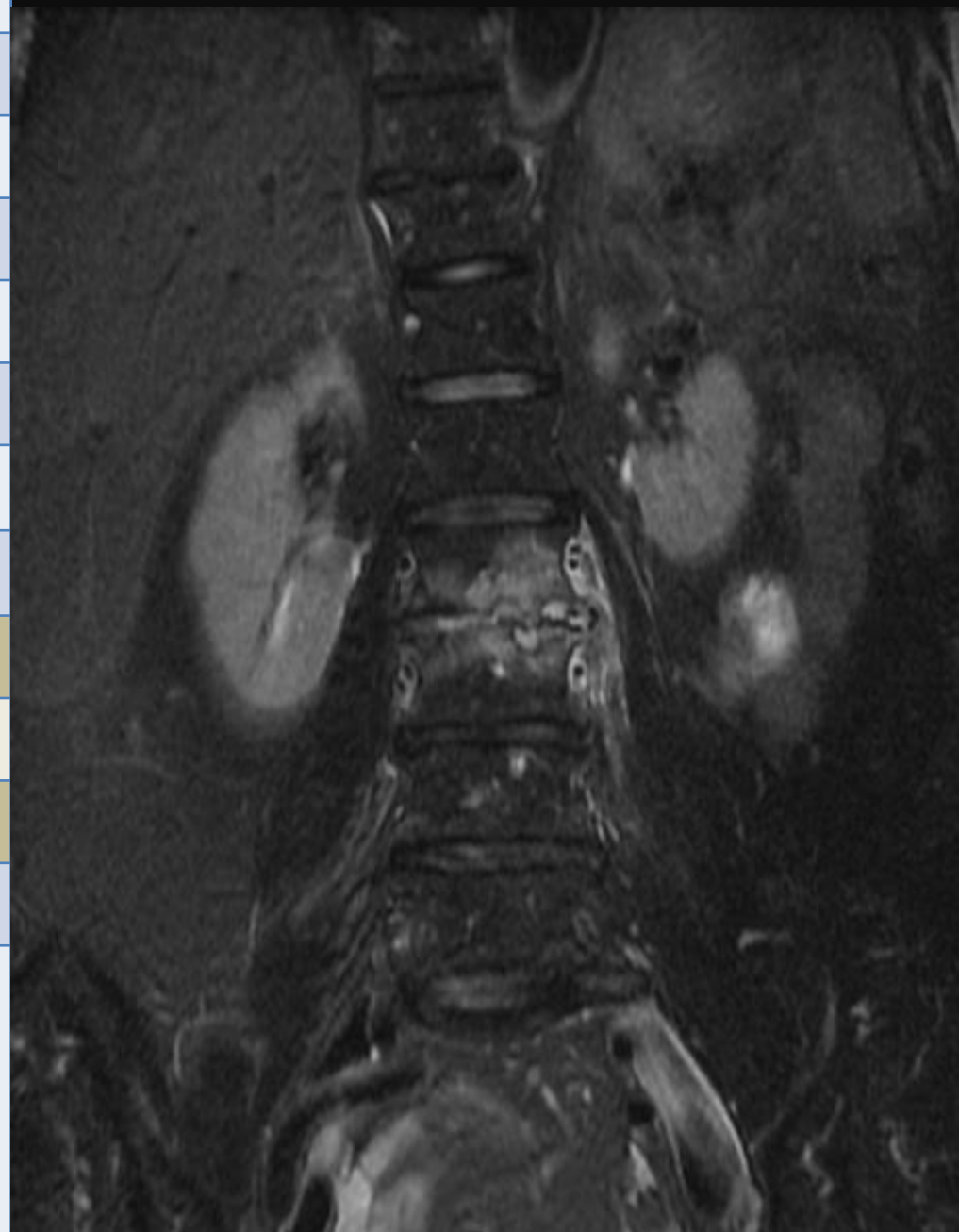
Typ	T2 STIR
Sekvence	FSE - IR
Rovina	SAG
Vrstva mm	4
FoV mm	300
Matrix	Phase 224 x Freq 384
Fáze	A-P
PAT	1,5
TR ms	3269
TE ms	68
ETL	8
Čas	3:10
Různé	REF FA 160, TI 150 NEX 2, ZIP 512, Bdw 41,67



Typ	T2
Sekvence	FRFSE-XL
Rovina	TRA
Vrstva mm	4
FoV mm	200
Matrix	Phase 224 x Freq 384
Fáze	R-L
PAT	-
TR ms	Auto (5000)
TE ms	120
ETL	27
Čas	3:14
Různé	REF FA 160, NEX 4, ZIP 512, NPW Bdw 31,25, EDR, SCIC



Typ	T2 FS
Sekvence	FRFSE-XL
Rovina	COR
Vrstva mm	3
FoV mm	300
Matrix	Phase 256 x Freq 416
Fáze	A-P
PAT	-
TR ms	Auto 5028
TE ms	102
ETL	24
Čas	2:44
Různé	REF FA 160, NEX 4, ZIP 512, NPW Bdw 31,25, SCIC



Typ	T1 (FS, Gd)
Sekvence	FSE-XL
Rovina	TRA
Vrstva mm	4
FoV mm	200
Matrix	Phase 224 x Freq 320
Fáze	R-L
PAT	-
TR ms	Auto (624)
TE ms	MinFull
ETL	4
Čas	2:20
Různé	REF FA 160, NEX 3, NPW Bdw 41,67

