

A 47-year-old Woman with Sudden Onset of Right Upper Arm Weakness

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Chief complaint

Rt. upper arm weakness

- Onset: 2017.04.05
- Trauma (-)

Present illness

2006년도 Lt. bell's palsy (+), incomplete recovery.

2017.04.05 새벽 3시 프라하 여행 중에 침대에 앉은 자세로 기대서 자고 일어남.

- **Rt.** deltoid area에 차가운 느낌과 함께 팔을 들 수 없었음.
- Shoulder abduction, flexion이 전혀 불가하였고, shoulder adduction 상태에서의 rotation과 elbow flexion만 가능하였다. "통증은 전혀 없었다."

2017.04.06 귀국하여 분당서울대 병원 응급실 내원하여 Brain MRI 촬영 → 이상 없었음.

- 당시 만세는 할 수 없었다.

2017.04.08 분당서울대 병원에서 C-spine MRI 촬영 → 만성 디스크가 있다고 들음.

2017.04.19 Shoulder abduction이 되기 시작함.

2017.04.21 목에 주사 치료를 받고 감각 저하가 약간 호전되고, 팔 움직임도 조금 나아진 것 같다.

2017.04.25 상기 증상을 주소로 REH 외래 방문함.

Present illness

Past medical history

DM (-), HTN (-), Cancer Hx (-)

Previous attack (-)

기타 특이사항 없음

Physical Examination (2017.04.25)

Ht: 160cm, Wt: 76kg

Motor

		Rt.	Lt.
Shoulder	Flexion	4	5
	Abduction	2	5
	ER	4	5
	Empty can	2+	5
Elbow	Flexion	4	5
	Extension	5	5
Wrist	Dorsi-F	4	5
	Volar-F	5	5
Finger	Flexion	5	5
	Abduction	5-	5
	EDC	4	5
	EIP	5	5
	FPL	5	5

OK sign : intact / intact

Neck extension test

: paracervical (+-)

Reflex

TJ (0 /++) , BJ (0 / ++)

Hoffmann's reflex (-/-)

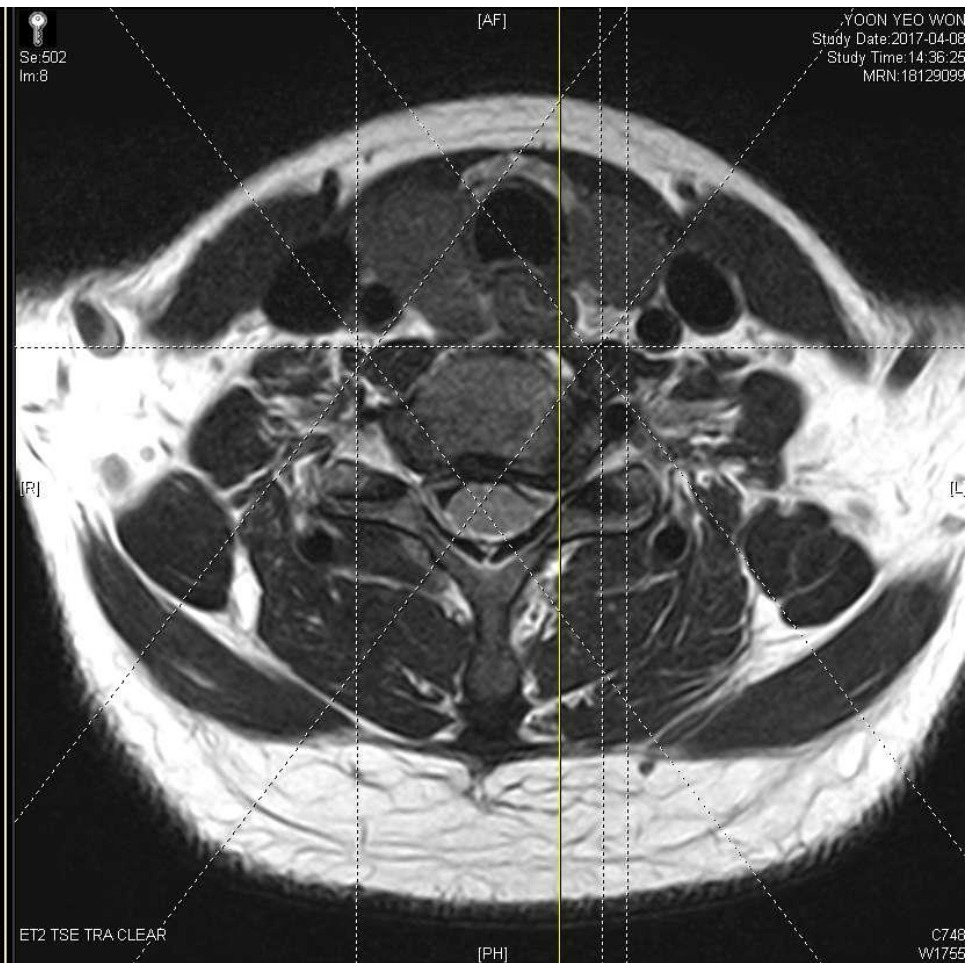
Sensory

Pin prick: Rt. upper arm lateral side
hypesthesia 80%

Scapular winging, atrophy

: 명확하지 않음.

C-spine MRI (분당서울대병원): 2017.4.8



Outside EMG/NCS

1. 인근병원 (Local 재활의학과): 2017.4.8

EMG Findings

Muscle (Innervation)	Interpretation	Voluntary act.						
		Fib	PSW	Amp	Dur	Poly	Stabil	IP
Right Rhomboideus major (Dorsoscapular, C5)	Acute part den	0	1+	Normal	Normal	+	Normal	Normal
Right FDI (Ulnar/radial, C8 T1)	Normal	0	0	Normal	Normal	Normal	Normal	Normal
Right Infraspinatus (Suprascapular, C5 C6)	Acute part den	1+	1+	Normal	Normal	+	Normal	Normal
Right EDC (Radial, C7 C8)	Normal	0	0	Normal	Normal	Normal	Normal	Normal
Right Deltoideus (post) (Axillary, C5 C6)	Acute part den	2+	2+	Normal	Normal	++	Normal	Normal
Right Biceps (Musculocutaneous, C5 C6)	Acute part den	2+	2+	Normal	Normal	++	Normal	Normal
Right FCU (Ulnar, C8 T1)	Normal	0	0	Normal	Normal	Normal	Normal	Normal
Right FCR (Median, C6 C7 C8)	Acute part den	0	1+	Normal	Normal	+	Normal	Normal
Right C6	Acute part den	0	1+	Normal	Normal	Normal	Normal	Normal

NCS: bilateral CTS

EMG: Rt. RM, ISP, D, BB, FCR, C6 PSP에서 ASA (+)

Rt. RM, ISP, D, BB, FCR에서 neuropathic MUAP (+)

Conclusion :

There is an electrophysiologic evidence of right C5,6 radiculopathy, moderate, acute stage.

현재 우측 경추 5,6번 신경근병증의 소견이 보이고 있습니다.
중등도이상, 급성소견입니다.

Outside EMG/NCS

2. 분당서울대 병원: 2017.4.11

Needle EMG Examination:

Muscle	Interference	Spontaneous Activity				Volitional MUPs			Maximum Volitional Activity		
		Fib	PST	Fast	Duration	Amplitude	Polyph	Recruitment	Amplitude	Interference	Effort
Biceps brachii R	Normal	None	None	None	Normal	Normal	None	Normal	Normal	Full	Max
Triceps brachii R	Normal	None	None	None	Normal	Normal	None	Normal	Normal	Full	Max
Proximal arm R	Normal	None	+1	None	< 4	5 <	None	Reduced	Normal	Reduced	Max
1st dorsal interosseus R	Normal	None	None	None	Normal	Normal	None	Normal	Normal	Full	Max
Abductor pollicis longus R	Normal	None	+1	None	Normal	Normal	None	Normal	Normal	Full	Max
C5 paraspinal R	Normal	None	+2	None							
C6 paraspinal R	Normal	None	+1	None							
C7 paraspinal R	Normal	None	+1	None							
C8 paraspinal R	Normal	None	None	None							
T1 paraspinal R	Normal	None	None	None							

NCS: bilateral CTS

EMG: Rt. PT, APB, C5, C6, C7 PSP에서 ASA (+)

Rt. PT에서 neuropathic MUAP (+)

⇒ Chronic and ongoing cervical radiculopathy, mainly C7 with CTS

상한 검진 상 Biceps DTR 정상 Spine MRI에서 C6/7에 disc bulging 소견 종합할 때 Rt. C6~C7 radiculopathy w/ disc bulging에 의한 증상으로 판단됩니다. (신경외과에서 수술할 단계는 아닌 것으로 의견 주신 상태로 추후 NCS/EMG, MEP/SSSEP 및 R12, F-wave, TET, ULAT, ULAT 등 검사결과에 따라)

[Problem List]

- 1) Rt. proximal upper arm weakness (Abrupt)
w/o pain
- 2) Rt. upper arm lateral side hypesthesia
- 3) Decreased DTR: Rt. BJ, TJ
- 4) C6-7 HIVD with foraminal stenosis (Lt>Rt)
- 5) Findings of Rt. C6,7 radiculopathy on EMG/NCS (outside)
- 6) Partial response to cervical injection

[Assessment]

- (1) **Unilateral proximal upper arm weakness with sensory loss**
 - r/o Rt. cervical radiculopathy
 - r/o Rt. brachial plexopathy
(neuralgic amyotrophy or tumor)
- (2) **Proximal compressive neuropathy of the shoulder**
 - r/o suprascapular, axillary neuropathy
- (3) **Frail arm syndrome, limb onset ALS**

[Diagnostic Plan]

- 1) Laboratory test
- 2) BRACHIAL PLEXUS MRI
- 3) EMG/NCS

[Therapeutic Plan]

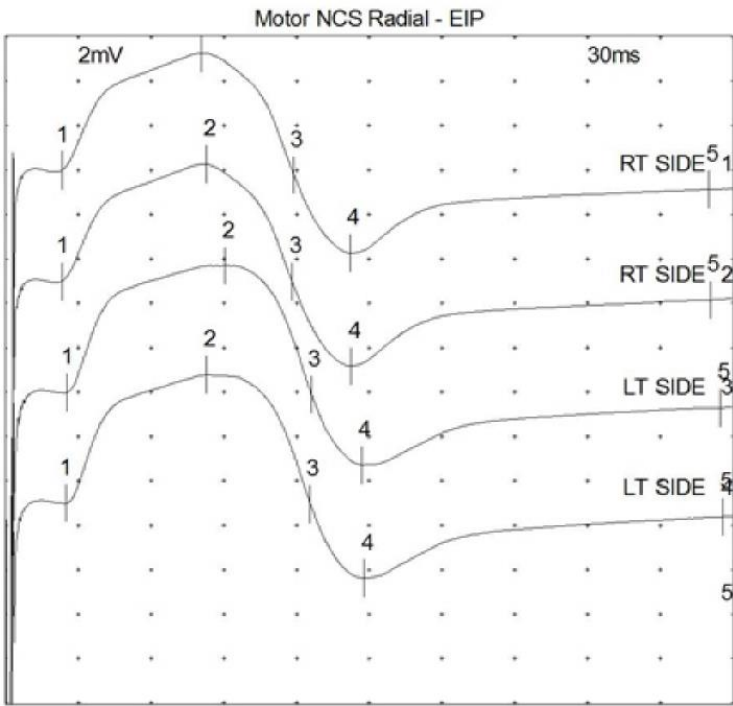
1) Po steroid for Rt. upper arm weakness

→ Oral predisolone 처방함 (50mg x 7days, 이후 tapering out 하며 총 12일 투여)

EMG/NCS (17.04.25)

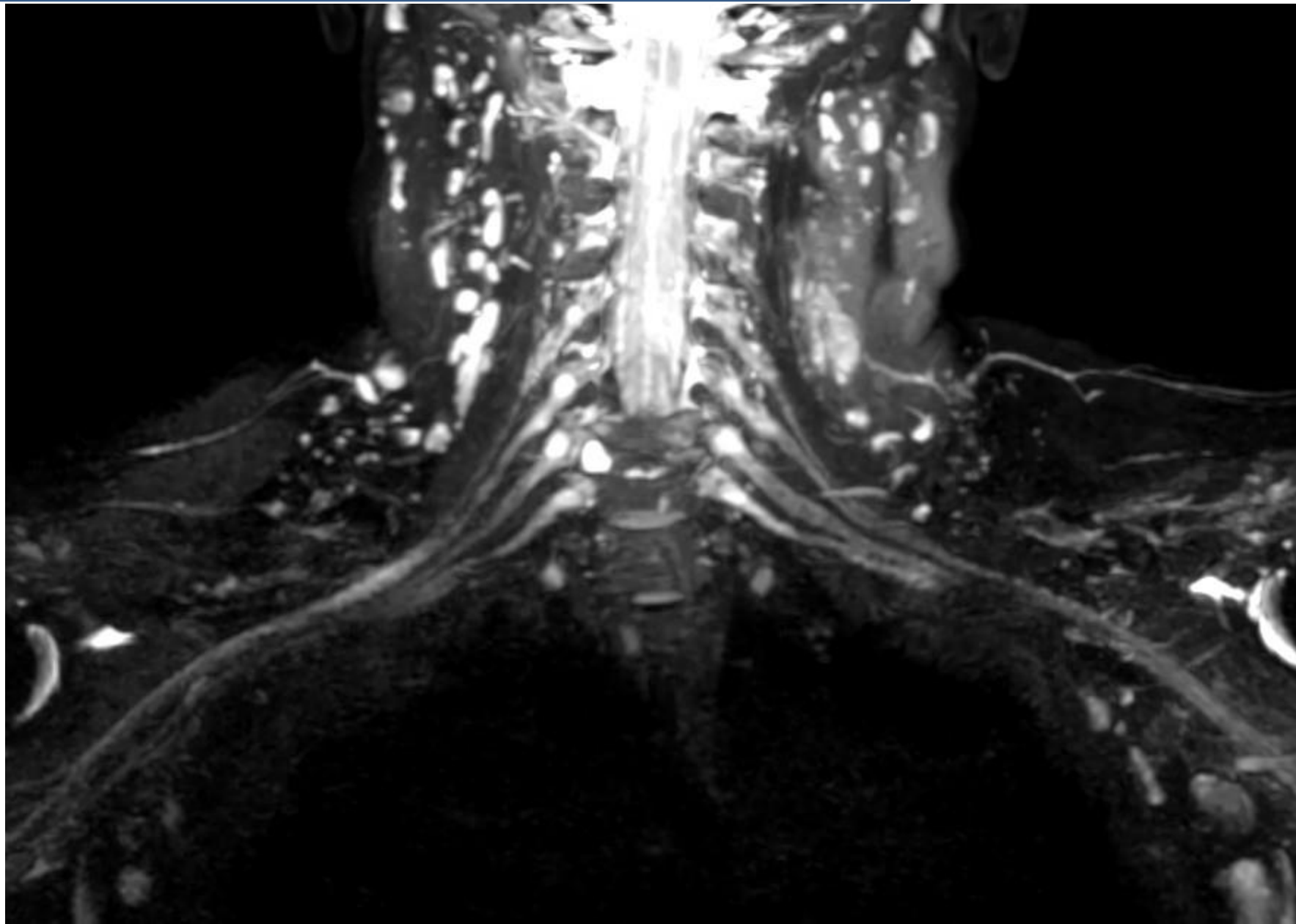
Motor NCS

Nerve / Sites	Latency ms	Amp.N-P mV	Duration. ms	Area mVms	Amp.P-P mV	amp.2 μ V	Segments
Radial - EIP							
RT SIDE	2.34	5.3	9.53	35.8	9.0	5282.4	
RT SIDE	2.34	5.3	9.48	34.7	9.1	5270.2	
LT SIDE	2.55	5.7	10.05	43.2	9.0	5714.5	
LT SIDE	2.50	5.8	10.05	42.9	9.2	5786.3	



Needle EMG

EMG Summary Table											
	Spontaneous					MUAP					Recruitment
Muscle	IA	Fib	PSW	Fasc	Biz	Amp	Dur.	Gnt	Lpp	Spp	Pattern
R. Deltoid	N	None	2+	None	None	N	N	N	N	N	Reduced
R. Biceps brachii	N	None	None	None	None	N	N	N	N	N	Reduced
R. Triceps brachii	N	None	None	None	None	N	N	N	N	N	Reduced
R. Brachioradialis	Increased	None	None	None	None	N	N	N	N	N	Reduced
R. Supinator	N	None	2+	None	None	N	N	N	N	N	Reduced
R. Extensor carpi radialis longus	N	None	None	None	None	N	N	N	N	N	Reduced to complete
R. Extensor digitorum communis	N	None	None	None	None	N	N	N	N	N	Reduced
R. Extensor indicis proprius	N	None	None	None	None	N	N	N	N	N	Reduced to complete
R. Flexor carpi radialis	N	None	None	None	None	N	N	N	N	N	Reduced to complete
R. Abductor pollicis brevis	N	None	None	None	None	N	N	N	N	N	Reduced to complete
R. First dorsal interosseous	N	None	None	None	None	N	N	N	N	N	Reduced to complete
R. Infraspinalis	N	None	None	None	None	N	N	N	N	N	Reduced to complete
R. Supraspinatus	N	None	None	None	None	N	N	N	N	N	Reduced to complete
R. Rhomboid major	N	None	None	None	None	N	N	N	N	N	Reduced to complete
R. Serratus anterior	N	None	None	None	None	N	N	N	N	N	Reduced
R. C5 paraspinal	N	None	None	None	None						
R. C6 paraspinal	N	None	None	None	None						
R. C7 paraspinal	N	None	None	None	None						

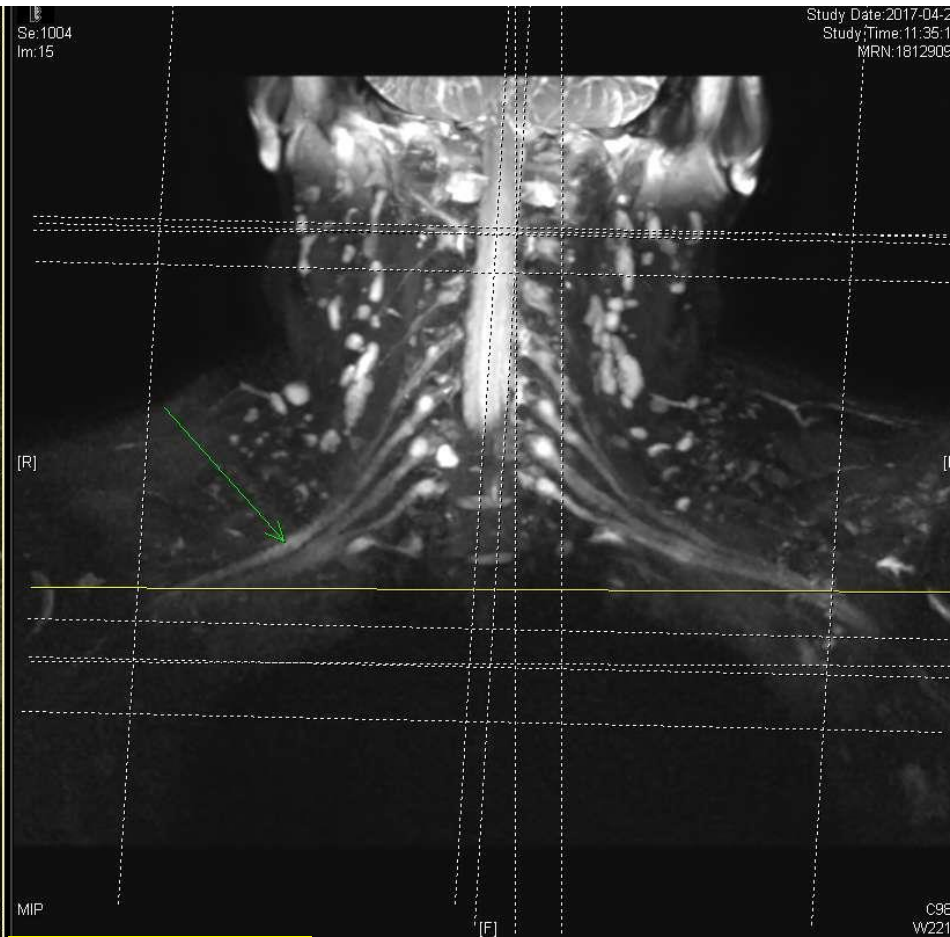


MIP coronal

Brachial plexus MRI (pre & post-contrast): 2017.4.25



T2 FS Axial



MIP coronal

Laboratory test : 2017.4.25

TEST	RESULT
WBC Count	5.13 x 10 ³ /μL
Hemoglobin	13.4 g/dL
Platelet Count	306 x10 ³ /μL
ESR	▲ 69 mm/hr
CRP	▲ 1.44 mg/dl
FANA	2+, speckled
ANCA,	Negative

OPD F/U visit (2017.5.11)

■ 주관적 소견

현재 근력은 거의 좋아졌다. 양쪽이 큰 차이가 없다. (10%정도의 차이)
관절통은 명확하지 않다.

Rt axillary LN 도 사라졌다.

■ 객관적 소견

Empty can 5/5
shoulder
ext. rotation: 5/5

palpable Rt axillary LN 도 사라짐.

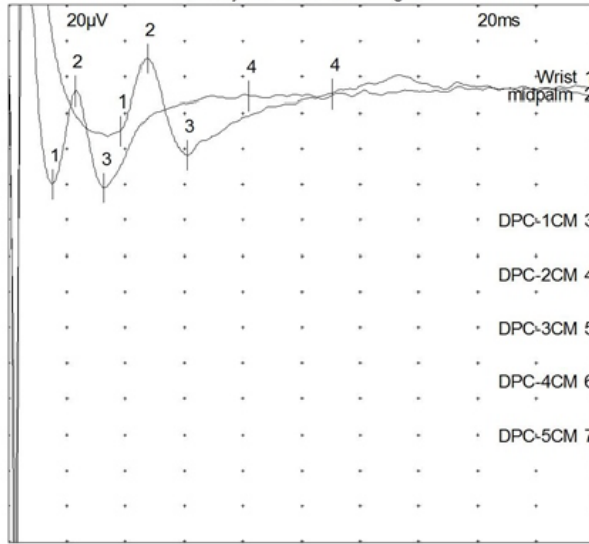
EMG/NCS (17.06.26)

Sensory NCS

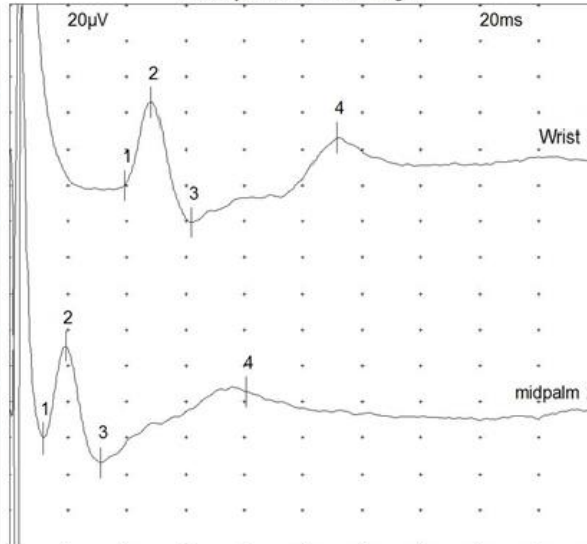
Nerve / Sites	Rec. Site	Latency ms	Amp.N-P μ V	Lat. Pk ms	Amp.P-P μ V
R Median - Digit II					
Wrist	Digit II	3.85	40.5	4.74	54.1
midpalm		1.51	52.2	2.29	54.4
R Ulnar - Digit V					
Wrist	V	2.71	38.9	3.54	53.6
L Ulnar - Digit V					
Wrist	V	2.24	40.2	3.13	57.4
R Radial - Thumb					
1	Thumb	1.67	30.7	2.19	29.7
2	Thumb	1.67	28.9	2.19	28.1
L Radial - Thumb					
1	Thumb	1.41	33.9	1.93	27.3
2	Thumb	1.41	31.3	1.93	29.1
L Median - Digit II					
Wrist	Thumb	3.96	46.0	4.84	66.6
midpalm	Thumb	1.15	51.2	1.93	64.4

EMG/NCS (17.06.26)

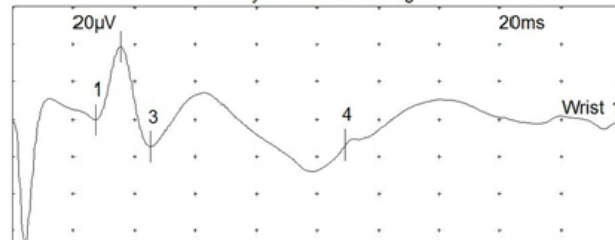
Sensory NCS R Median - Digit II



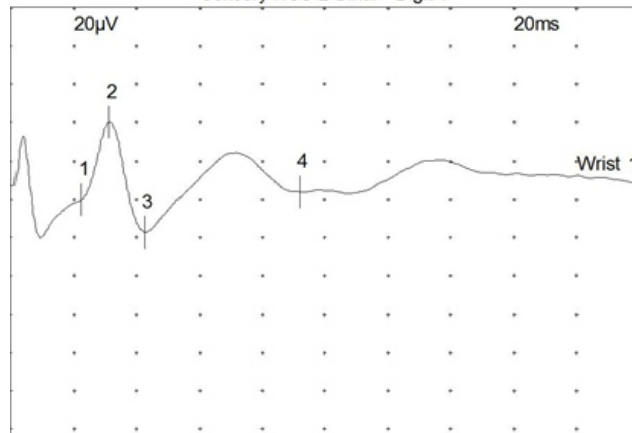
Sensory NCS L Median - Digit II



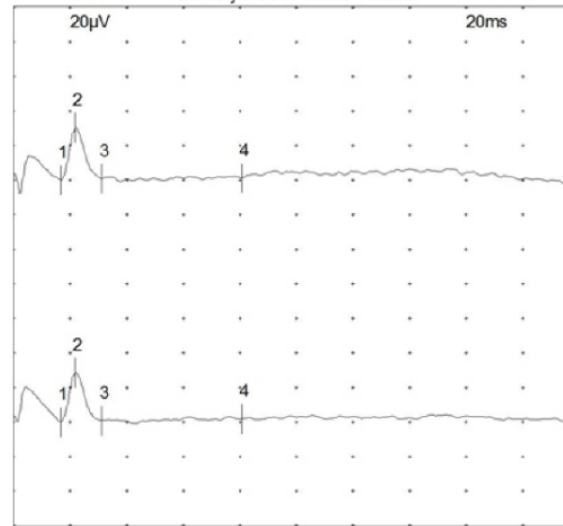
Sensory NCS R Ulnar - Digit V



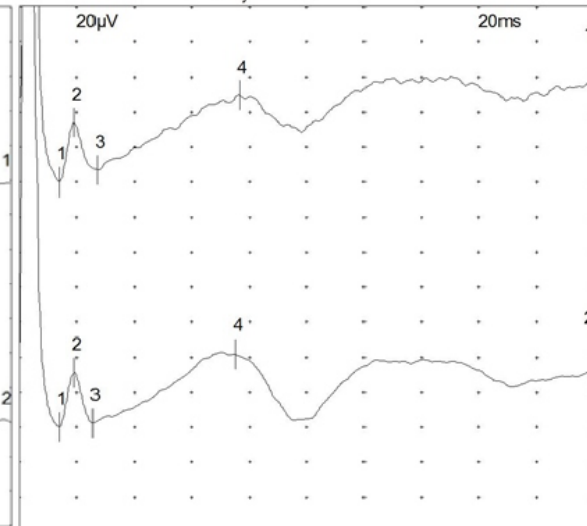
Sensory NCS L Ulnar - Digit V



Sensory NCS R Radial - Thumb



Sensory NCS L Radial - Thumb

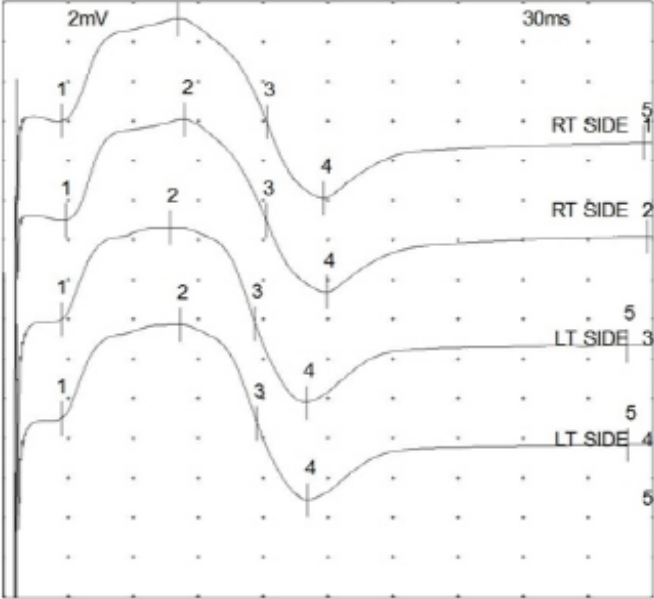


Motor NCS

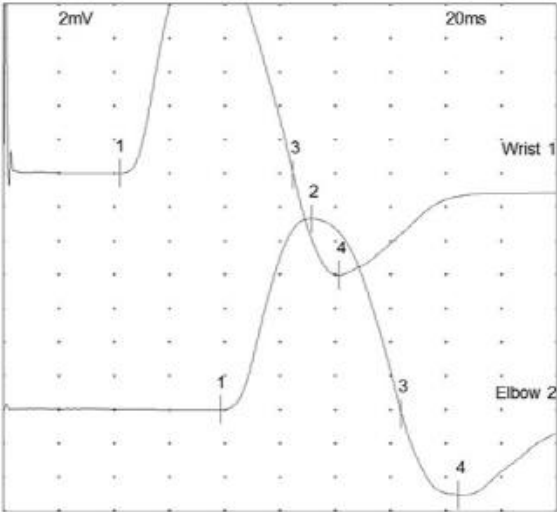
Nerve / Sites	Latency ms	Amp.N-P mV	Duration. ms	Area mVms	Amp.P-P mV	amp.2 µV	Segments	Distance cm	Velocity m/s
R Median - APB									
Wrist	5.00	9.6	6.35	37.0	14.7	9592.4	Wrist - APB		
Elbow	8.75	9.5	6.51	37.1	14.1	9499.2	Elbow - Wrist	20	53.3
L Median - APB									
Wrist	4.22	13.1	6.25	49.3	19.1	13066	Wrist - APB		
Elbow	7.86	11.3	6.51	44.6	16.4	11347	Elbow - Wrist	23	63.1
R Ulnar - ADM									
Wrist	3.02	9.7	6.61	37.6	15.1	9716.0	Wrist - G1		
Elbow	6.30	9.5	6.88	37.0	14.7	9459.5	Elbow - Wrist	21	64.0
L Ulnar - ADM									
Wrist	3.07	9.0	6.09	33.4	14.0	9042.7	Wrist - G1		
Elbow	6.41	9.7	6.35	36.1	14.8	9706.9	Elbow - Wrist	21	63.0
Radial - EIP									
RT SIDE	2.71	5.2	9.48	33.8	9.1	5164.9	RT SIDE - Deltoid		
RT SIDE	2.92	5.1	9.22	32.7	8.7	5091.6	RT SIDE - RT SIDE		
LT SIDE	2.71	4.6	8.91	32.0	8.8	4641.2	LT SIDE - RT SIDE		
LT SIDE	2.71	4.7	9.01	32.8	8.9	4740.5	LT SIDE - LT SIDE		

EMG/NCS

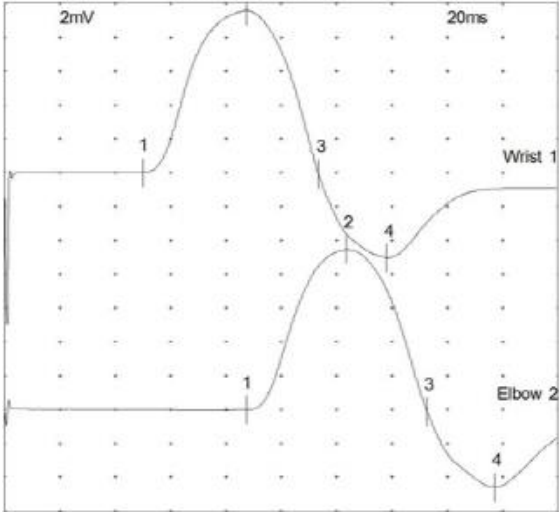
Motor NCS Radial - EIP



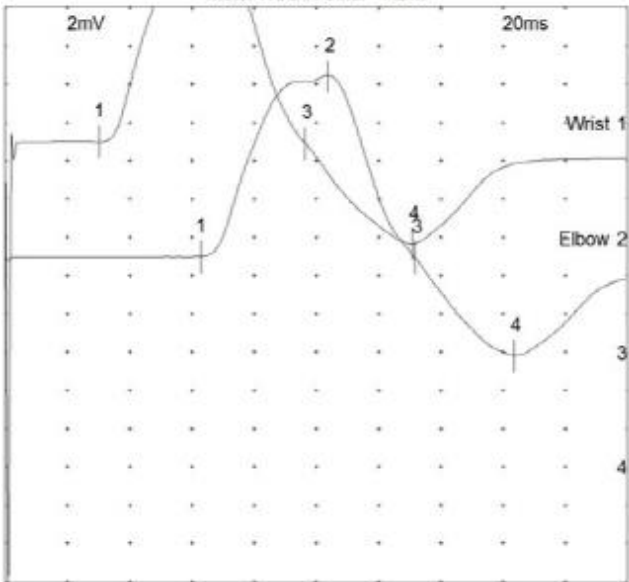
Motor NCS L Median - APB



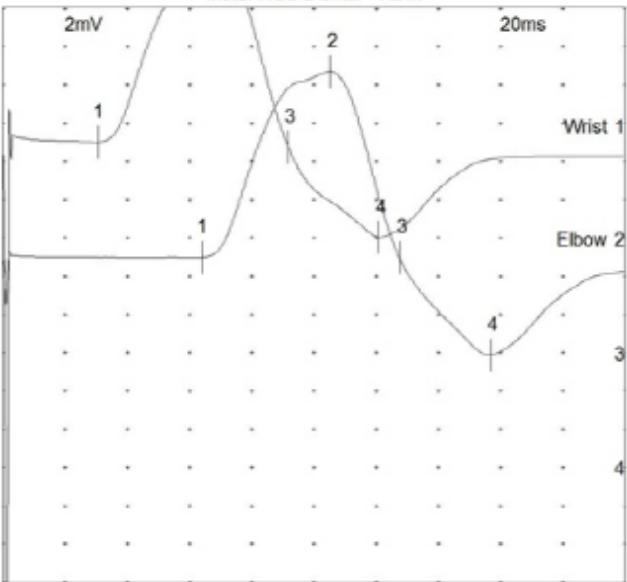
Motor NCS R Median - APB



Motor NCS R Ulnar - ADM



Motor NCS L Ulnar - ADM



Needle EMG

EMG Summary Table											
	Spontaneous					MUAP					Recruitment
Muscle	IA	Fib	PSW	Fasc	Biz	Amp	Dur.	Gnt	Lpp	Spp	Pattern
R. Infraspinatus	N	None	None	None	None	N	N	N	N	N	Reduced to complete
R. Deltoid	N	None	None	None	None	N	N	N	N	N	Reduced to complete
R. Biceps brachii	N	None	None	None	None	N	N	N	N	N	Reduced to complete
R. Pronator teres	N	None	None	None	None	N	N	N	N	N	Reduced to complete
R. Extensor digitorum communis	N	None	None	None	None	N	N	N	N	N	Reduced to complete
R. Extensor carpi radialis	N	None	None	None	None	N	N	N	N	N	Reduced to complete
R. Supinator	N	None	1+	None	None	N	N	N	N	N	Reduced to complete
R. Cervical paraspinals (mid)	N	None	None	None	None						
R. Cervical paraspinals (low)	N	None	None	None	None						

OPD F/U visit

■ 주관적 소견

우측 상지 근력은 호전된 상태로 유지됨

■ 객관적 소견

Motor

		Rt	Lt
Shoulder	Flexion	5	5
	Extension		
	Abduction	5	5
	Adduction		
	External rotation	5	5
	Internal rotation		

empty can 5/5

patrick (-/-)

SI joint Td (+/+)

F/U visit (2018.10.8)

■ 주관적 소견

18.10.08 Rt. 3rd finger 가 뻣뻣해짐

18.10.09 Rt. 3~5th finger 더 뻣뻣해짐

-->손가락을 구부릴수 있었으나, 손바닥까지 아프기 시작함

물건 집기가 어려워짐

18.10.10 상기증상으로 NR입원. 좋아지고 있는 상태로 현재 weakness 호소하지 않음

■ 객관적 소견

EF 5/5

EE 5/5

WDF 5/5

Finger abd 5/5-

Rt side opposition weakness

Rt 4th,5th pinch에 Td

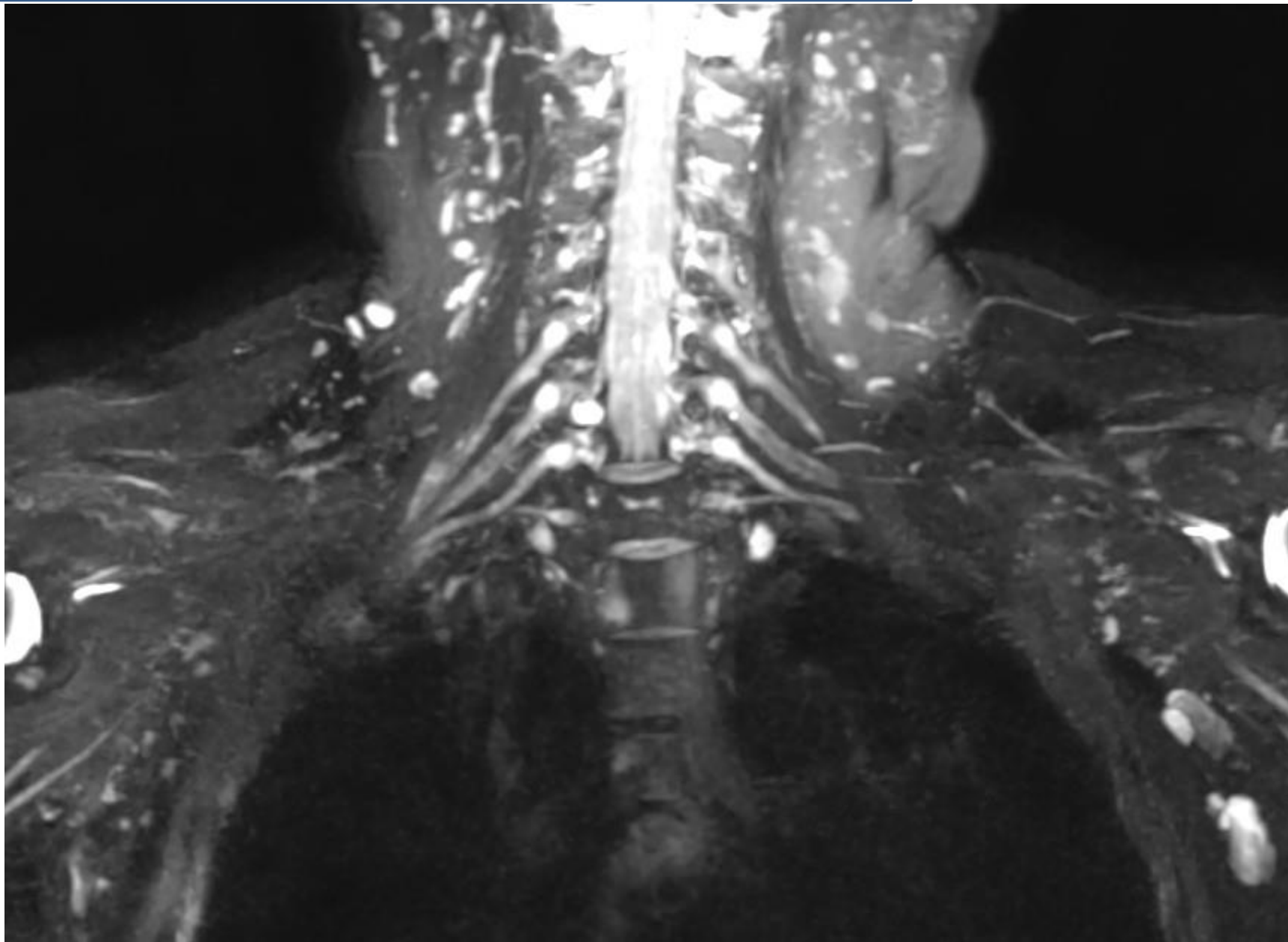
EDC 5/5

APB 5/5

FB 5/5

Sensory intact

Brachial plexus MRI (pre & post-contrast): 2018.10.10



OPD F/U visit

Rt. axillary enlarged lymph node (+)

Chest CT: 2017.8.30

C/W Breast cancer in Rt. UOQ.
- suggested mets LNs in Rt. axilla.

Breast Rt - 수술명 : **Rt BCS c SLNB**

- . Status post neoadjuvant chemotherapy
- . Invasive ductal carcinoma with focal micropapillary feature (about 20%)
- . ER/PR/HER-2(8+/8+/-) Ki-67 1+

TNM stage : pT1(1.5cm) NO(i)(0/3, 100 μ m isolated) Stage I A
 <- post NAC

Chemotherapy : Done
 s/p NAC AC #4 D#4 (17.10.20-18.3.21)

Radiotherapy : Done
 s/p RTx : Breast - 5900cGy, Neck node, lower - 5000cGy

OPD F/U visit

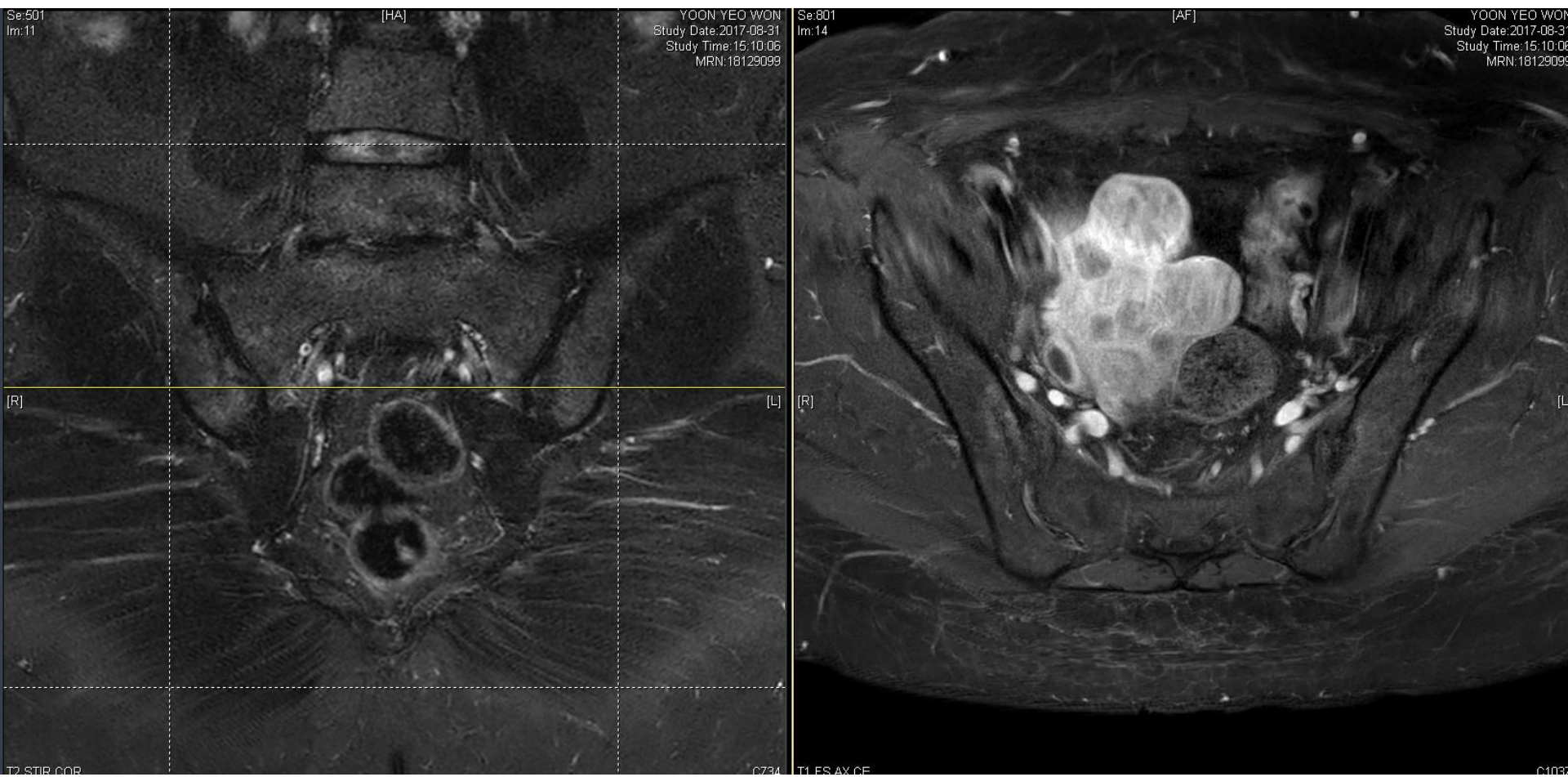
Inflammatory LBP

■ 주관적 소견

- . Uveitis (-)
Achilles tendinitis (-)
Abd pain/diarrhea (-)
AS F/Hx(-)
- . 20대에 허리 아파서 디스크로 1년 치료 받고 비슷하게 지내시다가
2000년대 초반부터 허리 뻣뻣함 있었음
2016년 5-6월쯤 AM stiffness(+) 2-3개월 가다가 저절로 좋아지심
오전에는 힘들다, 오전 내내



Sacrum MRI (pre & post contrast): 2017.8.31



[HLA B27: Positive]



감사합니다