Test Date: [redacted]

Full Name:	[redacted]	**Date of Birth:**	[redacted]
Age:	62 years	**Height:**	70 in.
Gender:	Male	**Reason for Referral:**	Bilateral hand pain

Impression:
This study is ABNORMAL

1. There is electrophysiologic evidence of severe bilateral median neuropathy at the wrist, electrically consistent with carpal tunnel syndrome. Both motor and sensory branches of the median nerve are affected, with evidence indicating a primarily axonal lesion. Needle EMG examination of the bilateral abductor pollicus brevis muscles demonstrated completed motor unit remodeling (long duration, large amplitude, stable motor units) with normal recruitment. These findings are consistent with a chronic pathology, with completed reinnervation.
2. There is electrophysiologic evidence of inactive left C7cervical radiculopathy. Needle EMG of muscles innervated by the left C7 nerve root(s) demonstrated completed reinnervation (long duration, large amplitude, stable motor units) with normal motor unit recruitment. These findings suggest a chronic pathology.
3. There is no electrophysiologic evidence of more proximal median or ulnar neuropathy in the left or right upper extremities.
4. There is no electrophysiologic evidence of large fiber neuropathy in the left or right upper extremities. However, small fiber neuropathy cannot be excluded, and further evaluation may be considered if clinically indicated.

Summary

- Evaluation of the left Median (APB) motor nerve showed prolonged distal onset latency (7.4 ms), reduced amplitude (1.87 mV), and decreased conduction velocity (47 m/s).
- The right Median (APB) motor nerve showed prolonged distal onset latency (6.7 ms).
- The left median sensory nerve showed no response (Wrist-Dig II) and no response (Palm-Dig II).
- The right median sensory nerve showed no response.
- The left Median-Radial (Dig I) sensory and the right Median-Radial (Dig I) sensory nerves showed no response (Median Wrist-Dig I).
- All remaining nerves (as indicated in the following tables) were within normal limits.
- Left vs. Right side comparison data for the Median (APB) motor nerve indicates abnormal L-R amplitude difference (-55 %).
- All remaining left vs. right side differences were within normal limits.

- Needle evaluation of the right Abductor pollicis brevis, the left Pronator teres, the left Triceps brachii, the left Extensor digitorum, the left First dorsal interosseous (manus), the left Abductor pollicis brevis, and the left Flexor carpi ulnaris muscles showed increased motor unit amplitude, increased motor unit duration, diminished recruitment, and moderately decreased interference pattern.
- All remaining muscles (as indicated in the following table) showed no evidence of electrical instability.

A focused, non-vascular ultrasound of the right and left upper extremity was performed using a high-frequency linear transducer, targeting the right and left median nerve to evaluate for specific pathology.

- Findings demonstrated a focal enlargement of the right and left median nerve within the carpal tunnel, showing a characteristic "notch sign" at the level of compression.
- Cross-sectional area (CSA) of the right and left median nerve measured greater than CSA mm² at the wrist, consistent with diagnostic criteria for carpal tunnel syndrome.
- Ultrasound images are included in the report for reference.

Thank you for the opportunity to participate in the evaluation of your patient.

Alejandro Gonzalez

PT, DPT
ABPTS Electrophysiological Clinical Specialist

History:
[redacted] is a right-hand dominant male with complaints of bilateral pain and paresthesia's in the radial digits. Symptoms have been present for over a year. Symptoms are aggravated sleeping or using the hands Symptoms are eased with bracing. There is reported hand weakness. There is no history of neck pain. There is no reported history of diabetes. There is no reported history of thyroid disease, renal disease, heavy metal exposure or family history of neuromuscular disease. Medical chart was reviewed. Extremity temperature was maintained at or above 32C. The EMG and nerve conduction examination was described for the patient, and the patient gave verbal consent to proceed with the testing. The patient tolerated the nerve conduction and EMG study well with minimal discomfort on needle examination during or after testing.

PE:

Inspection: No visible atrophy, fasciculations, or deformities of the upper extremities bilaterally. Skin intact.
Range of Motion (ROM): Limited cervical spine lateral flexion and rotation range of motion bilaterally. Full and symmetric active ROM of shoulders, elbows, wrists, and digits.

Strength Testing (0-5 scale):

- **Shoulder abduction:** [5/5] bilaterally
- **Elbow flexion/extension:** [5/5] bilaterally
- **Wrist extension/flexion:** [5/5] bilaterally
- **Grip strength:** [5/5] bilaterally
- **Thumb abduction (APB):** [5/5] bilaterally
- **Finger abduction (FDI):** [5/5] bilaterally
- **Ulnar deviation:** [5/5] bilaterally

Sensation (light touch):

- Intact over **C5-T1 dermatomes**
- Median, ulnar, and radial nerve distributions intact.

Reflexes:

- Biceps: 2+ bilaterally
- Brachioradialis: 2+ bilaterally
- Triceps: 2+ bilaterally

Special Tests:

- Spurling's: Positive on the right with reproduction of right arm symptoms.
- Tinel's at elbow: negative R.
- Tinel's at wrist: Positive bilaterally.

NCS+

Motor Nerve Results

	Latency		Amplitude		F-Lat	Segment	Distance	CV		Comment
Site	**(ms)**	**Norm**	**(mV)**	**Norm**	**(ms)**		**(cm)**	**(m/s)**	**Norm**	
Left Median (APB) Motor										
Wrist	**7.4**	< 4.4	**1.87**	> 4.0	33.1					
Elbow	12.5	-	1.29	-		Elbow-Wrist	24	**47**	> 49	
Right Median (APB) Motor										
Wrist	**6.7**	< 4.4	4.2	> 4.0	**39.1**					
Elbow	11.4	-	2.0	-		Elbow-Wrist	26	56	> 49	
Right Median/Ulnar (Lumb-Dors Int II) Motor										
Median (Lumb II)										
Wrist	5.6	-	0.61	-						
Ulnar (Lumbrical\Dorsal Int II)										
Wrist	3.2	-	1.54	-						
Left Ulnar (FDI) Motor										
Wrist	2.8	< 4.5	7.2	> 7.0						
Bel elbow	7.1	-	2.1	-		Bel elbow-Wrist	26	59	> 49	
Ab elbow	8.2	-	1.94	-		Ab elbow-Bel elbow	8	78	> 49	
Right Ulnar (FDI) Motor										
Wrist	3.0	< 4.5	10.9	> 7.0						
Bel elbow	7.1	-	4.4	-		Bel elbow-Wrist	26	63	> 49	
Ab elbow	9.0	-	4.2	-		Ab elbow-Bel elbow	10	52	> 49	

Motor Segments

	Delta-O	Distance	CV	
Segment	**(ms)**	**(cm)**	**(m/s)**	**Norm**
Left Median (APB) Motor				
Elbow-Wrist	5.1	24	**47**	> 49
Right Median (APB) Motor				
Elbow-Wrist	4.7	26	56	> 49
Left Ulnar (FDI) Motor				
Bel elbow-Wrist	4.3	26	59	> 49
Ab elbow-Bel elbow	1.10	8	78	> 49
Right Ulnar (FDI) Motor				
Bel elbow-Wrist	4.1	26	63	> 49
Ab elbow-Bel elbow	1.90	10	52	> 49

Sensory Sites

Site	Neg Peak Lat (ms)	Norm	Amplitude (O-P) (µV)	Norm	Segment	Distance (cm)	Velocity (m/s)	Comment
Left Median Sensory								
Palm	**NR**	< 2.4	**NR**	-				
Wrist	**NR**	< 3.5	**NR**	> 20	Wrist-Dig II	13	**NR**	
Right Median Sensory								
Palm	1.95	< 2.4	4	-				
Wrist	**NR**	< 3.5	**NR**	> 20	Wrist-Dig II	13	**NR**	
Left Median-Radial (Dig I) Sensory								
Median								
Wrist-Dig I	**NR**	< 2.5	**NR**	-	Wrist-Dig I	10	**NR**	
Radial								
Wrist-Dig I	2.4	< 2.4	5	-	Wrist-Dig I	10	53	
Right Median-Radial (Dig I) Sensory								
Median								
Wrist-Dig I	**NR**	< 2.5	**NR**	-	Wrist-Dig I	10	**NR**	
Radial								
Wrist-Dig I	2.4	< 2.4	2	-	Wrist-Dig I	10	45	
Left Ulnar Sensory								
Wrist-Dig V	2.6	< 3.1	12	> 17	Wrist-Dig V	11	57	
Right Ulnar Sensory								
Wrist-Dig V	2.8	< 3.1	9	> 17	Wrist-Dig V	11	53	

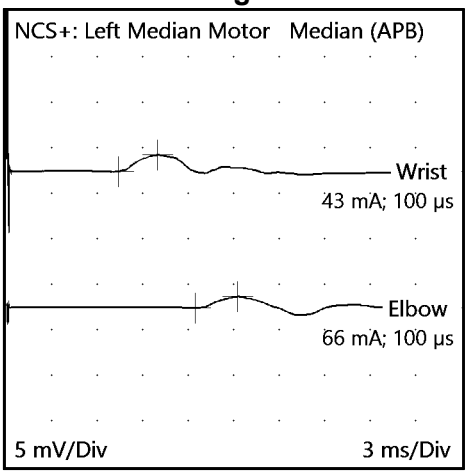
Inter-Nerve Comparisons

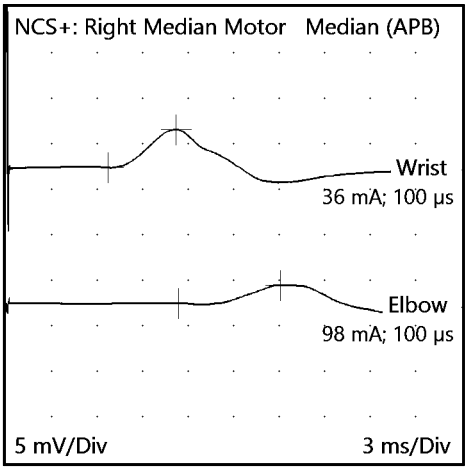
Nerve 1	Value 1	Nerve 2	Value 2	Parameter	Result	Normal
Sensory Sites						
R Median Wrist-Dig I	-	R Radial Wrist-Dig I	2.4 ms	Peak Lat Diff	-	<0.40
L Median Wrist-Dig I	-	L Radial Wrist-Dig I	2.4 ms	Peak Lat Diff	-	<0.40

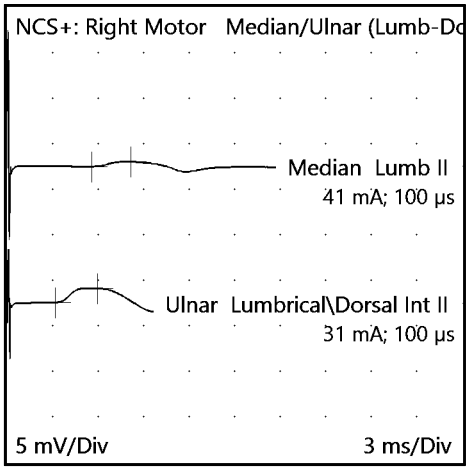
EMG+

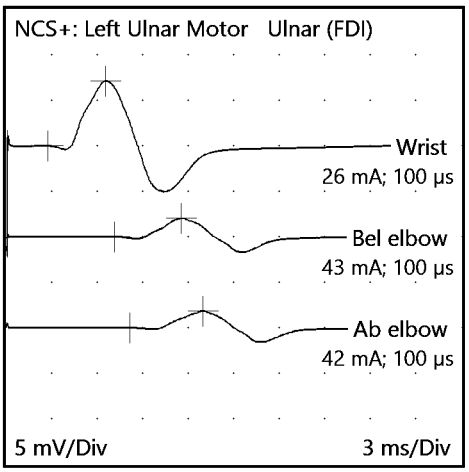
Side	Muscle	Nerve	Root	Ins.Act	Fibs	Psw	Amp	Dur	Poly	Recrt	Int.Pat
Right	Pronator teres	Median	C6-C7	Nml	Nml	Nml	Nml	Nml	0	Nml	Nml
Right	Biceps	Musculocut	C5-C6	Nml	Nml	Nml	Nml	Nml	0	Nml	Nml
Right	Deltoid	Axillary	C5-C6	Nml	Nml	Nml	Nml	Nml	0	Nml	Nml
Right	Triceps	Radial	C6-C8	Nml	Nml	Nml	Nml	Nml	0	Nml	Nml
Right	ED	Post interosseus, Ra...	C7-C8	Nml	Nml	Nml	Nml	Nml	0	Nml	Nml
Right	FDI	Radial, Ulnar	C8-T1	Nml	Nml	Nml	Nml	Nml	0	Nml	Nml
Right	APB	Median	C8-T1	Nml	Nml	Nml	**Incr**	**>12ms**	0	**Reduced**	**75%**
Left	Pronator teres	Median	C6-C7	Nml	Nml	Nml	**Incr**	**>12ms**	0	**Reduced**	**75%**
Left	Biceps	Musculocut	C5-C6	Nml	Nml	Nml	Nml	Nml	0	Nml	Nml
Left	Deltoid	Axillary	C5-C6	Nml	Nml	Nml	Nml	Nml	0	Nml	Nml
Left	Triceps	Radial	C6-C8	Nml	Nml	Nml	**Incr**	**>12ms**	0	**Reduced**	**75%**
Left	ED	Post interosseus, Ra...	C7-C8	Nml	Nml	Nml	**Incr**	**>12ms**	0	**Reduced**	**75%**
Left	FDI	Radial, Ulnar	C8-T1	Nml	Nml	Nml	**Incr**	**>12ms**	0	**Reduced**	**75%**
Left	APB	Median	C8-T1	Nml	Nml	Nml	**Incr**	**>12ms**	0	**Reduced**	**75%**
Left	FCU	Ulnar	C8-T1	Nml	Nml	Nml	**Incr**	**>12ms**	0	**Reduced**	**75%**
Left	Cervical PSP lower	Rami	C7-C8	Nml	Nml	Nml					
Left	Cervical PSP mid	Rami	C4-C6	Nml	Nml	Nml					
Left	Cervical PSP upper	Rami	C1-C3	Nml	Nml	Nml					

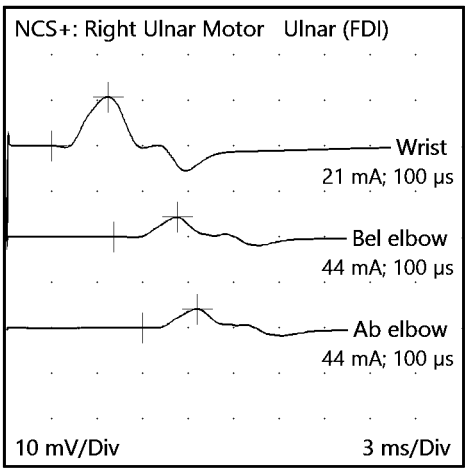
Waveforms / Images:

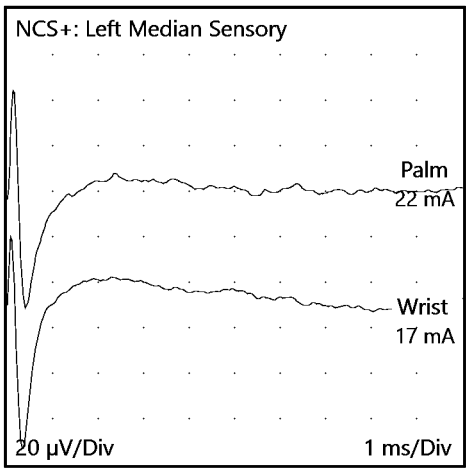


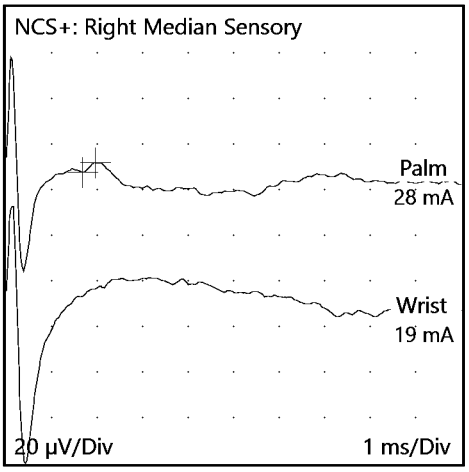


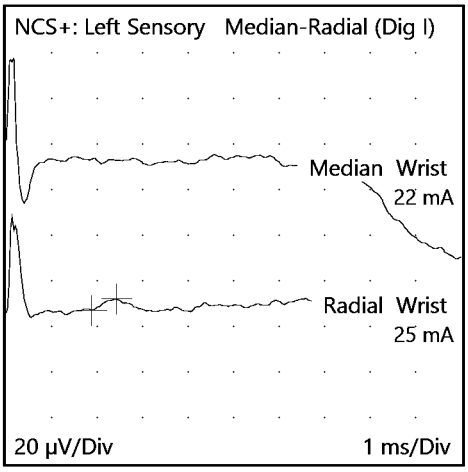


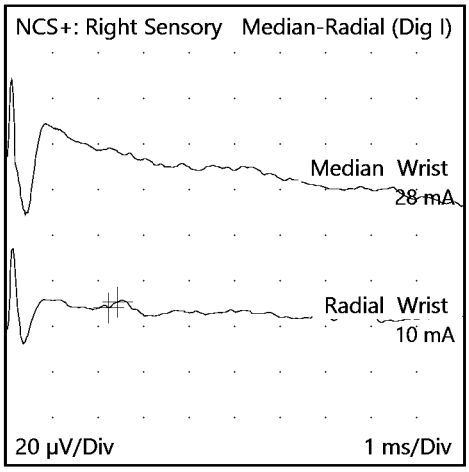


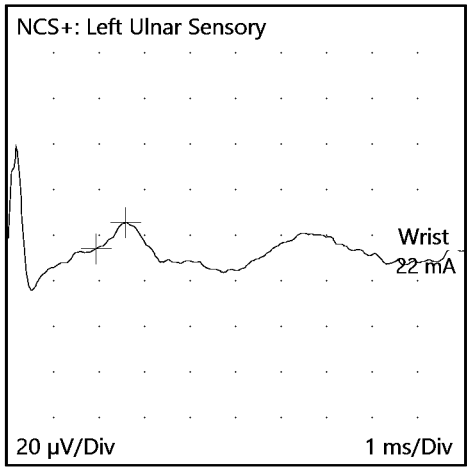


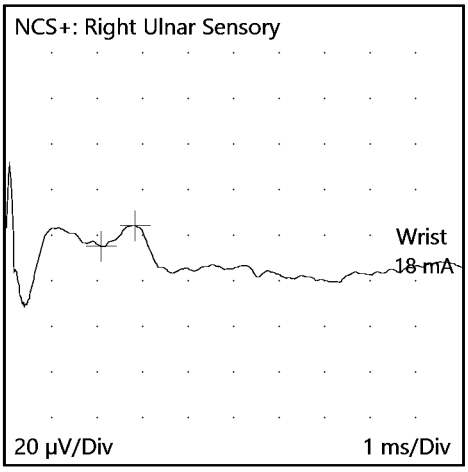


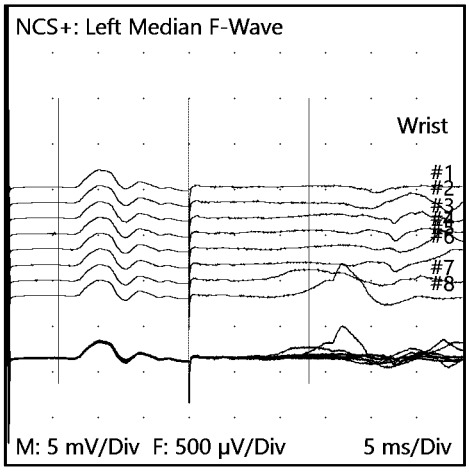


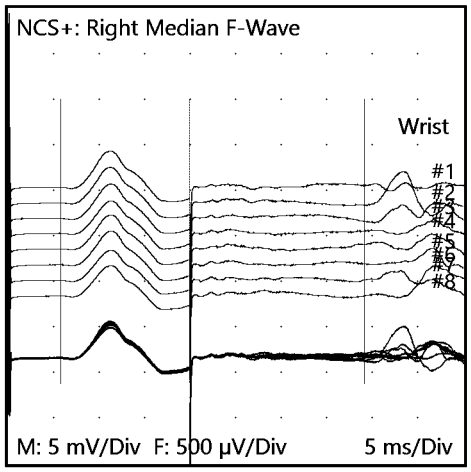


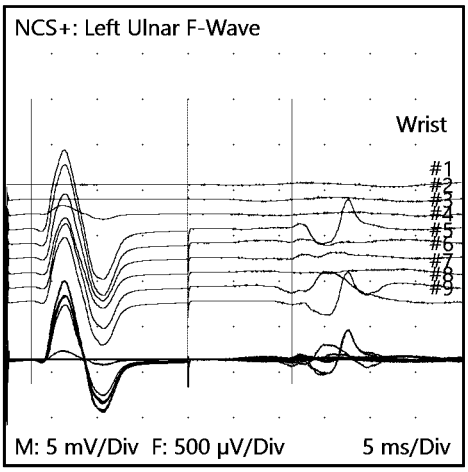


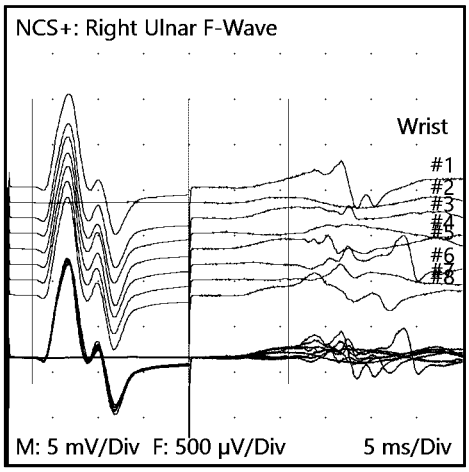

NCS+: Left Ulnar Sensory
Wrist
22 mA
20 µV/Div
1 ms/Div

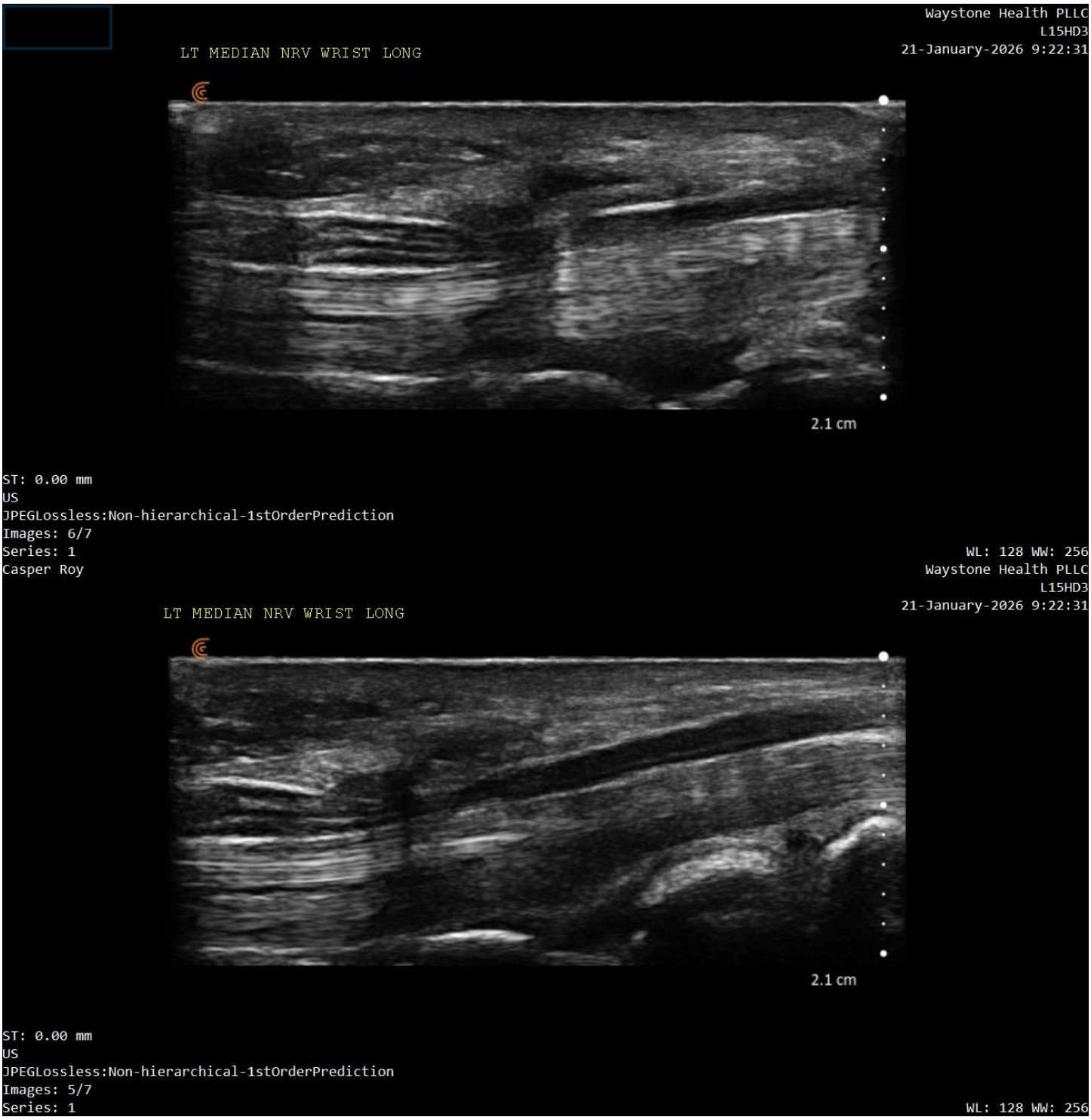

NCS+: Right Ulnar Sensory
Wrist
18 mA
20 µV/Div
1 ms/Div


NCS+: Left Median F-Wave
Wrist
#1
#2
#3
#4
#5
#6
#7
#8
M: 5 mV/Div F: 500 µV/Div
5 ms/Div


NCS+: Right Median F-Wave
Wrist
#1
#2
#3
#4
#5
#6
#7
#8
M: 5 mV/Div F: 500 µV/Div
5 ms/Div


NCS+: Left Ulnar F-Wave
Wrist
#1
#2
#3
#4
#5
#6
#7
#8
#9
M: 5 mV/Div F: 500 µV/Div
5 ms/Div


NCS+: Right Ulnar F-Wave
Wrist
#1
#2
#3
#4
#5
#6
#7
#8
M: 5 mV/Div F: 500 µV/Div
5 ms/Div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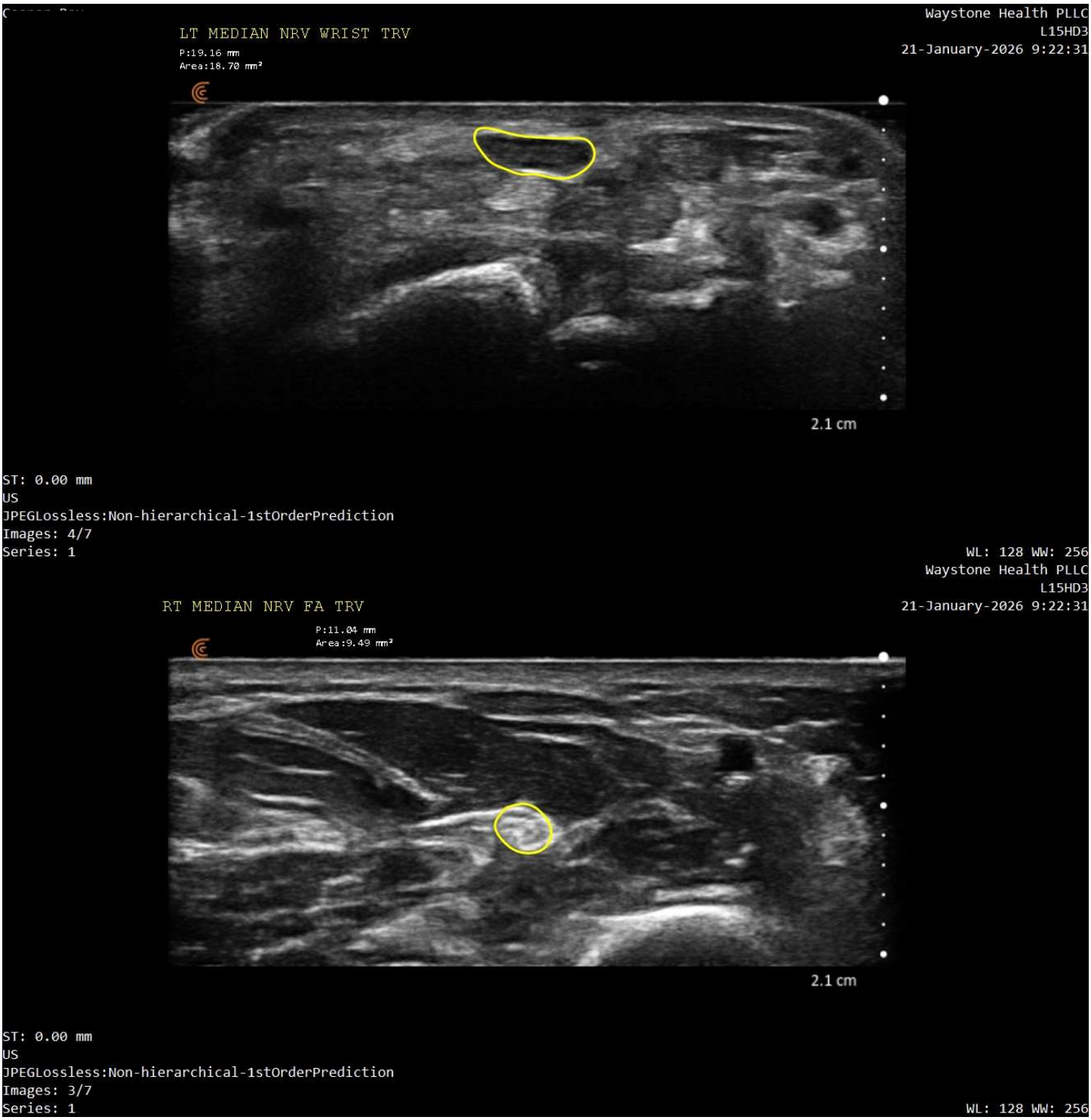
21-January-2026 9:22:31
LT MEDIAN NRV WRIST LONG
2.1 cm
ST: 0.00 mm
US
JPEGLossless:Non-hierarchical-1stOrderPrediction
Images: 6/7
Series: 1
WL: 128 WW: 256
Casper Roy
Waystone Health PLLC
L15HD3
21-January-2026 9:22:31
LT MEDIAN NRV WRIST LONG
2.1 cm
ST: 0.00 mm
US
JPEGLossless:Non-hierarchical-1stOrderPrediction
Images: 5/7
Series: 1
WL: 128 WW: 256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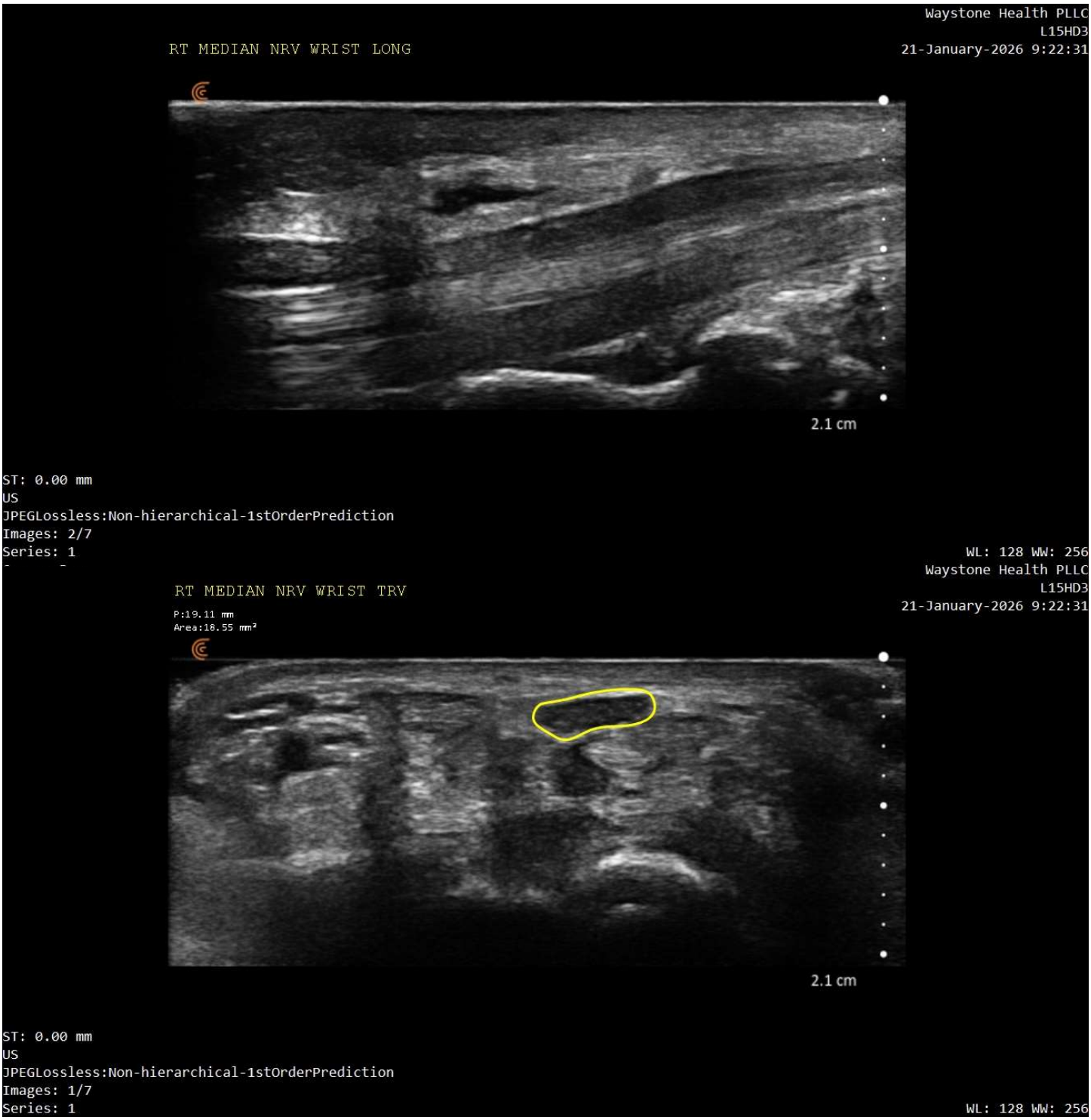
P:19.16 mm
Area:18.70 mm²
2.1 cm
ST: 0.00 mm
US
JPEGLossless:Non-hierarchical-1stOrderPrediction
Images: 4/7
Series: 1
WL: 128 WW: 256
Waystone Health PLLC
L15HD3
21-January-2026 9:22:31
RT MEDIAN NRV FA TRV
P:11.04 mm
Area:9.49 mm²
2.1 cm
ST: 0.00 mm
US
JPEGLossless:Non-hierarchical-1stOrderPrediction
Images: 3/7
Series: 1
WL: 128 WW: 256


Waystone Health PLLC
L15HD3
RT MEDIAN NRV WRIST LONG
21-January-2026 9:22:31
2.1 cm
ST: 0.00 mm
US
JPEGLossless:Non-hierarchical-1stOrderPrediction
Images: 2/7
Series: 1
WL: 128 WW: 256
Waystone Health PLLC
L15HD3
RT MEDIAN NRV WRIST TRV
21-January-2026 9:22:31
P:19.11 mm
Area:18.55 mm²
2.1 cm
ST: 0.00 mm
US
JPEGLossless:Non-hierarchical-1stOrderPrediction
Images: 1/7
Series: 1
WL: 128 WW: 256


Waystone Health PLLC
L15HD3
21-January-2026 9:22:31
LT MEDIAN NRV FA TRV
P:13.78 mm
Area:9.61 mm²
2.1 cm
ST: 0.00 mm
US
JPEGLossless:Non-hierarchical-1stOrderPrediction
Images: 7/7
Series: 1
WL: 128 WW: 256