INTEGRATED PAIN SPECIALISTS OF BOSTON

Advanced Pain Management & Neuromodulation Center

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PATIENT DEMOGRAPHICS

Patient Name: Thompson, Jessica Marie

Date of Birth: June 22, 1989 (Age: 35 years)

Medical Record Number: IPS-2024-3947

Encounter Date: September 25, 2024

Insurance Information: Medicare Part B | ID: 8QW-RT-5739B

Referring Physician: Dr. Patricia Nguyen, Hand Surgery Associates

CHIEF COMPLAINT

Severe chronic pain in right upper extremity, Complex Regional Pain Syndrome Type I, refractory to multiple interventions including spinal cord stimulation trial.

HISTORY OF PRESENT ILLNESS

Ms. Thompson is a 35-year-old right-hand-dominant female graphic designer presenting for evaluation of peripheral nerve stimulation for treatment-refractory CRPS Type I affecting her right upper extremity.

Timeline and Initial Presentation:

Pain syndrome began in January 2020 following a distal radius fracture (Colles' fracture) sustained during a fall while ice skating. Initial fracture was treated with closed reduction and casting for 6 weeks. Following cast removal in March 2020, patient developed progressive symptoms consistent with CRPS including severe burning pain, allodynia, temperature changes, color changes, and edema of the right hand and forearm.

CRPS Type I diagnosis was established in April 2020 based on Budapest Criteria, confirmed by multiple specialists including orthopedic surgery, neurology, and pain management. Three-phase bone scan performed May 2020 showed increased periarticular uptake consistent with CRPS.

Current Symptoms (4.5 years duration):

- Constant severe burning pain in right hand and forearm, baseline 7-8/10, peaks to 10/10 with activity
- Severe allodynia - unable to tolerate light touch, clothing, or temperature changes
- Right hand demonstrates mottled appearance with temperature asymmetry (typically cooler than left)
- Intermittent edema of right hand and wrist
- Limited range of motion all right hand digits and wrist due to pain
- Significant functional impairment - unable to perform graphic design work, difficulty with ADLs

Comprehensive Treatment History:

Pharmacological Interventions:

- Gabapentin: Titrated to 3600mg/day over 6 months (2020) - inadequate relief, discontinued due to sedation
- Pregabalin: 300mg BID for 8 months (2021) - minimal improvement, discontinued
- Duloxetine: 60mg daily for 5 months (2021) - insufficient pain control
- Amitriptyline: 75mg qhs for 4 months (2020) - intolerable side effects
- Lidocaine patches 5%: Daily application, minimal relief
- Topical ketamine/gabapentin compound cream: Used for 8 months, limited benefit
- Oral ketamine: Trial of low-dose oral ketamine 25mg TID for 3 months (2022) - minimal improvement

Interventional Procedures:

- Stellate ganglion blocks: Series of 4 blocks performed between May-August 2020 - temporary relief (3-5 days) only
- Bier blocks with lidocaine and ketorolac: 3 treatments (2021) - no sustained benefit
- Ketamine infusion therapy: Three separate infusion series
    - June 2021: 4-day inpatient infusion (max dose 0.5mg/kg/hr) - moderate relief for 6 weeks

    - October 2021: 4-day inpatient infusion - relief lasted 4 weeks only
    - March 2022: 5-day outpatient infusion - minimal sustained benefit (2 weeks)
- Spinal cord stimulator trial (cervical leads, C4-C6): January 2024
    - Trial placed at outside facility with dual 8-contact percutaneous leads
    - Multiple programming attempts over 10-day trial period
    - Patient reported only 25% pain reduction with optimal settings
    - Inadequate coverage of hand distribution
    - Trial deemed unsuccessful - permanent implant not pursued

Rehabilitation and Adjunctive Therapies:

- Physical therapy: 6 months intensive therapy (2020-2021) with CRPS protocol including desensitization, mirror therapy, graded motor imagery - limited progress due to severe allodynia
- Occupational therapy: 4 months (2021) focusing on ADL adaptation
- Pain psychology: Ongoing since 2020, CBT and acceptance-based therapy
- Acupuncture: 12 sessions (2022) - no improvement

Despite this extensive multimodal treatment regimen, patient's pain remains severe and functionally limiting. She is unable to work and requires assistance with basic ADLs including dressing, bathing, and food preparation.

PAST MEDICAL HISTORY

- Complex Regional Pain Syndrome Type I, right upper extremity (2020-present)
- History of distal radius fracture, right, status post closed reduction (January 2020)
- Migraine headaches (well-controlled on topiramate)
- Generalized anxiety disorder (stable on sertraline)

SURGICAL HISTORY

Closed reduction distal radius fracture (January 2020) - no other surgeries

CURRENT MEDICATIONS

Medication	Dose	Frequency	Indication
Pregabalin	150mg	BID	Neuropathic pain

Duloxetine	60mg	Daily	Neuropathic pain/anxiety
Sertraline	100mg	Daily	Anxiety
Topiramate	50mg	BID	Migraine prophylaxis
Lidocaine patch 5%	1 patch	Daily to affected area	Localized pain

ALLERGIES

Codeine (nausea), Morphine (severe nausea and vomiting)

SOCIAL HISTORY

Never smoker. Denies alcohol use. No history of illicit drug use. Previously worked as graphic designer - on long-term disability since 2021 due to inability to use right upper extremity. Single, lives alone with supportive family nearby. Bachelor's degree in graphic design. High level of frustration due to inability to pursue career and perform normal daily activities.

Substance Use Screening: Urine drug screen performed 9/20/2024 - negative for all substances including illicit drugs and non-prescribed medications. Prescription Drug Monitoring Program (PDMP) reviewed - no concerning patterns, only prescribed medications.

FAMILY HISTORY

Father: Hypertension, Type 2 diabetes. Mother: Rheumatoid arthritis. No family history of chronic pain syndromes or CRPS.

REVIEW OF SYSTEMS

Constitutional: Denies fever, chills, unintended weight loss. Reports fatigue related to chronic pain and poor sleep.
Cardiovascular: Denies chest pain, palpitations, edema (except affected extremity).
Respiratory: Denies shortness of breath, cough.
Neurological: Positive for chronic pain as described. Denies headaches (except history of migraines), seizures, syncope, weakness (except affected extremity), or sensory changes beyond affected extremity.

Psychiatric: History of anxiety, currently stable on medication. Denies current depression, though acknowledges frustration with pain condition. Denies suicidal ideation. Musculoskeletal: Positive for right upper extremity pain, limited ROM. No other joint pain. All other systems reviewed and negative.

PHYSICAL EXAMINATION

Vital Signs: BP 118/74 mmHg | HR 68 bpm | RR 14 | Temp 98.2°F | Weight 132 lbs | Height 5'6"

General: Alert, oriented x3, well-developed female in no acute distress, protecting right upper extremity

Right Upper Extremity (Affected):

- Inspection: Mottled, purplish discoloration of hand and distal forearm. Mild edema present. Skin appears smooth and shiny. Fingernails show increased vertical ridging.
- Palpation: Right hand noticeably cooler than left (temperature differential approximately 3°C). Severe allodynia - light touch to hand/forearm elicits significant pain response. No palpable masses or lymphadenopathy.
- Range of Motion: Significantly limited in all planes due to pain
  - Wrist: Flexion 20° (normal 80°), Extension 15° (normal 70°)
  - Fingers: MCP flexion 30-40° (normal 90°), limited PIP/DIP motion
  - Thumb: Limited opposition and abduction
- Strength: Difficult to assess secondary to pain; appears 3/5 in hand intrinsics and grip when patient attempts despite pain
- Vascular: Radial and ulnar pulses 2+ and symmetric. Capillary refill <2 seconds but asymmetric compared to left

Left Upper Extremity (Unaffected): Normal appearance, temperature, sensation, strength 5/5 throughout, full ROM

Neurological: Cranial nerves II-XII intact. Sensation intact to light touch in left upper extremity and bilateral lower extremities. Right upper extremity demonstrates allodynia as above, with hyperalgesia to pinprick. Deep tendon reflexes 2+ and symmetric bilaterally. Hoffman's and Babinski signs negative bilaterally. Gait normal.

DIAGNOSTIC STUDIES

Three-Phase Bone Scan (05/15/2020):
Findings consistent with CRPS. Increased periarticular uptake in right wrist and hand in delayed phase.

MRI Right Upper Extremity (08/10/2024):
Healed distal radius fracture. No evidence of acute fracture, infection, or mass. Mild soft tissue edema in hand and distal forearm consistent with CRPS. No nerve compression identified.

EMG/NCS Right Upper Extremity (07/18/2024):
No evidence of peripheral neuropathy, plexopathy, or radiculopathy. Median, ulnar, and radial nerve conduction studies within normal limits bilaterally. Needle EMG of right upper extremity muscles shows no evidence of denervation or myopathy.

Vascular Studies - Right Upper Extremity (06/22/2024):
Arterial duplex: Patent radial and ulnar arteries with normal flow. No evidence of thrombosis or significant stenosis.

Quantitative Sensory Testing (08/25/2024):
Marked hyperalgesia and allodynia in right C6-T1 distribution compared to left. Cold detection threshold abnormal on right.

PSYCHOLOGICAL EVALUATION

Evaluation Date: August 15, 2024
Evaluator: Dr. Rebecca Martinez, PhD, Licensed Clinical Psychologist
Location: Boston Pain Psychology Associates

Evaluation Summary:

Ms. Thompson underwent comprehensive psychological evaluation in preparation for consideration of peripheral nerve stimulation. Clinical interview, pain history, and standardized assessments were completed.

Assessment Tools Administered:

- Beck Depression Inventory-II (BDI-II): Score 18 (mild-moderate depression)
- Beck Anxiety Inventory (BAI): Score 16 (mild anxiety, consistent with known GAD diagnosis)

- Pain Catastrophizing Scale (PCS): Score 22 (within normal range)
- McGill Pain Questionnaire: Completed
- Minnesota Multiphasic Personality Inventory-2 (MMPI-2): Within normal limits

Clinical Impressions:

Patient demonstrates good psychological functioning despite significant chronic pain condition. Mild-moderate depressive symptoms are clearly related to pain-related functional limitations and loss of career. She has developed appropriate coping strategies through pain psychology treatment and maintains realistic expectations regarding neuromodulation outcomes. Strong family support system identified.

No evidence of substance abuse or misuse behaviors. Patient demonstrates excellent medication compliance and has not sought early refills or dose escalations. PDMP review confirms appropriate use of prescribed medications only.

Patient has realistic understanding that peripheral nerve stimulation may provide meaningful but likely not complete pain relief. She articulates appropriate goals including improved function and reduced pain intensity to allow for basic ADLs and potential return to modified work duties.

Psychological Clearance: CLEARED for peripheral nerve stimulation trial. Patient demonstrates appropriate psychological profile, realistic expectations, and good coping mechanisms. Recommend continued engagement with pain psychology throughout treatment process.

ASSESSMENT AND CLINICAL IMPRESSION

Primary Diagnosis: M89.071 - Complex Regional Pain Syndrome Type I of right upper extremity

Secondary Diagnoses:
- S52.501D - Unspecified fracture of the lower end of right radius, subsequent encounter for closed fracture with routine healing
- F41.1 - Generalized anxiety disorder
- G43.909 - Migraine, unspecified, not intractable, without status migrainosus

Ms. Thompson is a 35-year-old female with well-established diagnosis of CRPS Type I affecting her right upper extremity of 4.5 years duration. Her condition began following

distal radius fracture and has progressed despite exhaustive conservative and interventional treatment measures.

The complexity of this case is highlighted by the comprehensive nature of failed treatments including multiple medication trials, sympathetic blocks, ketamine infusions, physical and occupational therapy, and notably a failed spinal cord stimulation trial. The SCS trial in January 2024 provided only 25% pain relief with inadequate coverage of the hand distribution, making it an unsuccessful trial that would not warrant permanent implantation per standard criteria.

Given the specific anatomic distribution of her pain (median and ulnar nerve territories primarily), targeted peripheral nerve stimulation of the median and ulnar nerves represents a logical next step in her treatment algorithm. This approach may provide more specific coverage of the affected areas that was not achieved with spinal cord stimulation.

Patient meets all criteria for consideration of peripheral nerve stimulation trial: chronic pain duration >3 months (4.5 years), extensive failure of conservative treatments, absence of contraindications, completed psychological evaluation with clearance, no substance abuse issues, and appropriate indication (CRPS Type I upper extremity).

PATIENT EDUCATION AND COUNSELING

Extensive discussion held with patient over two separate visits (initial consultation 9/11/2024 and today 9/25/2024) regarding peripheral nerve stimulation as treatment option for her refractory CRPS.

Topics Discussed:

- Mechanism of action of peripheral nerve stimulation and how it differs from spinal cord stimulation
- Trial procedure details: percutaneous placement of electrodes along median and ulnar nerves under fluoroscopic guidance
- Trial duration (5-7 days) and importance of maintaining detailed pain diary
- Success criteria: ≥50% pain reduction and/or functional improvement
- Risks including infection (1-2%), lead migration (5-8%), bleeding, nerve injury (rare <1%), inadequate pain relief
- Alternative treatments including continued medical management, other interventional procedures, and potential for repeat ketamine infusions

- Realistic expectations: PNS may provide significant improvement but complete pain resolution unlikely
- If trial successful, permanent implant procedure would be considered
- Insurance coverage and authorization requirements

Patient was provided with written educational materials regarding peripheral nerve stimulation and CRPS treatment. All questions were answered to her satisfaction. She demonstrates excellent understanding of the procedure, risks, benefits, and alternatives. She expresses strong desire to proceed with trial given lack of other effective treatment options.

Informed consent will be obtained on day of procedure after final questions are addressed.

TREATMENT PLAN

Recommended Intervention: Percutaneous trial of peripheral nerve stimulation targeting right median and ulnar nerves

Specific Plan:

1. Proceed with PNS trial placement in ambulatory surgery center setting
2. Percutaneous placement of electrode arrays:
    - One lead along median nerve (proximal forearm)
    - One lead along ulnar nerve (proximal forearm)
3. Fluoroscopic guidance for precise anatomic placement
4. External trial stimulator for 5-7 day trial period
5. Patient to maintain hourly pain diary documenting:
    - Pain levels (0-10 scale)
    - Functional activities performed
    - Medication usage
    - Paresthesia coverage
6. Scheduled follow-up visit 7-10 days post-trial for:
    - Review of pain diary and outcomes
    - Lead removal
    - Determination of trial success
    - Discussion of permanent implant if trial successful
7. Continue current medications during trial period
8. Continue engagement with pain psychology

Success Criteria: ≥50% reduction in average daily pain scores and/or meaningful functional improvement (ability to perform ADLs with less assistance)

PHYSICIAN ASSESSMENT AND RECOMMENDATION

Patient presents with severe, refractory CRPS Type I right upper extremity with 4.5 years of chronic pain despite exhaustive multimodal treatment. Peripheral nerve stimulation trial is medically necessary and appropriate next intervention.

Procedure Authorization Requested:
CPT 64555 x 2 - Percutaneous implantation of neurostimulator electrode array; peripheral nerve (median and ulnar nerves, right upper extremity)

Place of Service: Ambulatory Surgery Center
Anticipated Date: Within 2-3 weeks of authorization

Attending Physician: Alexander J. Peterson, MD, FIPP
Board Certifications: Anesthesiology, Pain Medicine
Fellowship Training: Interventional Pain Medicine & Neuromodulation
NPI Number: 3456789012
DEA Number: AP3456789
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Electronic Signature: Alexander J. Peterson, MD
Date/Time: September 25, 2024 at 15:42 EST